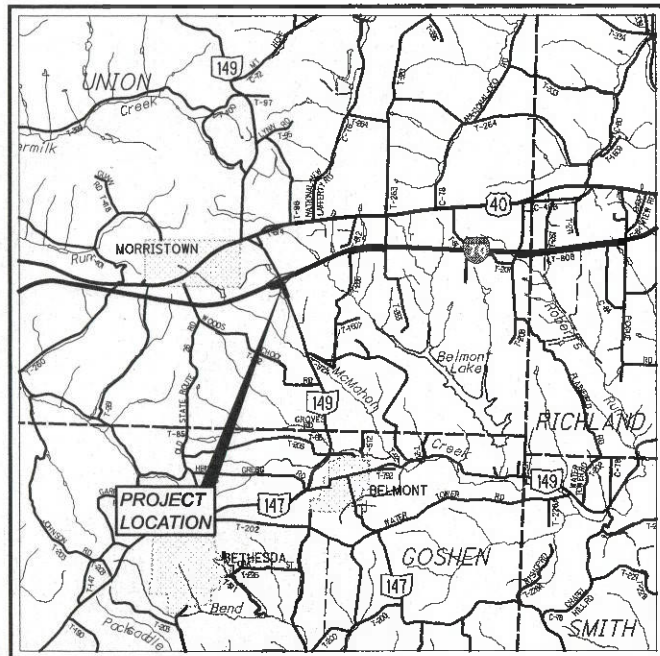


STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BEL-149-23.64

BELMONT COUNTY
UNION TOWNSHIP



LOCATION MAP

LATITUDE: 40°3'35" N LONGITUDE: 81°3'10" W



DESIGN DESIGNATION

	S.R. 149
CURRENT ADT (2022)	13500
DESIGN YEAR ADT (2042)	18000
DESIGN HOURLY VOLUME (2042)	1800
DIRECTIONAL DISTRIBUTION	70%
TRUCKS (24 HOUR B&C)	35%
DESIGN SPEED	45
LEGAL SPEED	45
DESIGN FUNCTIONAL CLASSIFICATION:	
05 - MAJOR COLLECTOR	
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days
Before You Dig

OHIO811.org
Before You Dig

OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:

O.D.O.T. DISTRICT 11
CAPITAL PROGRAMS - ENGINEERING
NEW PHILADELPHIA, OHIO

ENGINEER'S SEAL:



SIGNED: *DAH*
DATE: 11/17/2021

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STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS	
BP-2.1	7/17/15	F-3.4	7/19/13	HL-20.11	1/15/21	TC-12.31	7/16/21	TC-73.20	1/17/20	800-2019	10/15/21	WATERWAY	
BP-2.2	1/15/21			HL-30.11	1/15/21	TC-21.21	7/16/21	TC-81.22	7/16/21	809	1/15/21	PERMITS	
BP-3.1	1/17/20	MGS-1.1	7/16/21	HL-30.21	4/17/20	TC-41.10	7/19/13	TC-83.10	1/17/20	813	10/19/18	CONDITIONS	
BP-4.1	7/19/13	MGS-2.1	1/19/18	HL-30.22	1/15/21	TC-41.20	10/18/13	TC-83.20	7/21/17	825	1/17/20	8/23/21	
BP-5.1	7/16/21	MGS-4.2	7/19/13	HL-40.20	7/17/20	TC-41.30	10/18/13	TC-85.20	7/20/18	832	10/19/18		
				HL-60.11	7/21/17	TC-41.40	10/18/13			909	1/15/21		
CB-3	7/16/21	MH-3	7/16/21	HL-60.12	7/16/21	TC-41.41	7/19/19						
CB-3A	7/16/21			HL-60.31	1/17/20	TC-41.50	10/18/13						
		RM-4.2	4/17/20			TC-42.10	10/18/13						
DM-1.1	7/17/20			MT-97.10	4/19/19	TC-42.20	10/18/13						
DM-1.2	7/16/21	HW-1.1	7/20/18	MT-98.28	1/17/20	TC-52.10	10/18/13						
DM-4.3	1/15/16	HW-2.2	7/20/18	MT-101.60	1/17/20	TC-52.20	1/15/21						
DM-4.4	1/15/16			MT-101.70	1/17/20	TC-61.30	7/19/19						
				HL-10.11	1/15/21	MT-101.90	7/17/20	TC-65.10	1/17/14				
F-2.1	7/20/18			HL-10.12	1/20/17	MT-105.10	1/17/20	TC-65.11	7/21/17				
F-3.3	7/19/13			HL-10.13	4/17/20	MT-120.00	1/19/18	TC-71.10	7/16/21				

FEDERAL PROJECT NUMBER

E190(225)

RAILROAD INVOLVEMENT

NONE

PROJECT DESCRIPTION

IMPROVEMENT TO ±0.10 MILES OF S.R. 149 AND ±0.05 MILES OF EASTBOUND I.R. 70 EXIT RAMP AT THE INTERSECTION OF S.R. 149 AND I.R. 70 EASTBOUND ON/OFF RAMP AT I.R. 70 EXIT 208. THIS PROJECT INCLUDES NEW TRAFFIC SIGNAL HARDWARE, ANALYSIS OF THE SIGNAL TIMING AND PHASING THROUGH THE S.R. 149 CORRIDOR FROM I.R. 70 TO BOND DRIVE, AND ADDING RIGHT TURN LANES ON NORTHBOUND SR 149 AND THE EASTBOUND I.R. 70 EXIT RAMP.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 1.423 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.4 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 1.8 ACRES

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2019 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEET 8, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED: *Thomas J. Gray*
DATE: 11-17-2021 DISTRICT DEPUTY DIRECTOR

APPROVED: _____
DATE: _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

TITLE SHEET

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

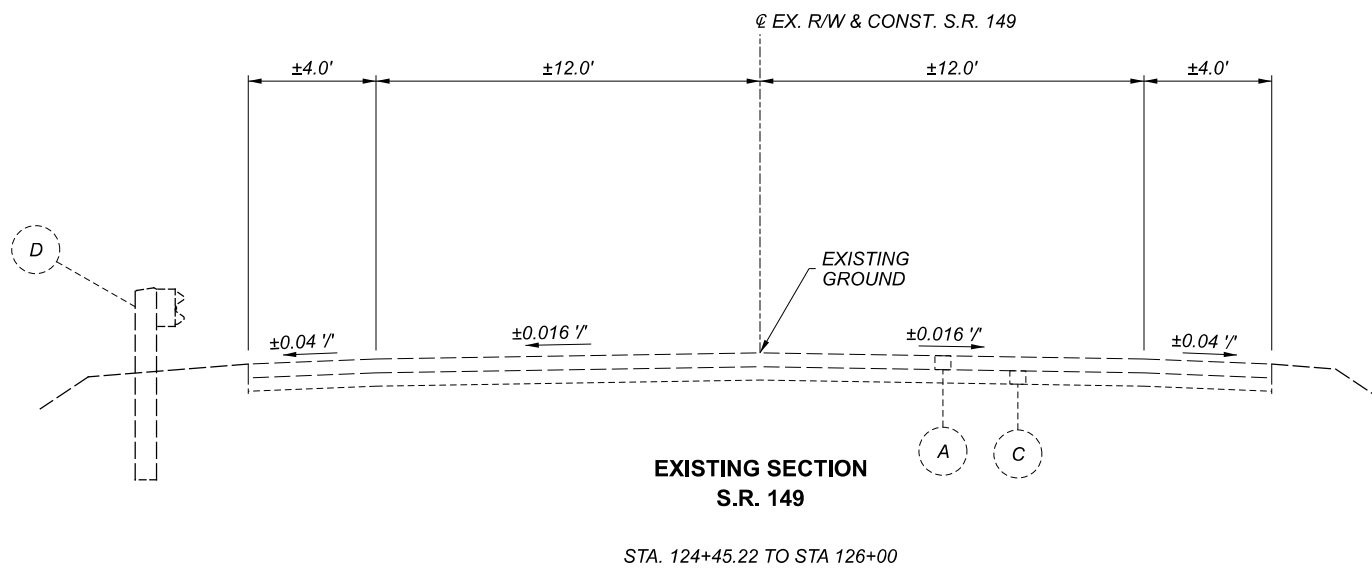
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SHEET TOTAL

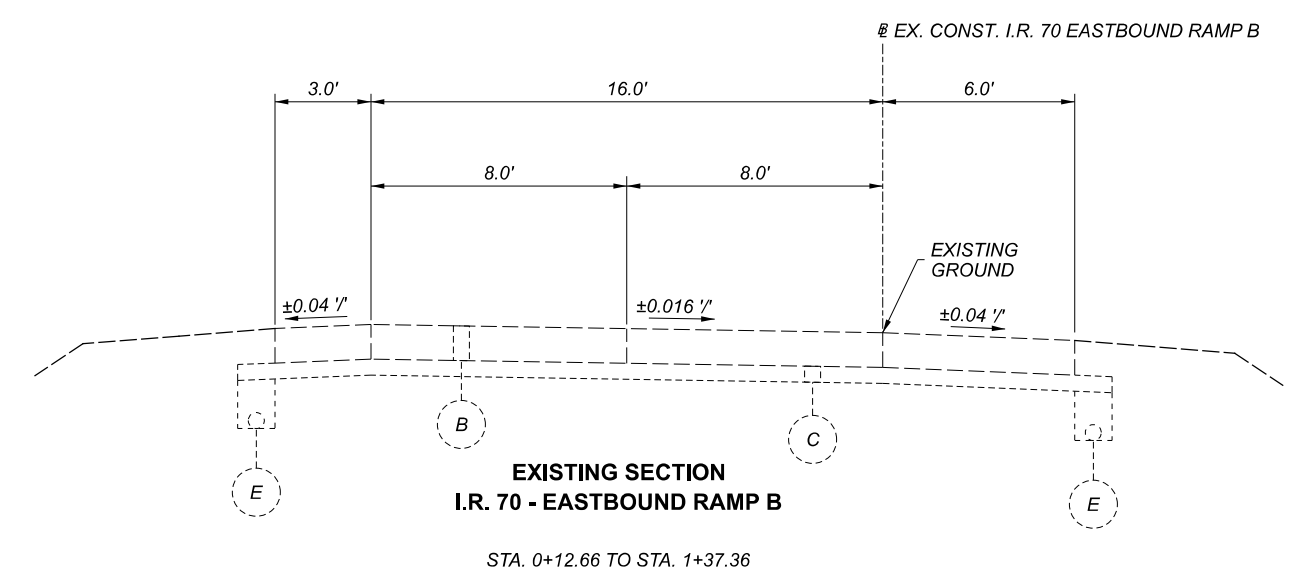
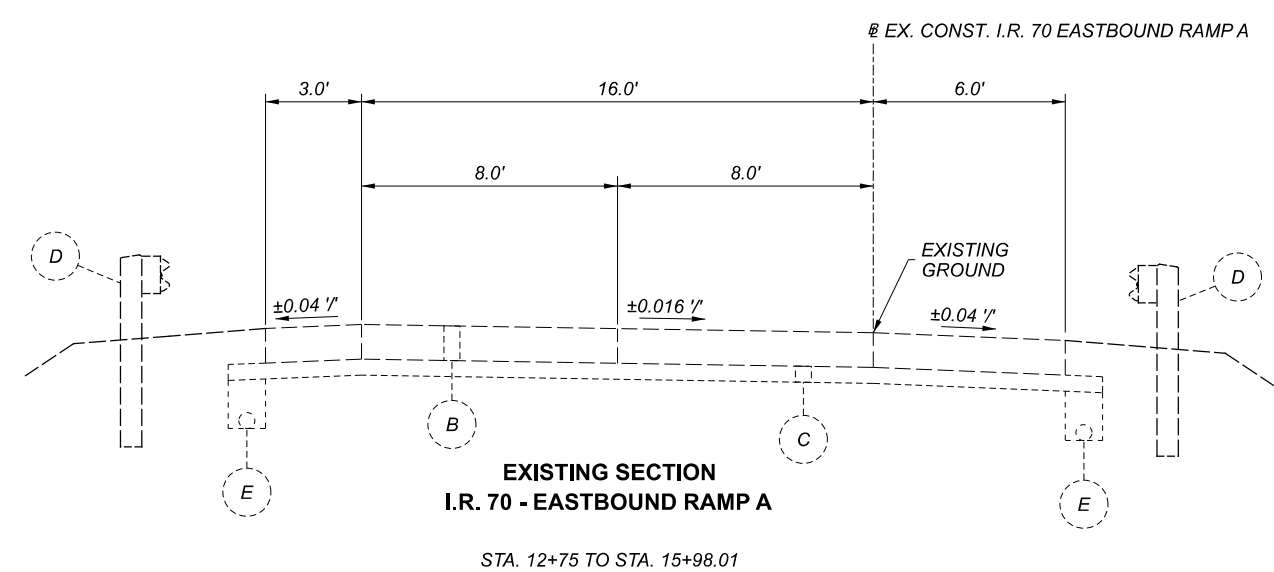
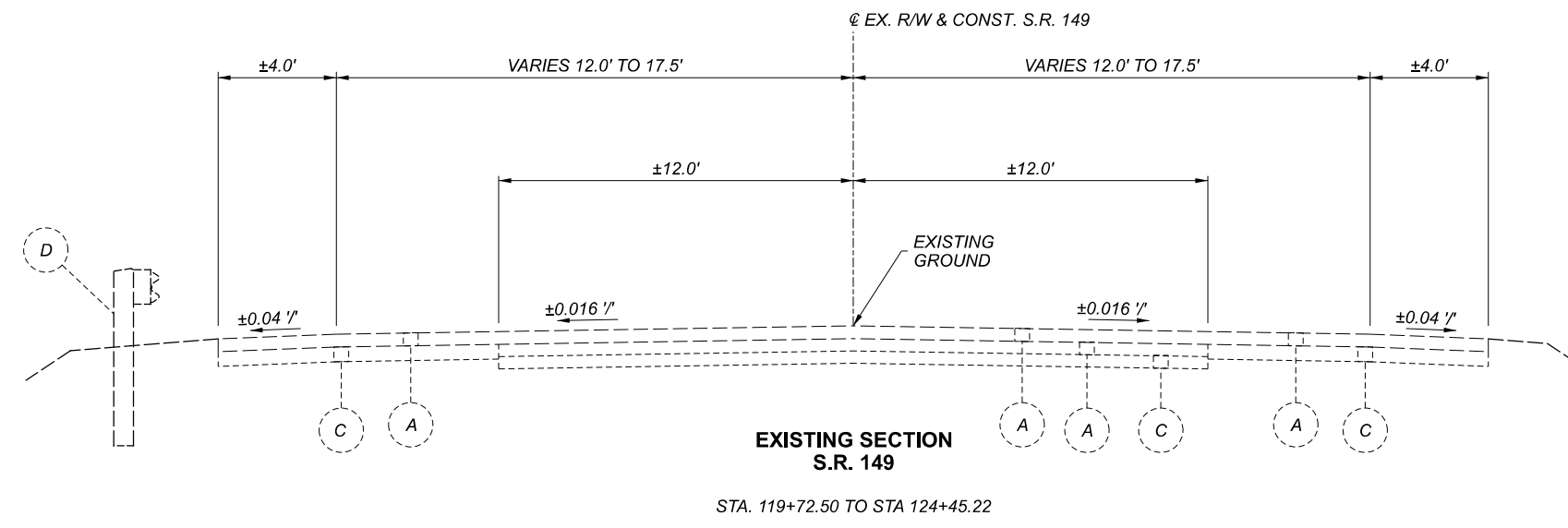
P.1 88

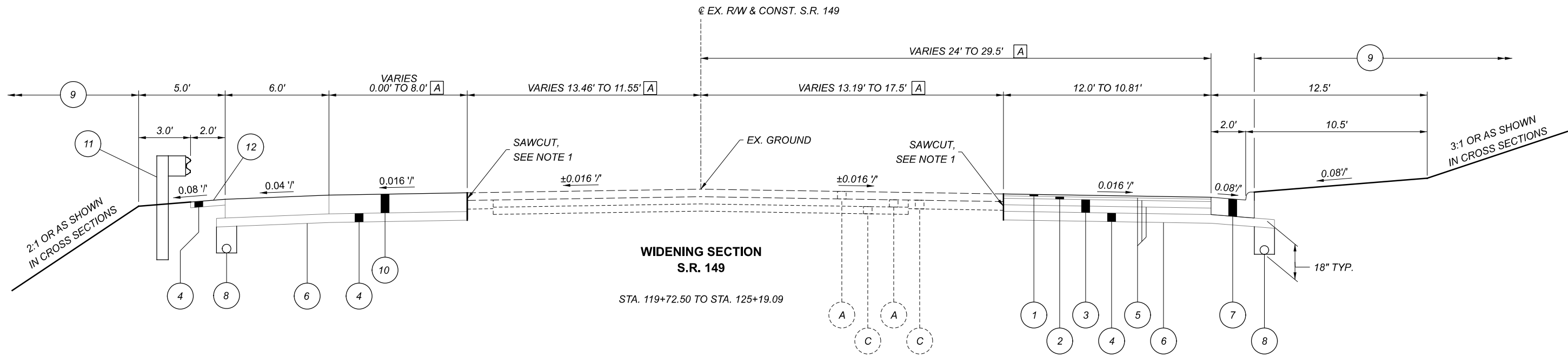
BEL-149-23.64

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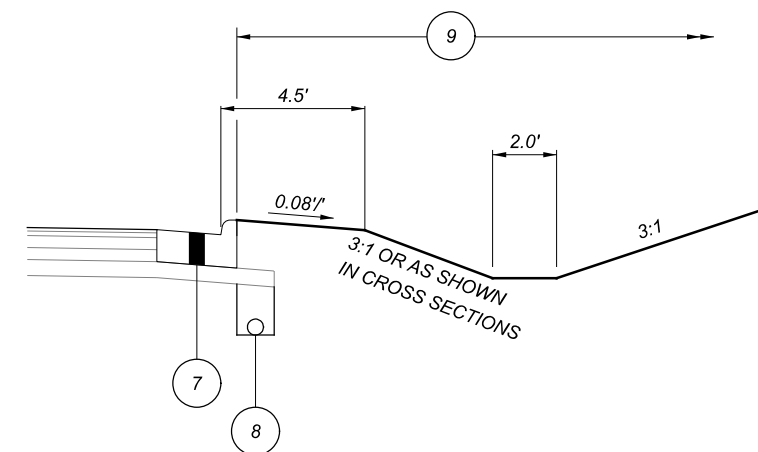
- EXISTING LEGEND**
- A --- EXISTING ±6" ASPHALT CONCRETE
 - B --- EXISTING 9" CONCRETE PAVEMENT
 - C --- EXISTING ±6" SUBBASE
 - D --- EXISTING GUARDRAIL
 - E --- EXISTING 6" UNDERDRAIN





PROPOSED LEGEND

- 1 — ITEM 441 - 1-1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN (PG70-22M)
- 2 — ITEM 441 - 1-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
- 3 — ITEM 301 - 8" ASPHALT CONCRETE BASE, PG64-22
- 4 — ITEM 304 - 6" AGGREGATE BASE
- 5 — ITEM 407 - TACK COAT
- 6 — ITEM 204 - SUBGRADE COMPACTION
- 7 — ITEM 609 - COMBINATION CURB AND GUTTER, TYPE 2
- 8 — ITEM 605 - 6" BASE PIPE UNDERDRAINS
- 9 — ITEM 659 - SEEDING AND MULCHING
- 10 — ITEM 452 - 13" NON-REINFORCED CONCRETE PAVEMENT CLASS QC 1P WITH QC/QA OR NON-REINFORCED CONCRETE PAVEMENT, MISC.: 13" THICK, CLASS QC/FS
- 11 — ITEM 606 - GUARDRAIL, TYPE MGS
- 12 — ITEM 408 - PRIME COAT, AS PER PLAN



NOTES:

1. SAWCUT THE EXISTING PAVEMENT TO PROVIDE A NEAT JOINT PER C&MS 202.05. PAYMENT FOR THIS WORK SHALL BE INCLUDED WITH ITEM 202 - PAVEMENT REMOVED.

[A] FOR DIMENSIONS AND TAPER DETAILS, SEE SHEET 52 - 53.

FOR EXISTING LEGEND SEE SHEET 2.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

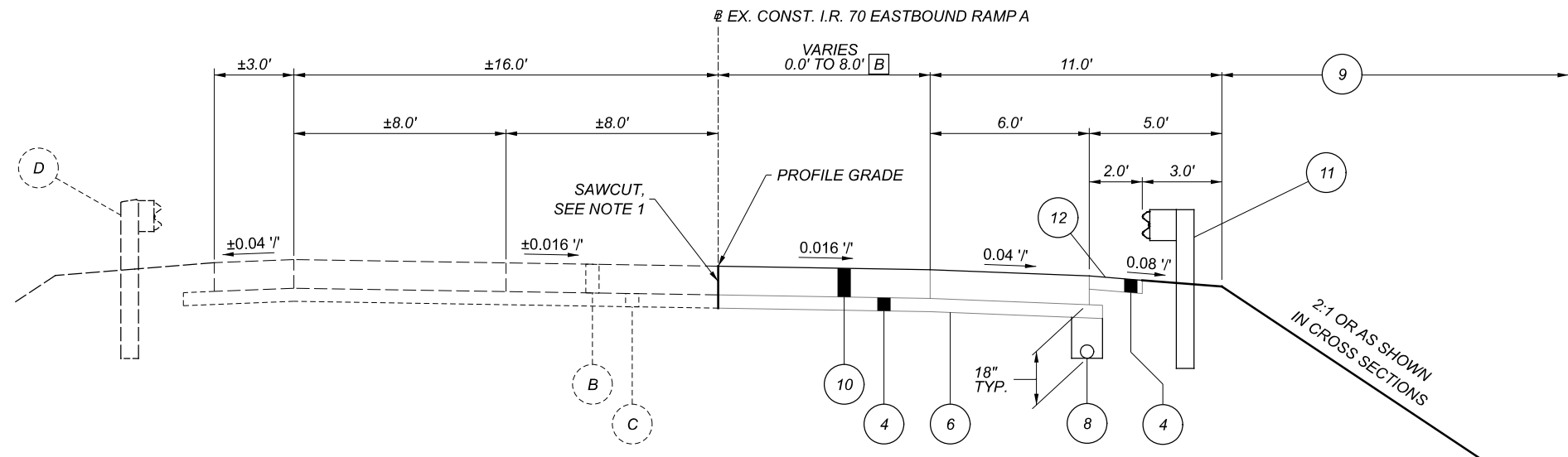
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PROJECT ID

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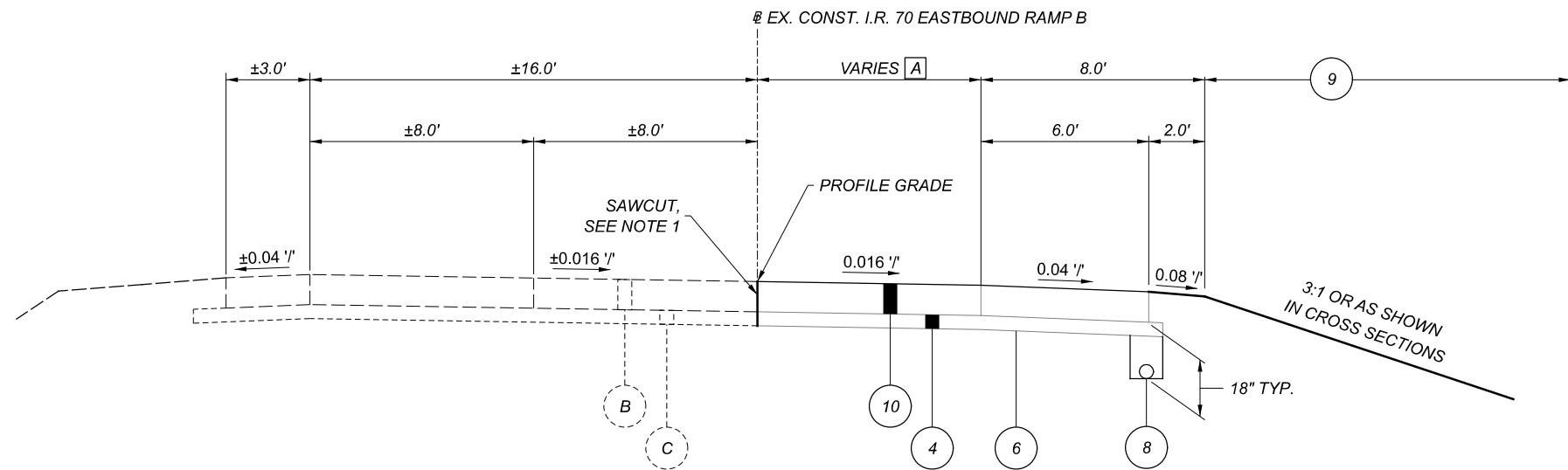
P.3 88



**WIDENING SECTION
I.R. 70 - EASTBOUND RAMP A**

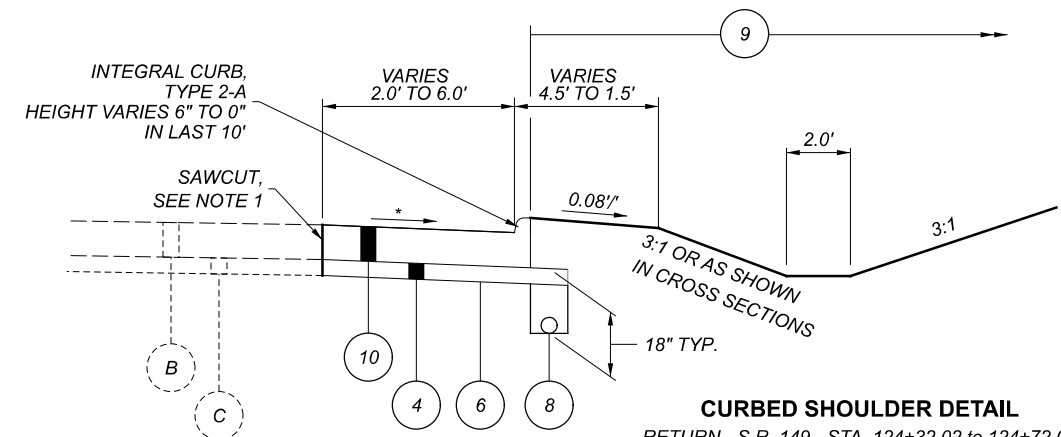
STA. 12+75 TO STA. 14+85.06
 STA. 14+85.06 TO STA. 15+98.01 (INTERSECTION RETURN)

FOR EXISTING LEGEND, SEE SHEET 2.
 FOR PROPOSED LEGEND SHEET, SEE SHEET 3.



**WIDENING SECTION
I.R. 70 - EASTBOUND RAMP B**

STA. 0+12.66 TO STA. 1+37.36 (INTERSECTION RETURN)



CURBED SHOULDER DETAIL

RETURN - S.R. 149 - STA. 124+32.02 TO 124+72.02

* - VARIES FROM 0.08 AT STA. 124+32.02 TO 0.06 AT STA. 124+72.02

NOTES:

1. SAWCUT THE EXISTING PAVEMENT TO PROVIDE A NEAT JOINT PER C&MS 202.05. PAYMENT FOR THIS WORK SHALL BE INCLUDED WITH ITEM 202 - PAVEMENT REMOVED.

- [A] FOR DIMENSIONS AND TAPER DETAILS, SEE SHEET 51.
- [B] VARIES FROM 0.0' AT STA. 12+75 TO 8.0' AT STA. 13+25
 8.0' FROM STA. 13+25.00 TO STA. 14+85.06
 VARIES FROM 8.0' AT STA. 14+85.06 TO 13.0' AT STA. 15+35.06

DESIGN AGENCY



DESIGNER
SAH

REVIEWER

DAH 11-15-21

PROJECT ID

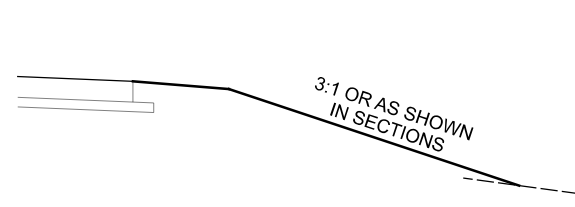
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SHEET

P.4

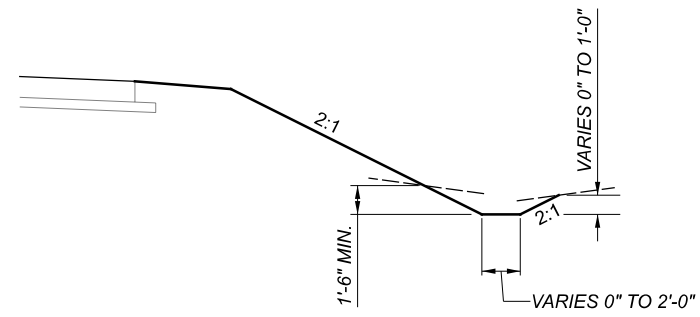
TOTAL

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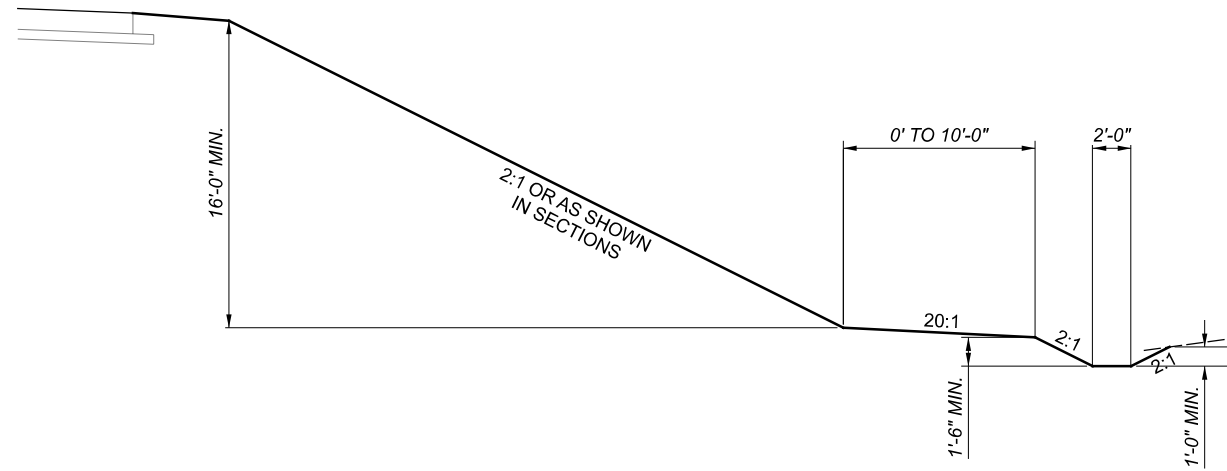
RAMP A

STA. 12+75 TO STA. 14+25



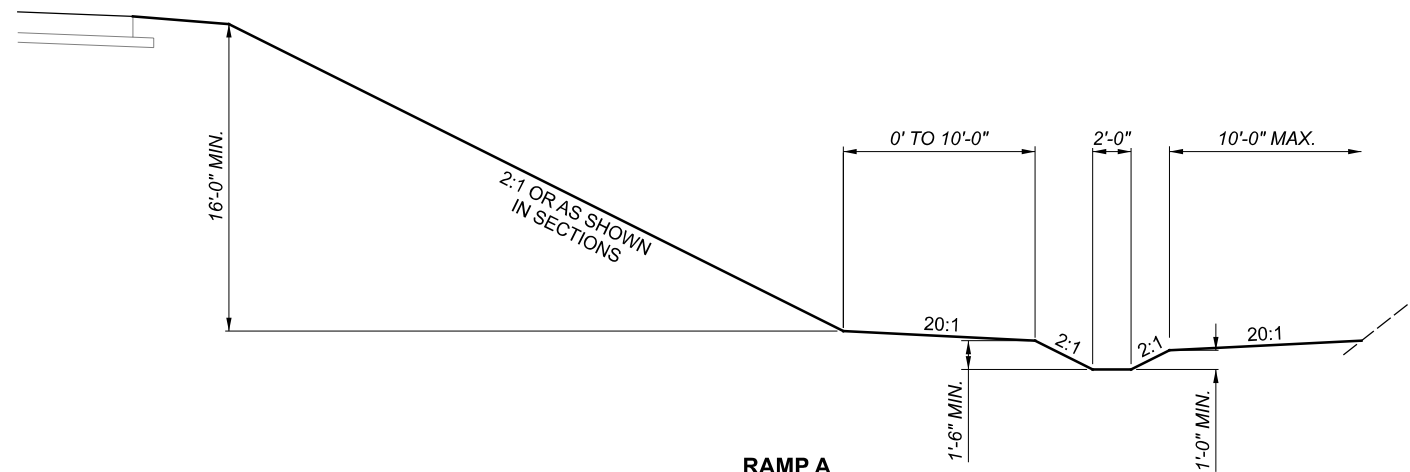
RAMP A

STA. 14+25 TO STA. 14+50



RAMP A

STA. 14+50 TO STA. 15+00



RAMP A

STA. 15+00 TO STA. 15+75

TYPICAL SECTION - SLOPE DETAIL

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

P.5 88

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AEP OHIO POWER COMPANY
ATTN: JEFF TURNER
P. O. BOX 99,
47687 NATIONAL ROAD
ST. CLAIRSVILLE, OHIO 43950
740-699-7845

AT&T OHIO, INC.
ATTN: BARRETT J. TAMOSIVICH
160 NORTH 6TH STREET
ZANESVILLE, OHIO 43701
740-454-3552

BELMONT COUNTY SANITARY SEWER DISTRICT
ATTN: BRIAN STREET
P.O. BOX 457
ST CLAIRSVILLE, OHIO 43950
(740) 695-3144

COLUMBIA GAS OF OHIO, INC.
ATTN: TIMOTHY SEECH
300 LURAY DRIVE
WINTERSVILLE, OHIO 43953
740-266-4282

WINDSTREAM
ATTN: JOHN MCDOWELL
32699 OLD NATIONAL ROAD
BARNESVILLE, OHIO 43713
OFFICE: 1-339-650-8302

COMCAST
ATTN: GENE HELMES
908 NATIONAL RD.
BRIDGEPORT, OH 43912
740-314-5397

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

THE OHIO DEPARTMENT OF TRANSPORTATION HAS UTILITY FACILITIES (HIGHWAY LIGHTING AND/OR TRAFFIC SIGNALS) WITHIN THE LIMITS OF THIS PROJECT.

IN ADDITION TO THE INFORMATION OUTLINED IN THIS CONTRACT, THE CONTRACTOR SHALL TAKE THE FOLLOWING ACTION TO PROTECT ODOT'S FACILITIES DURING CONSTRUCTION:

HIGHWAY LIGHTING AND/OR TRAFFIC SIGNALS: EVEN THOUGH ODOT IS LISTED AS A MEMBER OF THE OHIO UTILITIES PROTECTION SERVICE (OUPS), THE CONTRACTOR IS REQUIRED TO CONTACT ODOT DIRECTLY SO THAT THE ODOT UTILITIES LOCATED WITHIN THIS PROJECT ARE MARKED. THE CONTRACTOR SHALL NOTIFY THE ODOT PROJECT ENGINEER/PROJECT SUPERVISOR, FOURTEEN (14) CALENDAR DAYS IN ADVANCE OF ANY WORK, FOR THE NEED TO MARK ODOT OWNED UTILITIES.

THE ABOVE REQUIREMENTS ARE IN ADDITION TO SECTION 105.07 & 107.16 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE CONTRACTOR SHALL NOTIFY OTHER UTILITIES THROUGH OUPS OR DIRECTLY A MINIMUM OF FORTY-EIGHT HOURS IN ADVANCE OF ANY WORK.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS-SECTIONS, EVEN THOUGH OTHERWISE SHOWN.

EXISTING PLANS

THE FOLLOWING EXISTING PLANS ARE AVAILABLE FOR REFERENCE AT THE DISTRICT 11 OFFICE OF THE OHIO DEPARTMENT OF TRANSPORTATION, 2201 REISER AVE. S.E., NEW PHILADELPHIA, OHIO, 44663:

- BEL-149-(0.70-2.83) (1959)
- BEL-40-7.61 (1963)
- BEL-149-23.77, PID 76265 (2004)
- BEL-70-7.61, PID 76825 (2011)
- BEL-149-23.85, PID 99042 (2015)

IN ADDITION, THE EXISTING PLANS CAN BE FOUND ON THE DEPARTMENT'S WEBSITE AT THE FOLLOWING ADDRESS:
<http://www.dot.state.oh.us/pub/contracts/attach>

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE THIS SHEET FOR 'SURVEY CONTROL TABLE' CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

POSITIONING METHOD: ODOT VRS

MONUMENT TYPE: TYPE A

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: GEOID 12B

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 83 (2011)
ELLIPSOID: GRS 1980

MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, SOUTH ZONE
COMBINED SCALE FACTOR: 1.00004621
ORIGIN OF COORDINATE SYSTEM: (N 0,E 0)

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623.

UNITS ARE IN U.S. SURVEY FEET.

PART-WIDTH CONSTRUCTION

BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXERCISE CARE TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LAP LONGITUDINAL JOINTS AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

**ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN (PG70-22M)
ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), AS PER PLAN (PG64-22)**

THE CONTRACTOR SHALL FOLLOW THE SPECIFICATIONS OF CMS 703.05, EXCEPT DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED "SR" OR "SRH" AS DEFINED BY THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM OF WORK.

ENDANGERED BAT HABITAT REMOVAL

THE PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

ITEM 606 - ANCHOR ASSEMBLY, MGS TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 31 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, MGS TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, PROVIDE CONTRACTION JOINTS IN THE NEW CONCRETE TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

THE MAXIMUM DISTANCE BETWEEN THE JOINTS IN THE NEW CONCRETE ARE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2, IF NECESSARY, ADDITIONAL JOINTS MAY BE PROVIDED IN THE NEW CONCRETE AT APPROXIMATELY EQUAL INTERVALS BETWEEN EXISTING JOINTS THAT EXCEED THE MAXIMUM SPACING.

SURVEY CONTROL TABLE					
STATION	OFFSET	NORTHING	EASTING	ELEV.	REMARKS
S.R. 149 ~123+84.35	69.04	753495.966	2373749.998	1196.116	ODOT CAP LEVELED
S.R. 149 ~ 127+46.75	26.46	753171.408	2373918.287	1197.062	ODOT CAP LEVELED
S.R. 149 ~ 124+21.70	-36.63	753169.360	2373806.228	1192.234	ODOT CAP LEVELED
S.R. 149 ~ 118+95.50	-32.98	752677.811	2373994.069	1186.148	ODOT CAP LEVELED
S.R. 149 ~ 96+89.29	CL	750623.088	2374798.154	N/A	POT
S.R. 149 ~ 126+25.54	CL	753373.108	2373769.099	N/A	PC
S.R. 149 ~ 134+77.21	CL	754145.681	2373412.543	N/A	PT
RAMP A ~ 10+50.09	CL	753180.767	2373254.071	N/A	ST
RAMP A/RAMP B ~ 16+10.15 / 0+00	CL	753273.413	2373806.406	N/A	POT
RAMP B ~ 1+43.11	CL	753362.544	2373918.371	N/A	PC

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

P.6 88

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PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES

CONNECTIONS OF PROPOSED LONGITUDINAL DRAINAGE TO CORRUGATED METAL STRUCTURES SHALL BE MADE BY MEANS OF A SHOP FABRICATED OR FIELD WELDED STUB ON THE STRUCTURE. THE STUB SHALL MEET THE REQUIREMENTS OF 707 AND HAVE A MINIMUM LENGTH OF 2 FEET AND A MINIMUM WALL THICKNESS OF 0.064 INCHES.

THE LOCATION AND ELEVATION OF THE STUB ARE TO BE CONSIDERED APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER TO AVOID CUTTING THROUGH JOINTS IN THE STRUCTURE.

THE FIELD WELDED JOINT, IF USED, SHALL BE THOROUGHLY CLEANED AND REGALVANIZED OR OTHERWISE SUITABLY REPAIRED. WELDING SHALL MEET THE REQUIREMENTS OF 513.21.

A MASONRY COLLAR, AS PER STANDARD DRAWING DM-1.1, WILL BE REQUIRED TO CONNECT THE LONGITUDINAL DRAINAGE TO THE STUB, WHEN PIPE OTHER THAN CORRUGATED METAL IS PROVIDED FOR THE LONGITUDINAL DRAINAGE.

PAYMENT FOR CUTTING INTO THE STRUCTURE AND PROVIDING THE CONNECTION DESCRIBED, SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 611.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

ITEM 611 - PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN

THE PRECAST REINFORCED CONCRETE OUTLET AS SHOWN IN SCD DM-1.1 SHALL BE INSTALLED WITHOUT THE TIED CONCRETE BLOCK MAT, TYPE 1.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY ODOT FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

VEGETATED BIOFILTER

THIS PLAN UTILIZES VEGETATED BIOFILTER(S) FOR POST CONSTRUCTION STORM WATER TREATMENT. PLACE EITHER ITEM 660 SODDING OR ITEM 659 SEEDING AND MULCHING WITH A 4-INCH LIFT OF TOPSOIL AS SHOWN IN THE PLANS TO ANY DISTURBED AREA ON THE SHOULDER AND FORESLOPE DRAINING TO A VEGETATED BIOFILTER. THE DITCH FOR EACH VEGETATED BIOFILTER SHALL BE TRAPEZOIDAL, AS SHOWN IN THE PLAN CROSS SECTIONS. PROVIDE ITEM 670 AS SPECIFIED IN THE PLANS.

ITEM 408 - PRIME COAT, AS PER PLAN

THIS ITEM OF WORK SHALL BE PERFORMED IN ACCORDANCE WITH C&MS "ITEM 408 - PRIME COAT", EXCEPT THE CONTRACTOR SHALL APPLY "MC-70" AT A RATE OF 0.4 GALLONS PER SQUARE YARD, OR AS DETERMINED BY THE ENGINEER, TO THE COMPLETED COMPACTED AGGREGATE SHOULDER, AS PER PLAN.

ITEM 452 - NON-REINFORCED CONCRETE PAVEMENT, MISC.: 13" THICK, CLASS QCFS

WORK SHALL BE PERFORMED USING 13" THICK NON-REINFORCED CONCRETE PAVEMENT PER C&MS 642 USING USING FAST SET CONCRETE.

ITEM 253 - PAVEMENT REPAIR

ODOT SHALL PERFORM A FINAL FIELD REVIEW PRIOR TO CONSTRUCTION AND AT THAT TIME, THE ENGINEER WILL DETERMINE AND MARK THE SIZE AND LOCATION FOR EACH REPAIR FOR THE CONTRACTOR. FINAL PAYMENT FOR THESE LOCATIONS SHALL BE FOR THE ACCEPTED QUANTITY COMPLETED IN PLACE. IDENTIFIED LOCATIONS SHOULD INCLUDE THE UTILITY CROSSING REPLACEMENT NEAR STATION 120+60.

IF NECESSARY, AN AGGREGATE DRAIN SHALL BE INSTALLED IN ACCORDANCE WITH CMS 605.07.

ALL PAVEMENT REPAIRS ARE TO BE COMPLETED PRIOR TO THE PAVING OPERATIONS.

THIS ITEM OF WORK SHALL ADHERE TO THE REQUIREMENTS DETAILED IN CMS 253 AND CONFORM TO THE 'PAVEMENT REPAIR TYPICAL' DETAIL ON THIS SHEET. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 253 PAVEMENT REPAIR. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 253 - PAVEMENT REPAIR	43	CU YD
ITEM 605 - AGGREGATE DRAINS	70	FT

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS CARRIED FROM THE EARTHWORK AND SEEDING TABLE ON THIS SHEET:

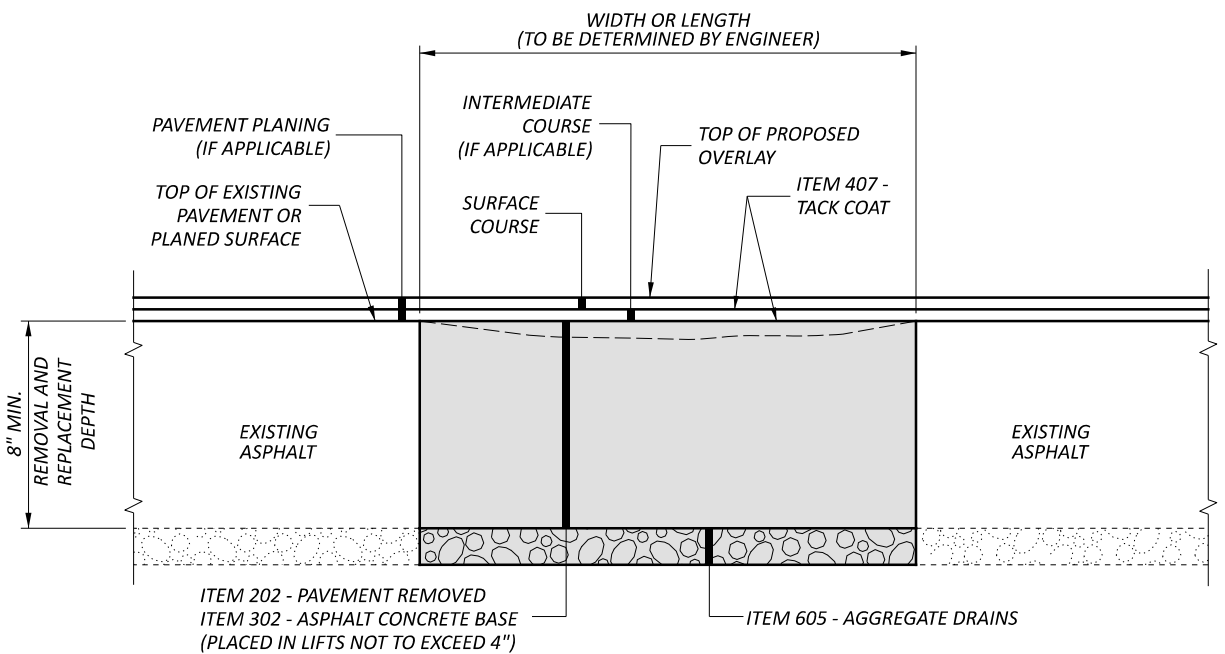
659, SOIL ANALYSIS TEST 353 x 1/10000 = 0.035	2 EACH
659, TOPSOIL 3180 SY x 111 CY/1000 SY = 352.98	353 CU. YD.
659, REPAIR SEEDING AND MULCHING 3180 X 0.05 = 159	159 SQ. YD.
659, COMMERCIAL FERTILIZER 3180 X 9 X 30/1000 /2000 = 0.43	0.43 TON
659, LIME 3180 X 9/43560 = 0.66	0.66 ACRES
659, WATER 3180 X 9 X 300/1000 X 2/1000 = 17.17	18 M. GAL.

APPLY SEEDING AND MULCHING TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A W-BEAM, BEAM SPLICE AS SHOWN IN AASHTO M 180-12, EXCEPT THE BEAM WASHERS ARE NOT TO BE USED. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

EARTHWORK AND SEEDING TABLE			
SHEET NO.	203		659
	EXCAVATION CY YD	EMBANKMENT CU YD	SEEDING AND MULCHING SQ YD
S.R. 149			
29	10	0	24
30	38	1	132
31	27	4	132
32	41	0	132
33	44	0	139
34	31	4	136
35	90	7	214
36	179	127	349
37	53	45	79
RAMP A			
41	5	0	29
42	25	10	112
43	14	47	143
44	22	166	282
45	86	344	389
46	46	465	387
RAMP B			
47	44	3	67
48	136	3	257
49	51	1	177
TOTAL CARRIED TO GENERAL SUMMARY	942	1227	3180



PAVEMENT REPAIR TYPICAL

GENERAL NOTES

DESIGN AGENCY	SAH
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
SHEET	106789
TOTAL	P.7
	88

ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF ONE (1) LANE(S) OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT OR THE COMPLETED PAVEMENT. TURN MOVEMENT RESTRICTIONS SHALL BE PERMITTED AS INDICATED IN THE "DETOUR TABLE" BELOW AND AS SHOWN ON SHEETS 11 - 14. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT PROVIDED IN THE DETOUR TABLE FOR EACH CALENDAR DAY THE TRAFFIC IS DETOURED FOR DESIGNATED TURN MOVEMENT.

DETOUR TABLE		
LOCATION	DETOUR DURATION	DISINCENTIVE \$ PER TIME UNIT
RAMP A TO SB 149	3 DAYS	\$6,600 PER DAY
NB 149 TO RAMP B	10 DAYS	\$3,600 PER DAY

DETOUR OF EASTBOUND RAMP A RIGHT TURN TRAFFIC TO SOUTHBOUND S.R. 149 WILL BE PERMITTED ONLY DURING WEEKEND AND OVERNIGHT HOURS FROM 7:00 PM ON FRIDAY UNTIL 6:00 AM ON MONDAY.

NO WORK SHALL BE PERFORMED AND ALL LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	FOURTH OF JULY
NEW YEARS	LABOR DAY
MEMORIAL DAY	THANKSGIVING
BLAME MY ROOTS FESTIVAL	

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	6:00AM WEDNESDAY THROUGH 6:00AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00AM MONDAY

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE RESTRICTION REQUIREMENTS FOR S.R. 149, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE OF \$2,000 FOR EACH HOUR THE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE RESTRICTION REQUIREMENTS FOR THE RAMP B ENTRANCE, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE OF \$150 FOR EACH HOUR THE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

SHOULD THE CONTRACTOR FAIL TO MEET ANY OF THE RESTRICTION REQUIREMENTS FOR THE RAMP B ENTRANCE, THE CONTRACTOR SHALL BE ASSESSED A DISINCENTIVE OF \$150 FOR EACH HOUR THE DESCRIBED LANE CLOSURE RESTRICTIONS ARE VIOLATED.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

ITEM 614, MAINTAINING TRAFFIC (NOTICE OF CLOSURE SIGN)

NOTICE OF CLOSURE SIGNS (W20-H13) SHALL BE ERECTED BY THE CONTRACTOR PRIOR TO THE SCHEDULED ROAD OR RAMP CLOSURE IN ACCORDANCE WITH THE NOTICE OF CLOSURE TIME TABLE BELOW. [AT THE APPROVAL OF THE ENGINEER, PORTABLE CHANGEABLE MESSAGE SIGNS MAY BE USED IN LIEU OF THE STANDARD FLATSHEET SIGN FOR CLOSURE DURATIONS OF LESS THAN 1 WEEK.]

THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD/RAMP FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT OR NEAR THE POINT OF CLOSURE. THE SIGNS MAY BE ERECTED ANYWHERE ON RAMPS AS LONG AS THEY ARE VISIBLE TO THE MOTORISTS USING THE RAMP. ON ENTRANCE RAMPS, THE SIGN SHALL BE ERECTED WELL IN ADVANCE OF THE MERGE AREA TO AVOID DISTRACTING MOTORISTS.

NOTICE OF CLOSURE SIGN TIME TABLE		
ITEM	DURATION	SIGN DISPLAYED TO PUBLIC
RAMP & ROAD CLOSURES	≥ 2 WEEKS	14 CALENDER DAYS PRIOR TO CLOUSRE
	> 12 HOURS & < 2 WEEKS	7 CALENDER DAYS PRIOR TO CLOSURE
	≤ 12 HOURS	2 BUSINESS DAYS PRIOR TO CLOSURE

THE SIGN SHALL DISPLAY THE DATE OF THE CLOSURE IN MMM-DD FORMAT AND THE NUMBER OF DAYS OF THE CLOSURE. THE LAST LINE OF THE W20-H13 SIGN LISTS A PHONE NUMBER WHICH A MOTORIST MAY CALL FOR ADDITIONAL INFORMATION. THIS IS TO BE A SPECIFIC OFFICE WITHIN THE DISTRICT RATHER THAN THE

SEQUENCE OF CONSTRUCTION

PHASE 1 - I.R. 70 EASTBOUND RAMP A
PLACE MAINTENANCE OF TRAFFIC DEVICES AS SHOWN ON SHEET 17 - 18 PRIOR TO STARTING CONSTRUCTION.

MAINTAIN A MINIMUM OF ONE 11' LANE OF TRAFFIC FOR THE EASTBOUND I.R. 70 EXIT RAMP A UTILIZING EXISTING PAVEMENT AND EXISTING SHOULDER.

MAINTAIN ONE 11' LANE OF TRAFFIC IN EACH DIRECTION ON S.R. 149 UTILIZING EXISTING PAVEMENT AND SHOULDER.

PART 1
PRIOR TO REMOVING EXISTING GUARDRAIL AROUND RADIUS OF S.R. 149 & RAMP A INTERSECTION, PERFORM WORK TO EXTEND CULVERTS, PLACE EMBANKMENT, AND PROVIDE GRADING UP TO THE PROPOSED PAVEMENT BASE. PERFORM ALL PAVEMENT WORK THROUGH STA. 15+30. PLACE PORTABLE BARRIER IN LOCATION SHOWN FOR PART 2 IN PLANS.

PART 2 - RAMP A & S.R. 149 RETURN PAVEMENT
PERFORM REMOVAL AND REPLACEMENT OF ALL PAVEMENT IN THE INTERESECTION RETURN AREA AS SHOWN ON SHEET 18 DURING WEEKEND AND NIGHT TIME HOURS, 7:00 PM ON FRIDAY UNTIL 6:00 AM ON MONDAY. WORK WILL BE SUBJECT TO TRENCH DROPOFF REQUIREMENTS AND SHALL BE PERFORMED CONTINUOUSLY OR ADEQUATE TRENCHING SHALL BE PROVIDED PER 'OVERNIGHT TRENCH CLOSING' NOTE. UTILIZE LEO'S FOR RESTRICTING RIGHT TURN TRAFFIC DURING OPERATIONS.

PERFORM ALL REMAINING WORK FOR PHASE 1.

MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES. COORDINATE ACCESS RESTRICTIONS WITH LOCAL PROPERTIES AS DIRECTED IN "COORDINATION OF DRIVEWAY ACCESS" NOTE.

(CONTINUED...)

SEQUENCE OF CONSTRUCTION (CONT.)

PHASE 2 - S.R. 149
PLACE MAINTENANCE OF TRAFFIC DEVICES PRIOR TO STARTING PHASE 2 AS SHOWN ON SHEET 19 - 20.

MAINTAIN ONE 11' LANE OF TRAFFIC IN EACH DIRECTION ON S.R. 149 UTILIZING PAVEMENT PLACED DURING PHASE 1, EXISTING PAVEMENT, AND EXISTING SHOULDER.

PART 1
PERFORM ALL WORK THROUGH STA. 124+30, CONSTRUCT CULVERT EXTENSION, PERFORM GRADING UP TO PROPOSED PAVEMENT BASE AROUND RAMP B RETURN.

ANY STORM SEWER WORK IN THE VICINITY OF THE PILOT DRIVEWAY (NEAR STA. 119+72.50) SHALL BE PERFORMED DURING OVERNIGHT HOURS AND SHALL BE PERFORMED CONTINUOUSLY UNTIL TRAFFIC CAN BE RESTORED TO THE ACCESS DRIVE.

PART 2 - S.R. 149 & RAMP B RETURN
PERFORM REMOVAL AND REPLACEMENT OF ALL PAVEMENT IN THE INTERESECTION AREA FROM STA. 124+30. UTILIZE A 7 DAY RESTRICTION OF RIGHT TURN ONTO RAMP B. WORK WILL BE SUBJECT TO TRENCH DROPOFF REQUIREMENTS AND SHALL BE PERFORMED CONTINUOUSLY OR ADEQUATE TRENCHING SHALL BE PROVIDED PER 'OVERNIGHT TRENCH CLOSING' NOTE. UTILIZE LEO'S FOR RESTRICTING RIGHT TURN TRAFFIC DURING OPERATIONS.

PERFORM ALL REMAINING WORK FOR PAHSE 2.

MAINTAIN ACCESS TO ALL PROPERTIES AT ALL TIMES. COORDINATE ACCESS RESTRICTIONS WITH LOCAL PROPERTIES AS DIRECTED IN "COORDINATION OF DRIVEWAY ACCESS" NOTE.

DELINEATION OF PORTABLE AND PERMANENT BARRIER

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL; AND, ON PERMANENT CONCRETE BARRIER (INCLUDING BRIDGE PARAPETS) LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE.

BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THE SPACING SHALL BE AS PER TRAFFIC SCD MT-101.70. OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614.03 AND SCD MT-101.70. WHEN THE PB CONTAINS GLARE SCREEN, ONE SET OF THREE VERTICAL STRIPES OF SHEETING SHALL BE CONSIDERED EQUIVALENT TO AN OBJECT MARKER, ONE-WAY.

INCREASED BARRIER DELINEATION, AS SPECIFIED HEREIN, SHALL BE INSTALLED ON ALL PB AND PERMANENT CONCRETE BARRIER LOCATED WITHIN 5 FEET OF THE EDGE OF THE TRAVELED LANE UNDER EITHER OF THE FOLLOWING CONDITIONS: ALONG TAPERS AND TRANSITION AREAS; OR ALONG CURVES (OUTSIDE ONLY) WITH DEGREE OF CURVATURE GREATER THAN OR EQUAL TO 3 DEGREES.

THE INCREASED BARRIER DELINEATION SHALL CONSIST OF EITHER DELINEATION PANELS OR THE TRIPLE STACKING OF WORK ZONE BARRIER REFLECTORS.

DELINEATION PANELS SHALL CONSIST OF PANELS OF DELINEATION, APPROXIMATELY 34 INCHES LONG AND 6 INCHES WIDE AND SHALL BE "CRIMPED." PANELS SHALL BE INSTALLED AND SPACED PER TRAFFIC SCD MT-101.70.

DELINEATION OF PORTABLE AND PERMANENT BARRIER (CONT.)

TRIPLE-STACKED BARRIER REFLECTORS SHALL CONSIST OF ALIGNING THREE BARRIER REFLECTORS VERTICALLY, AT LOCATIONS WHERE A SINGLE BARRIER REFLECTOR WOULD BE OTHERWISE ATTACHED. THERE SHALL BE NO OPEN SPACE BETWEEN THE ADJACENT BARRIER REFLECTORS. THE TRIPLE-STACKED BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THEY SHALL BE SPACED AND ALIGNED PER TRAFFIC SCD MT-101.70.

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

ALONG RUNS OF INCREASED BARRIER DELINEATION WHERE THIS ITEM IS PROVIDED, THE QUANTITY SHALL BE MEASURED AS THE ENTIRE LENGTH OF THE RUN OF INCREASED BARRIER DELINEATION, INCLUDING THE SPACES BETWEEN THE INDIVIDUAL DELINEATION PANELS OR STACKS OF BARRIER REFLECTORS.

NOTIFICATION OF TRAFFIC RESTRICTIONS

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW TO INFORM THE SPECIAL HAULING PERMITS SECTION (Hauling.Permits@dot.ohio.gov) AND THE DISTRICT PUBLIC INFORMATION OFFICE (PIO). THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

INFORMATION SHOULD INCLUDE, BUT IS NOT LIMITED TO, ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, NUMBER OF LANES CLOSED, MINIMUM VERTICAL CLEARANCE, MINIMUM WIDTH OF DRIVABLE PAVEMENT, DETOUR ROUTES, IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER.

NOTIFICATION TIME TABLE		
ITEM	DURATION OF CLOSURE	NOTICE DUE TO PERMITS & PIO
RAMP & ROAD CLOSURES	≥ 2 WEEKS	21 CALANDAR DAYS PRIOR TO CLOSURE
	> 12 HOURS & < 2 WEEKS	14 CALANDAR DAYS PRIOR TO CLOSURE
	≤ 12 HOURS	4 BUSINESS DAYS PRIOR TO CLOSURE
LANE CLOSURES & RESTRICTIONS	≥ 2 WEEKS	14 CALANDAR DAYS PRIOR TO CLOSURE
	< 2 WEEKS	5 BUSINESS DAYS PRIOR TO CLOSURE
START OF CONSTRUCTION & TRAFFIC PATTERN CHANGES	N/A	14 CALANDAR DAYS PRIOR TO IMPLEMENTATION

ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER USING THE NOTIFICATION TIME TABLE.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET

P.8

TOTAL

88

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

THE PROBABLE PCMS LOCATIONS AND WORK LIMITS FOR THOSE LOCATIONS ARE SHOWN ON SHEETS 11 - 13 OF THE PLAN. PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL BE PROGRAMMED TO DISPLAY AS SHOWN BELOW:

S-BND SR 149
TRAF USE
EXIT 204 OR 213

PCMS #1 & #2

S-BND SR 149
TRAF USE
EXIT 213

PCMS #3

(CONTINUED...)

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGNS, AS PER PLAN

(CONTINUED...)

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT. THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE.

PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN,
AS PER PLAN 9 SIGN MONTH
ASSUMING 3 PCMS SIGN(S) FOR 3 MONTH(S)

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 3 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC.

COORDINATION OF DRIVEWAY ACCESS

COORDINATE ACCESS TO LOCAL RESIDENTIAL DRIVEWAY USERS A MINIMUM OF SEVEN (7) DAYS PRIOR TO ANY RESTRICTIONS.

MAINTAIN ACCESS TO ALL COMMERCIAL PROPERTIES AT ALL TIMES. COORDINATE ANY RESTRICTION WITH THE LOCAL COMMERCIAL PROPERTY OWNERS A MINIMUM OF 14 DAYS BEFORE IMPLEMENTING RESTRICTION.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 10 M. GAL.

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS APPROVED PRODUCTS WEB PAGE.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM SPECIAL - WORK ZONE GUARDRAIL

ACCESS TO THE CONSTRUCTION LOCATIONS ON THE NORTH SIDE OF THE EASTBOUND RAMP FOR SIGNAL POLE AND LIGHTING CIRCUIT INSTALLATION SHALL BE MAINTAINED. A 50 FOOT SECTION OF GUARDRAIL CAN BE REMOVED FROM THE LEFT AND RIGHT SIDE OF S.R. 149 FOR REUSE PER C&MS 202.09. DURING NORMAL CONSTRUCTION HOURS, WHEN THERE ARE ONGOING CONSTRUCTION ACTIVITIES REQUIRING ONGOING VEHICLE ACCESS, THE ACCESS LOCATION SHALL BE DRUMMED AND FLAGGERS SHALL BE PROVIDED FOR TRAFFIC CONTROL. DURING ALL NON-WORKING HOURS, INCLUDING OVER-NIGHT HOURS AND/OR WEEKENDS, WHEN THERE IS NO WORK BEING PERFORMED AT THESE LOCATIONS, THE GUARDRAIL SHALL BE REPLACED PER C&MS 606.05 AND ACCEPTED BY THE ENGINEER. AT NO TIME SHALL BOTH THE LEFT AND RIGHT SIDE GUARDRAIL BE REMOVED SIMULTANEOUSLY.

ALL LABOR, EQUIPMENT, AND MATERIALS ASSOCIATED WITH THE COST TO REMOVE AND REPLACE THE GUARDRAIL AS MANY TIMES AS THE CONTRACTOR DEEMS NECESSARY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM SPECIAL, WORK ZONE GUARDRAIL.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE TO PERFORM THE ABOVE WORK:

ITEM SPECIAL - WORK ZONE GUARDRAIL 100 FEET
(50' FOR EACH SIDE OF S.R. 149)

DESIGN AGENCY



DESIGNER
SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

P.9 88

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

(CONTINUED...)

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

(CONTINUED...)

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 2 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7AM TO 9 AM OR 4 PM TO 6 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS, EXCEPT FOR THE FOLLOWING INTERSECTIONS WHICH SHALL BE PROTECTED BY OFF-DUTY STATE HIGHWAY PATROL, HIRED BY THE CONTRACTOR:

1. EB IR 70 RAMPS AT SR 149
2. WB IR 70 RAMPS AT SR 149
3. SR 149 AT BOND DR/SCHOOL ST

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC, OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

FOR OPERATIONS WITHOUT POSITIVE PROTECTION OCCURRING WITHIN 10 FEET OF AN OPEN TRAVELED LANE THAT MEET ALL OF THE FOLLOWING CRITERIA:

- ON A MULTI-LANE DIVIDED INTERSTATE, OTHER FREEWAY OR EXPRESSWAY; AND
- AN AUTHORIZED SPEED LIMIT OF 45 MPH OR GREATER THAT IS IN EFFECT AT THE TIME OF THE OPERATION; AND,
- AADT OF 50,000 (OR AADT OF 30,000 WITH 25% OR HIGHER PERCENT TRUCKS)

"WITHOUT POSITIVE PROTECTION" MEANS USE OF DRUMS, CONES SHADOW VEHICLE, ETC, WITHOUT PROTECTION FROM PORTABLE BARRIER OR OTHER RIGID BARRIER ALONG THE WORK AREA. THIS PHRASE DOES NOT APPLY TO CASES WHERE POSITIVE PROTECTION IS REQUIRED. MOBILE OPERATIONS ARE REGARDED AS "WITHOUT POSITIVE PROTECTION". FOR WORK ZONES USING A COMBINATION OF BARRIER AND TEMPORARY TRAFFIC CONTROL DEVICES (CONES, DRUMS, ETC), THE DESIGNATION SHALL BE BASED UPON THE TYPE OF DEVICES USED IN THE AREA THAT WORKERS ARE LOCATED.

IF MULTIPLE ACTIVE LOCALIZED QUALIFYING WORK AREAS OCCUR WITHOUT POSITIVE PROTECTION, PER MAINLINE TRAFFIC DIRECTION, PROVIDE A UNIFORMED LEO AND OFFICIAL PATROL CAR IN ADVANCE OF:

- THE FIRST ACTIVE WORK AREA THAT DRIVERS WILL ENCOUNTER; OR
- THE ACTIVE WORK AREA LATERALLY CLOSEST TO THE OPEN TRAVELED LANE; OR
- OTHER LOCATION AS APPROVED BY THE ENGINEER.

(CONTINUED...)

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

(CONTINUED...)

THE UNIFORMED LEO AND OFFICIAL PATROL CAR MAY RELOCATE AMONG THE LISTED LOCATIONS AS APPROPRIATE AS THE OPERATIONS PROCEED IN THE LOCALIZED QUALIFYING WORK AREAS.

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION (OR AT THE POINT OF ROAD CLOSURE), AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST'S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS' DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

ENSURE PROVIDED LEOS HAVE BEEN TRAINED APPROPRIATE TO THE JOB DECISIONS THEY ARE REQUIRED TO MAKE WHILE ON THE PROJECT, IN ACCORDANCE WITH C&MS 614.03.


THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE THAT SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 150 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF A LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR

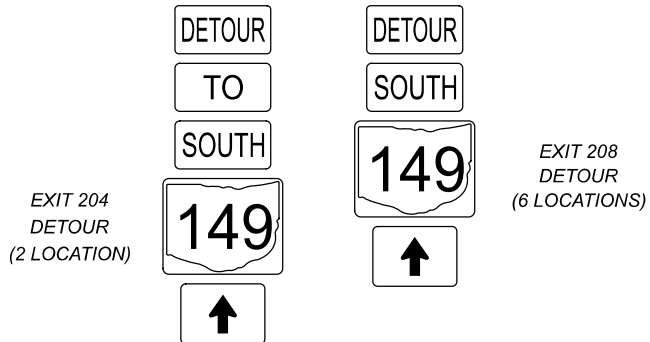
DESIGN AGENCY	
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
SHEET	106789
TOTAL	88
P.10	

ITEM 614, DETOUR SIGNING

THE FOLLOWING SIGNS SHALL BE ERECTED ALONG THE DESIGNATED OFFICIAL DETOUR ROUTE AND SHALL BE ASSEMBLED AS SHOWN ON THIS SHEET. ALL DETOUR SIGNING SHALL BE INSTALLED BEFORE COMMENCING ANY OF THE PROPOSED WORK REQUIRING THE DETOUR.

EACH SIGN ASSEMBLY SHALL BE PLACED 100 FT. (OR AS DIRECTED) IN ADVANCE OF THE IMPENDING CHANGE OF ROUTE. OFFSET SHALL BE AS PER STANDARD CONSTRUCTION DRAWING TC-42.20.

IN ADDITION TO THE SIGNS INCLUDED IN THE LEGEND AND SHOWN ON THE DETOUR MAPS, PLACE THE FOLLOWING SIGN ASSEMBLY:



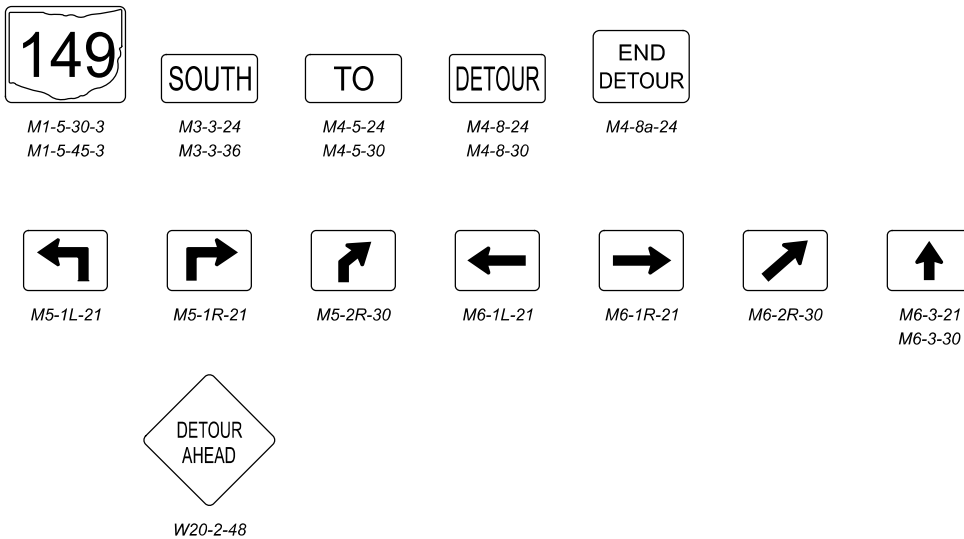
ITEM 614, DETOUR SIGNING

(CONTINUED...)

ALL ANTICIPATED QUANTITIES ARE SHOWN IN THE TABLE BELOW AND ARE PROVIDED FOR INFORMATION ONLY.

SIGN CODE	NO. OF SIGNS	SIZE
M1-5-30-3	17	30 IN. x 24 IN.
M1-5-45-3	10	45 IN. x 36 IN.
M3-3-24	17	24 IN. x 12 IN.
M3-3-36	10	36 IN. x 18 IN.
M4-5-24	9	24 IN. x 12 IN.
M4-5-30	5	36 IN. x 18 IN.
M4-8-24	17	24 IN. x 12 IN.
M4-8-30	6	30 IN. x 15 IN.
M4-8A-24	1	24 IN. x 18 IN.
M5-1L-21	2	21 IN. x 15 IN.
M5-1R-21	4	21 IN. x 15 IN.
M5-2R-30	2	30 IN. x 21 IN.
M6-1L-21	2	21 IN. x 15 IN.
M6-1R-21	4	21 IN. x 15 IN.
M6-2R-30	2	30 IN. x 21 IN.
M6-3-21	6	21 IN. x 15 IN.
M6-3-30	3	30 IN. x 21 IN.
W20-2-48	2	48 IN. x 48 IN.

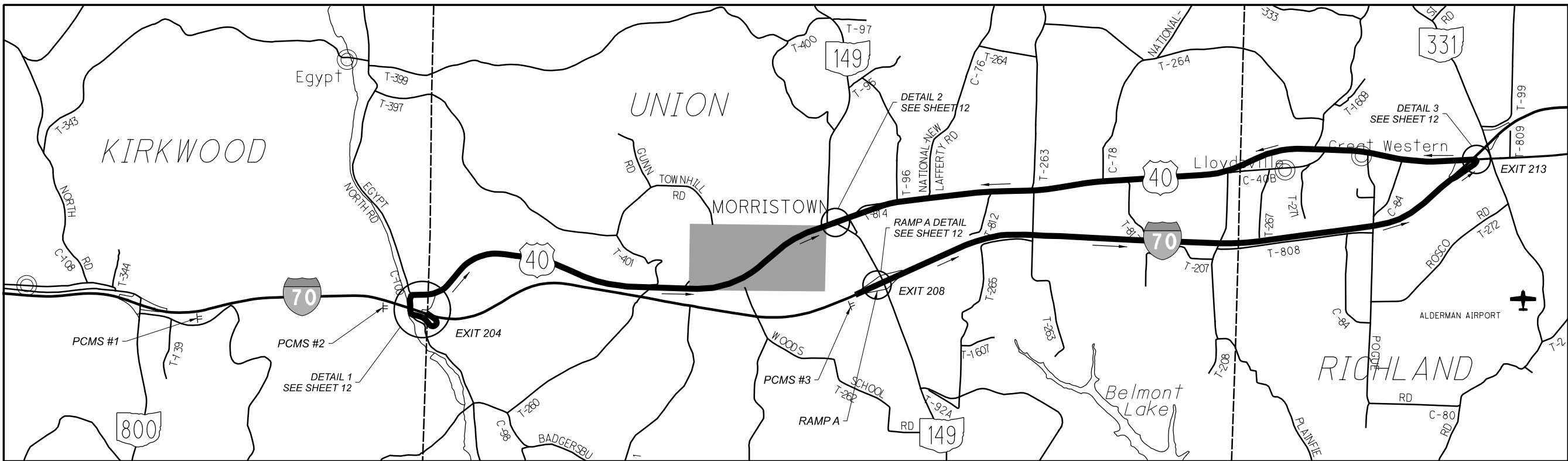
SIGN LEGEND



AT INTERVALS NOT TO EXCEED 2 MILES IN RURAL AREAS AND AT INTERVALS NOT TO EXCEED 2 BLOCKS WITHIN URBANIZED AREAS. IT IS ANTICIPATED THAT 8 SIGN ASSEMBLIES (3 OF THESE LOCATIONS WILL BE OVERSIZED ON I.R. 70) WILL BE REQUIRED TO MEET THIS MAXIMUM SPACING.

PAYMENT FOR ALL LABOR, EQUIPMENT & MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, DETOUR SIGNING, UNLESS SEPERATELY ITEMIZED IN THE PLAN.

(CONTINUED...)

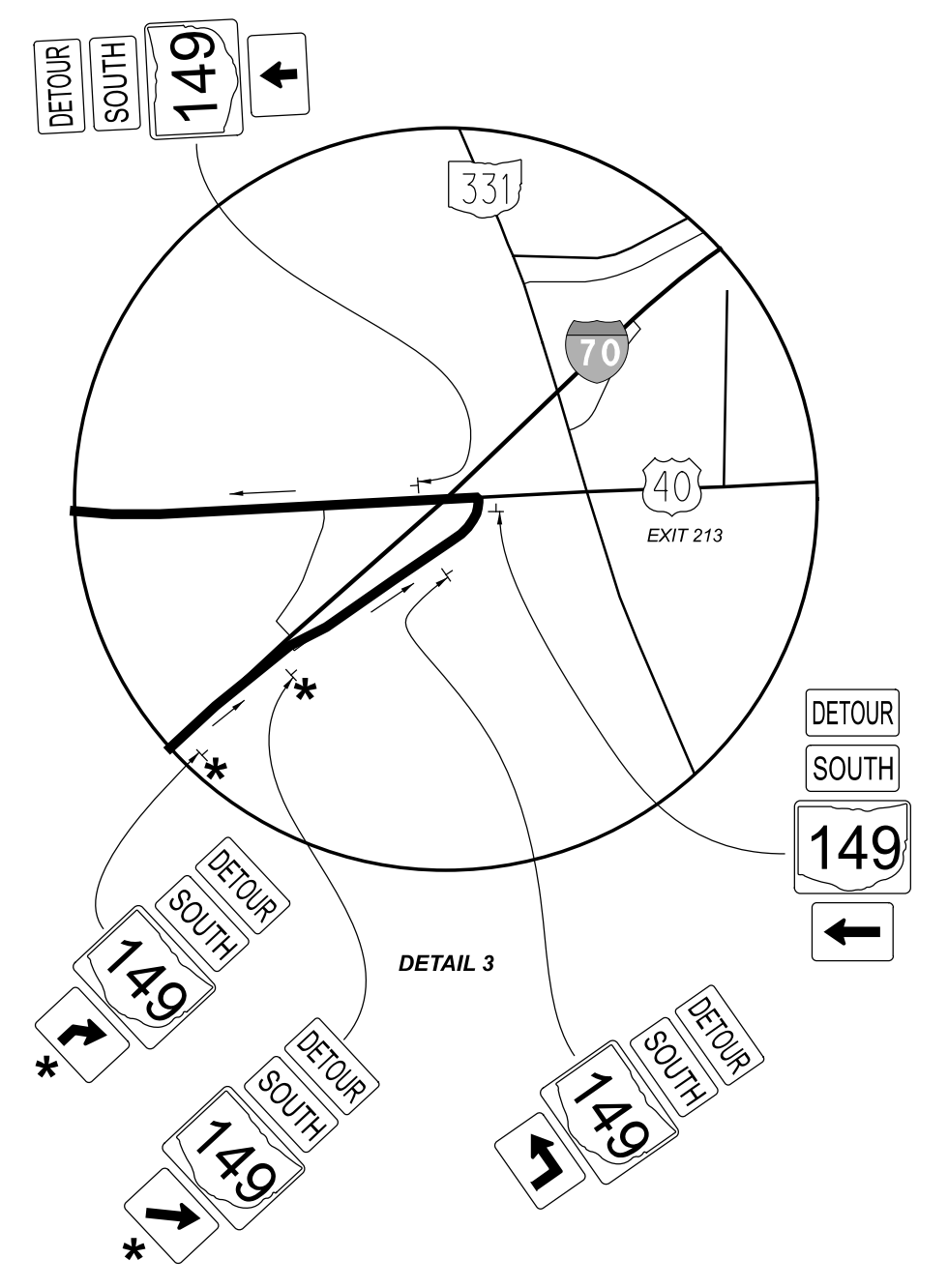
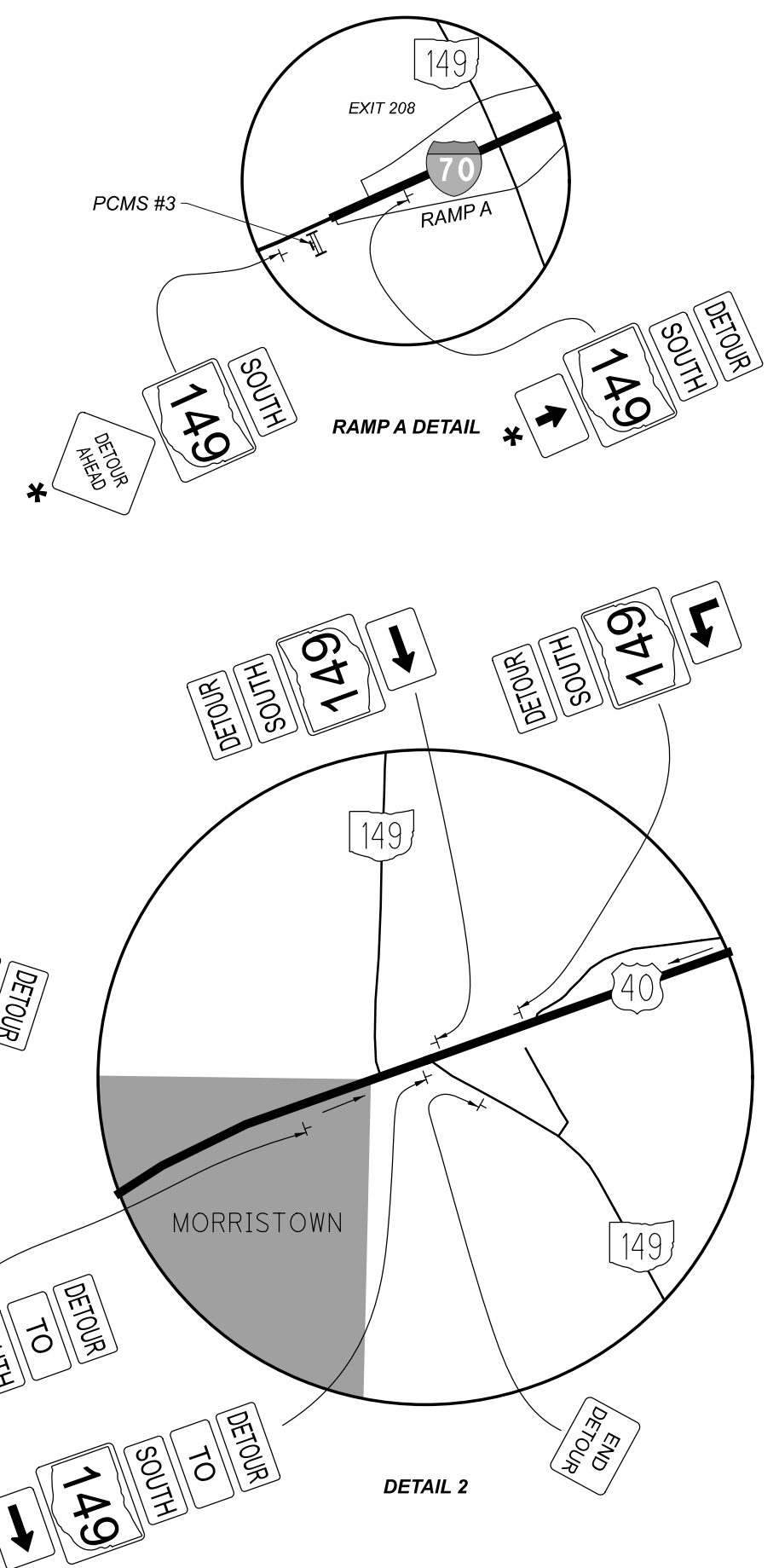
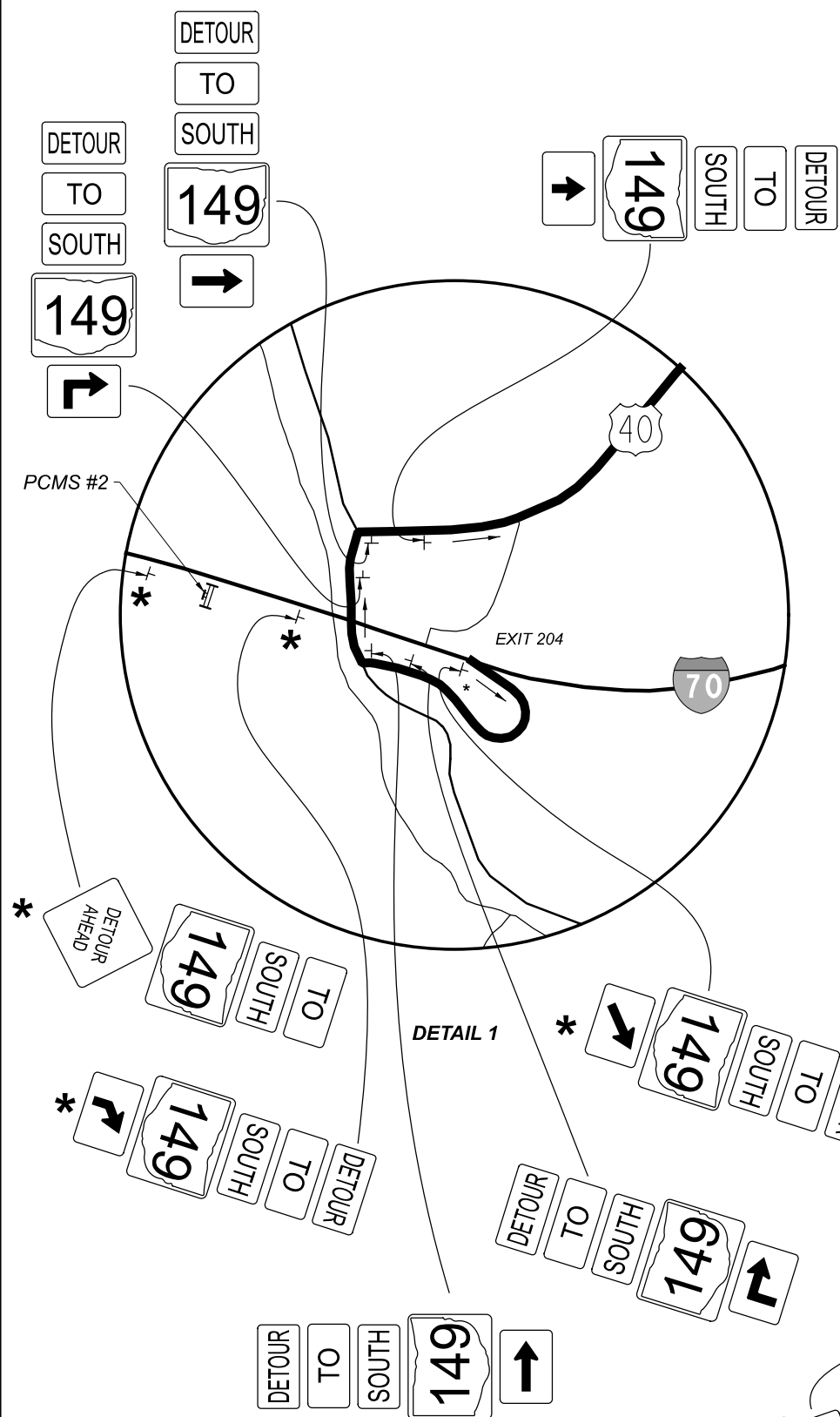


DETOUR PLAN
CLOSURE OF RAMP A RIGHT TURN MOVEMENT



NOT TO SCALE





* - USE OVERSIZED SIGNS FOR INTERSTATE ASSEMBLIES

ITEM 614, DETOUR SIGNING

THE FOLLOWING SIGNS SHALL BE ERECTED ALONG THE DESIGNATED OFFICIAL DETOUR ROUTE AND SHALL BE ASSEMBLED AS SHOWN ON THIS SHEET. ALL DETOUR SIGNING SHALL BE INSTALLED BEFORE COMMENCING ANY OF THE PROPOSED WORK REQUIRING THE DETOUR.

EACH SIGN ASSEMBLY SHALL BE PLACED 100 FT. (OR AS DIRECTED) IN ADVANCE OF THE IMPENDING CHANGE OF ROUTE. OFFSET SHALL BE AS PER STANDARD CONSTRUCTION DRAWING TC-42.20.

IN ADDITION TO THE SIGNS INCLUDED IN THE LEGEND AND SHOWN ON THE DETOUR MAPS, PLACE THE FOLLOWING SIGN ASSEMBLY:



AT INTERVALS NOT TO EXCEED 2 MILES IN RURAL AREAS AND AT INTERVALS NOT TO EXCEED 2 BLOCKS WITHIN URBANIZED AREAS. IT IS ANTICIPATED THAT 3 SIGN ASSEMBLIES WILL BE REQUIRED TO MEET THIS MAXIMUM SPACING.

(CONTINUED...)

ITEM 614, DETOUR SIGNING

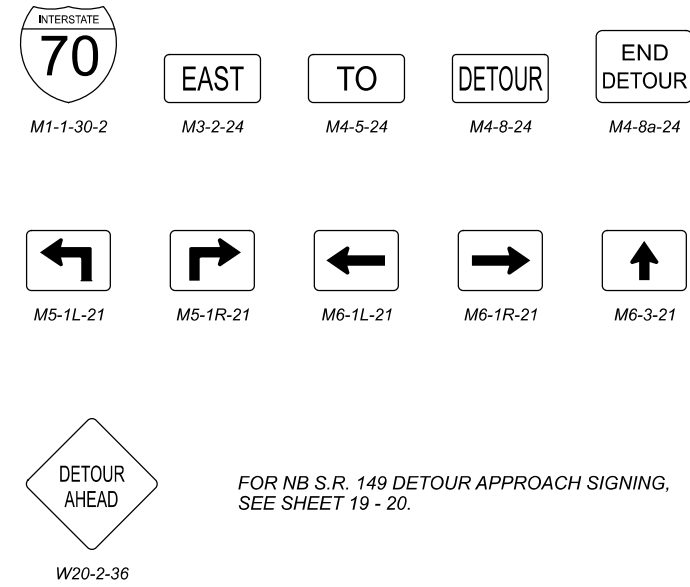
(CONTINUED...)

ALL ANTICIPATED QUANTITIES ARE SHOWN IN THE TABLE BELOW AND ARE PROVIDED FOR INFORMATION ONLY.

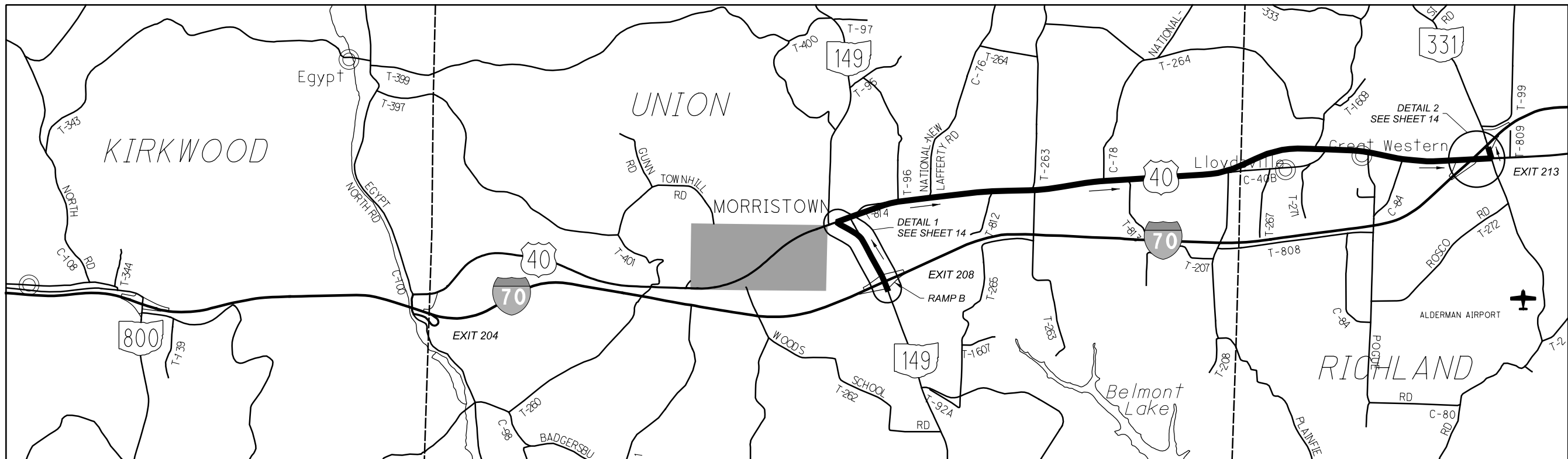
SIGN CODE	NO. OF SIGNS	SIZE
M1-1-30-2	16	30 IN. x 30 IN.
M3-2-24	16	24 IN. x 12 IN.
M4-5-24	16	24 IN. x 12 IN.
M4-8-24	15	24 IN. x 12 IN.
M4-8A-24	1	24 IN. x 18 IN.
M5-1L-21	1	21 IN. x 15 IN.
M5-1R-21	2	21 IN. x 15 IN.
M6-1L-21	1	21 IN. x 15 IN.
M6-1R-21	2	21 IN. x 15 IN.
M6-3-21	9	21 IN. x 15 IN.
W20-2-36	1	36 IN. x 36 IN.

PAYMENT FOR ALL LABOR, EQUIPMENT & MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, DETOUR SIGNING, UNLESS SEPERATELY ITEMIZED IN THE PLAN.

SIGN LEGEND

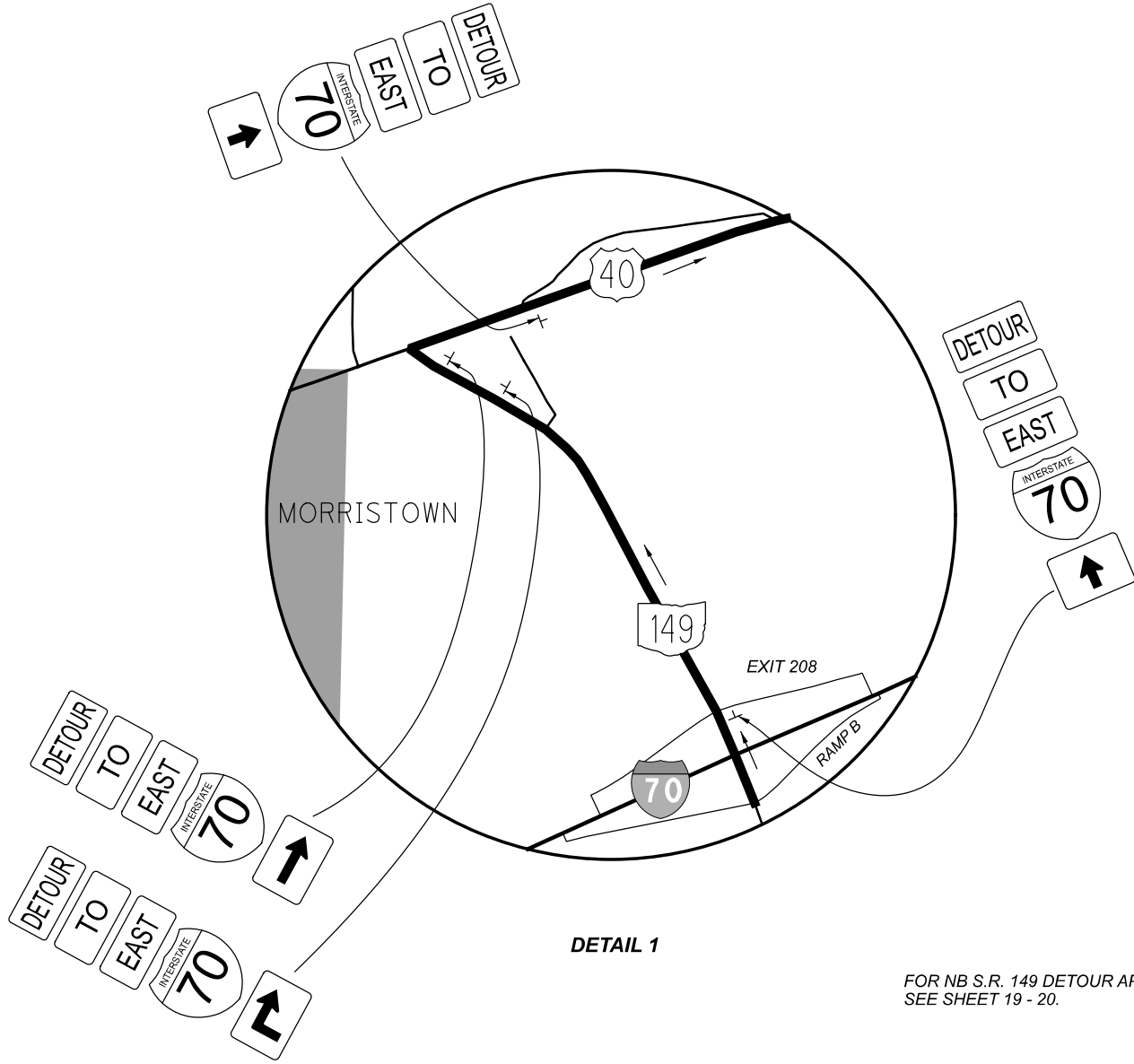


FOR NB S.R. 149 DETOUR APPROACH SIGNING, SEE SHEET 19 - 20.



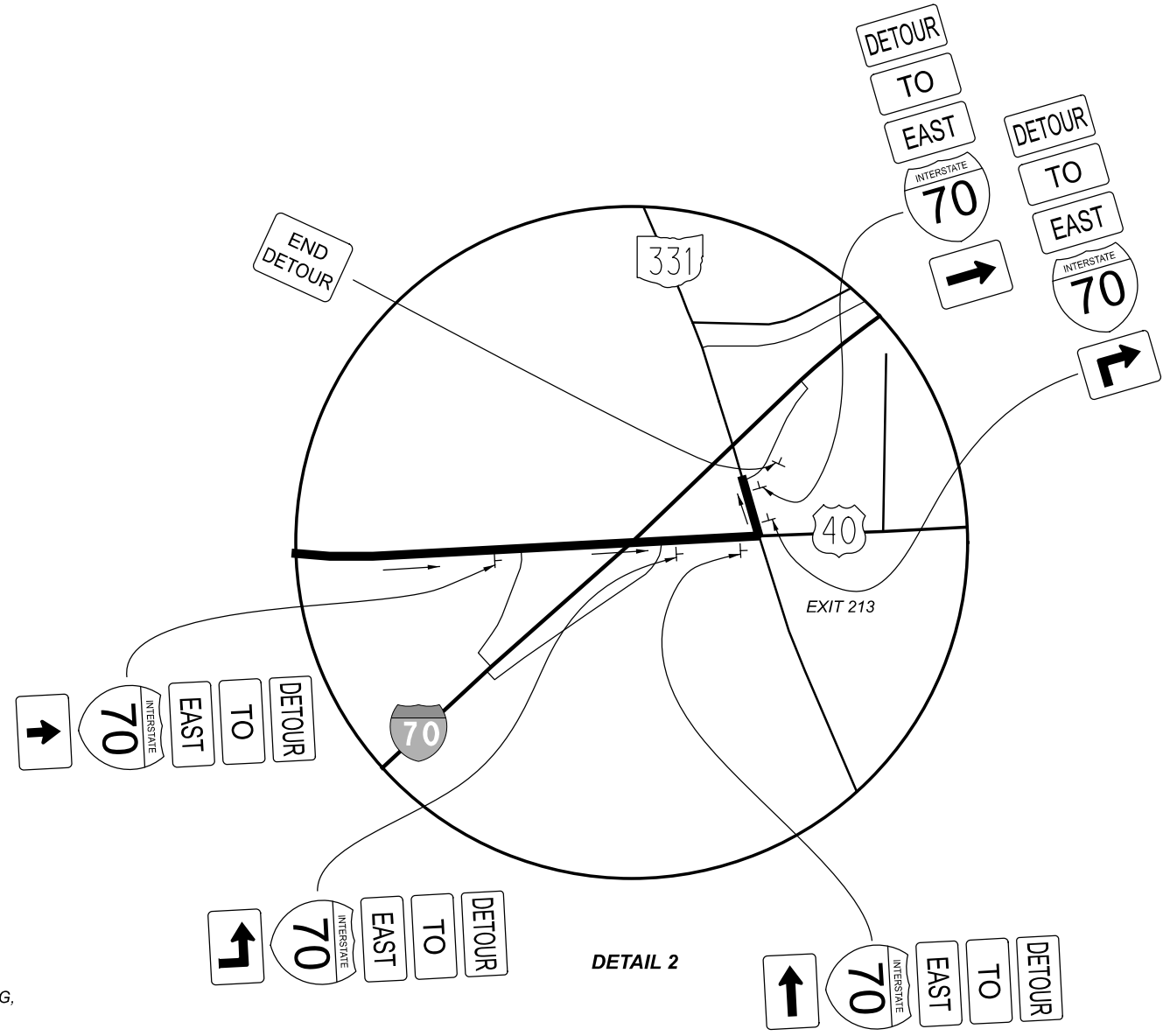
DETOUR PLAN
CLOSURE OF RIGHT TURN FROM NORTHBOUND S.R. 149 TO RAMP B





DETAIL 1

FOR NB S.R. 149 DETOUR APPROACH SIGNING,
SEE SHEET 19 - 20.



DETAIL 2

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

P.14 | 88

SHEET NO.	REFERENCE NO.	STATION		SIDE	614											622							
		FROM	TO		WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT (WHITE)	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT (YELLOW)	WORK ZONE STOP LINE, CLASS III, 642 PAINT	WORK ZONE CENTER LINE, CLASS III, 642 PAINT (DOUBLE SOLID)	WORK ZONE LANE LINE, CLASS III, 6", 642 PAINT	OBJECT MARKER, ONE WAY	OBJECT MARKER, TWO WAY	INCREASED BARRIER DELINEATION	BARRIER REFLECTOR, TYPE 1 (TWO WAY)	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARD (UNIDIRECTIONAL)	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARD (BIDIRECTIONAL)	BARRIER REFLECTOR, TYPE 1 (ONE-WAY)	PORTABLE BARRIER, UNANCHORED						
		PHASE 1, PART 1 & 2 ~ RAMP A																					
17-18	EY-1	10+00	15+30	LT		0.1																	
17-18	EW-1	10+00	15+75	RT	0.11																		
17	IA-1	11+40		RT										1									
17-18	PB-1	11+40	15+30	RT						9		50					9		390				
18	SL-1	15+75		LT				25															
18	PB-2	15+20	124+10	RT/LT									4		4					140			
		PHASE 1, PART 1 & 2 ~ S.R. 149																					
18	SL-2	124+80		LT/RT				11															
18	CL-1	122+90	124+80	CL					0.04														
18	EW-2	122+90	125+20	LT/RT	0.04																		
18	EW-3	122+90	124+80	RT	0.04																		
		PHASE 2, PART 1 & 2 ~ S.R. 149																					
19-20	EW-4	117+10	123+81	LT	0.13																		
19	LL-1	117+10	120+68	LT								0.07											
19-20	CL-2	117+10	124+80	CL					0.15														
19-20	EW-5	117+10	124+80	RT	0.15																		
19	IA-2	120+20		RT													1						
20	IA-3	123+55		RT													1						
19-20	PB-2	120+20	123+55	RT						8		8							335				
20	SL-3	124+80		RT/LT				11															
SUBTOTAL					0.47	0.1																	
TOTAL CARRIED TO GENERAL SUMMARY					0.57		47	0.19	0.07	9	12	50	12	1	2			865					

MAINTENANCE OF TRAFFIC - ESTIMATED QUANTITIES

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

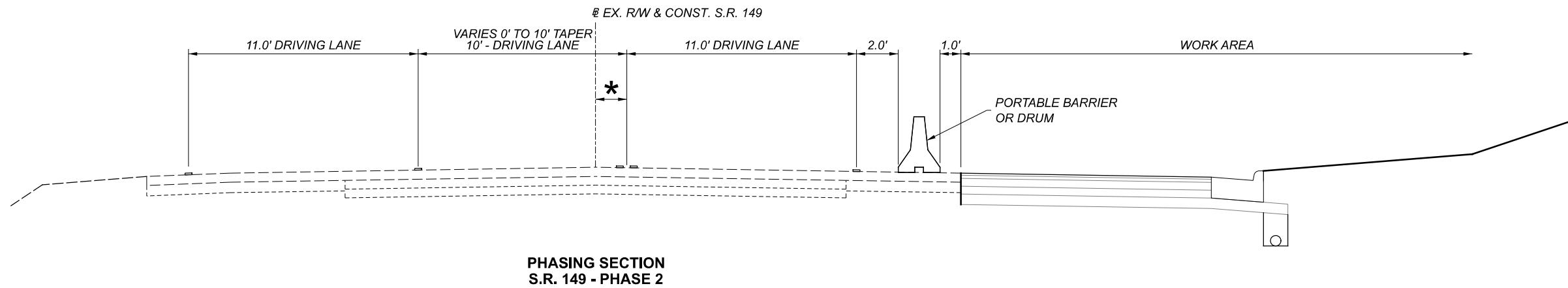
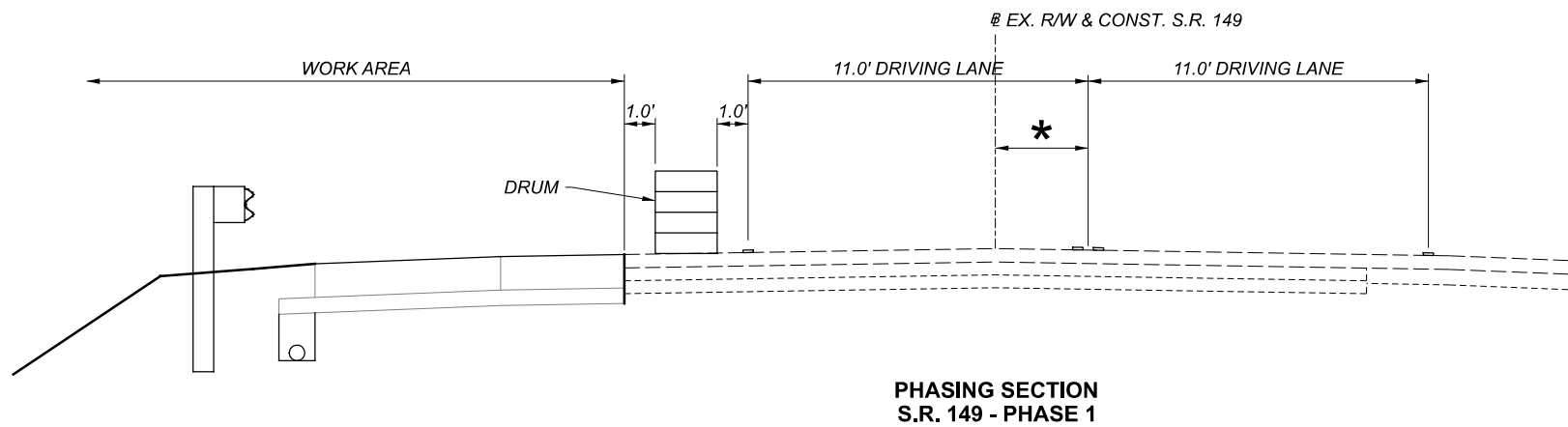
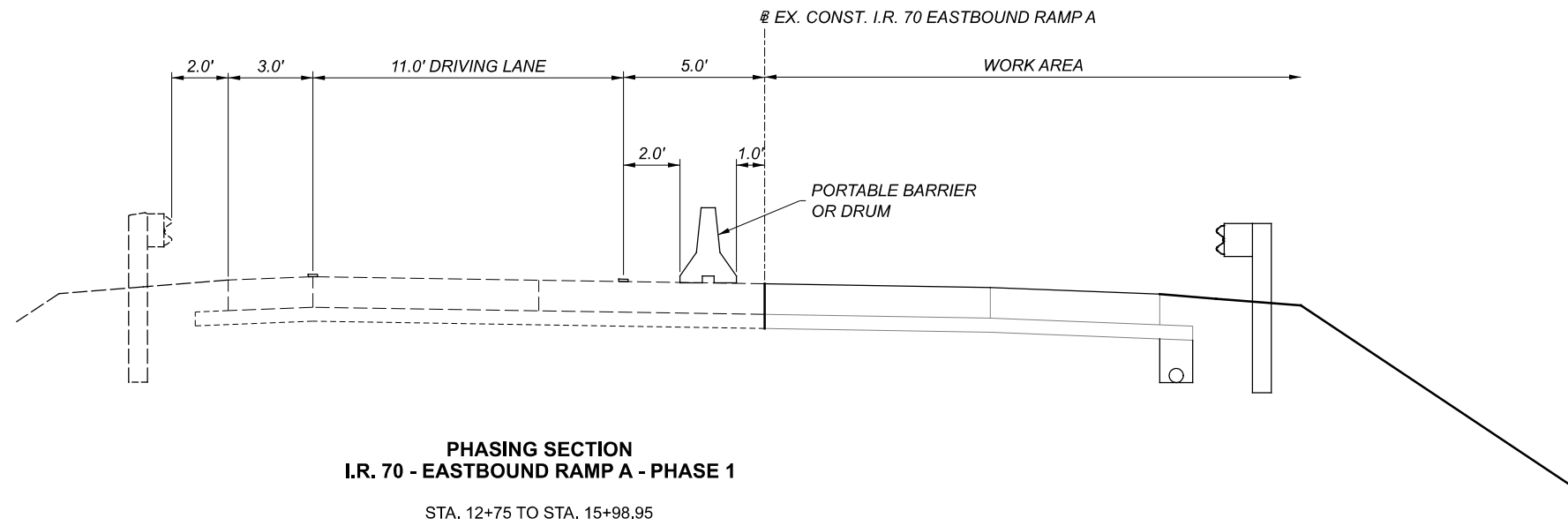
106789

SHEET

P.15

TOTAL

88



* - VARIES, SEE SHEET 17 - 20.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

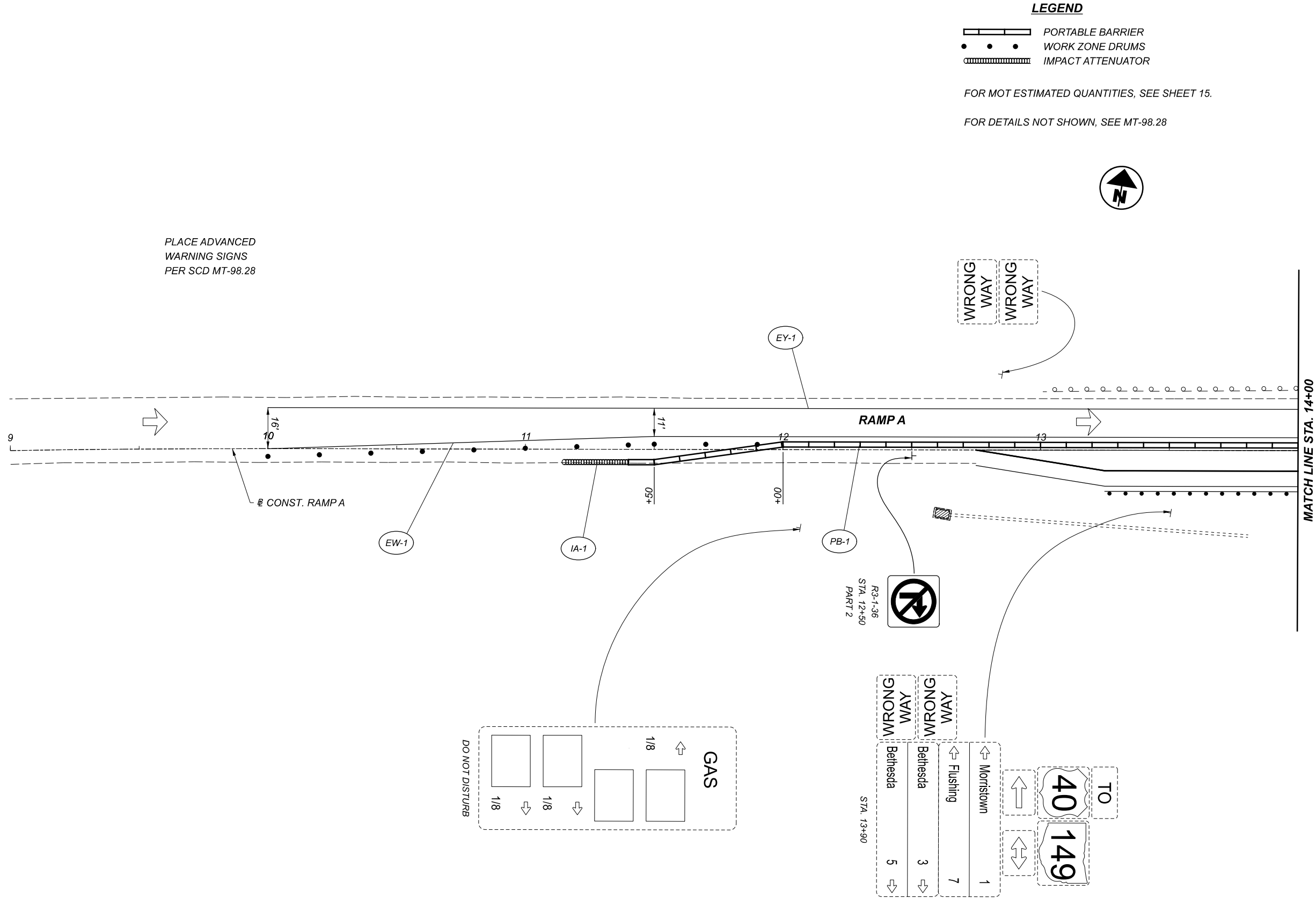
106789

SHEET

P.16

TOTAL

88



PLACE ADVANCED
WARNING SIGNS
PER SCD MT-98.28

LEGEND

- PORTABLE BARRIER
- WORK ZONE DRUMS
- IMPACT ATTENUATOR

FOR MOT ESTIMATED QUANTITIES, SEE SHEET 15.

FOR DETAILS NOT SHOWN, SEE MT-98.28



MAINTENANCE OF TRAFFIC - PHASE 1
RAMP A - STA. 9+00 TO STA. 14+00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

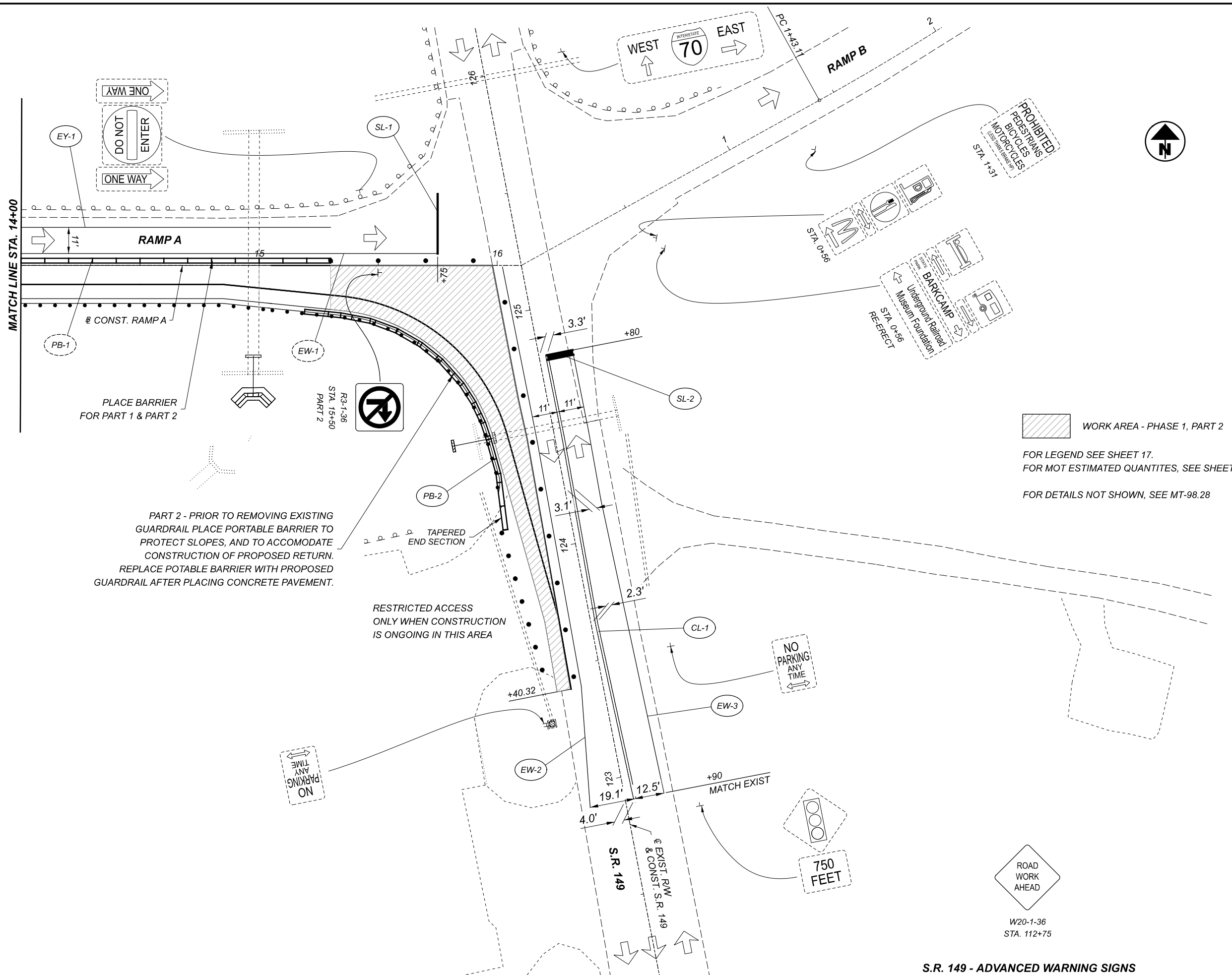
SHEET

P.17

TOTAL

88






MATCH LINE STA. 14+00

PLACE BARRIER FOR PART 1 & PART 2

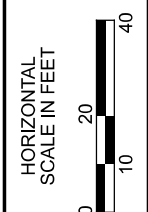
PART 2 - PRIOR TO REMOVING EXISTING GUARDRAIL PLACE PORTABLE BARRIER TO PROTECT SLOPES, AND TO ACCOMMODATE CONSTRUCTION OF PROPOSED RETURN. REPLACE PORTABLE BARRIER WITH PROPOSED GUARDRAIL AFTER PLACING CONCRETE PAVEMENT.

RESTRICTED ACCESS ONLY WHEN CONSTRUCTION IS ONGOING IN THIS AREA


 WORK AREA - PHASE 1, PART 2

FOR LEGEND SEE SHEET 17.
FOR MOT ESTIMATED QUANTITIES, SEE SHEET 15.

FOR DETAILS NOT SHOWN, SEE MT-98.28



MAINTENANCE OF TRAFFIC - PHASE 1
RAMPA A - STA. 14+00 TO STA. 16+10.15

DESIGN AGENCY	
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET TOTAL	P.18 88

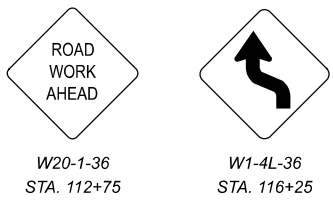
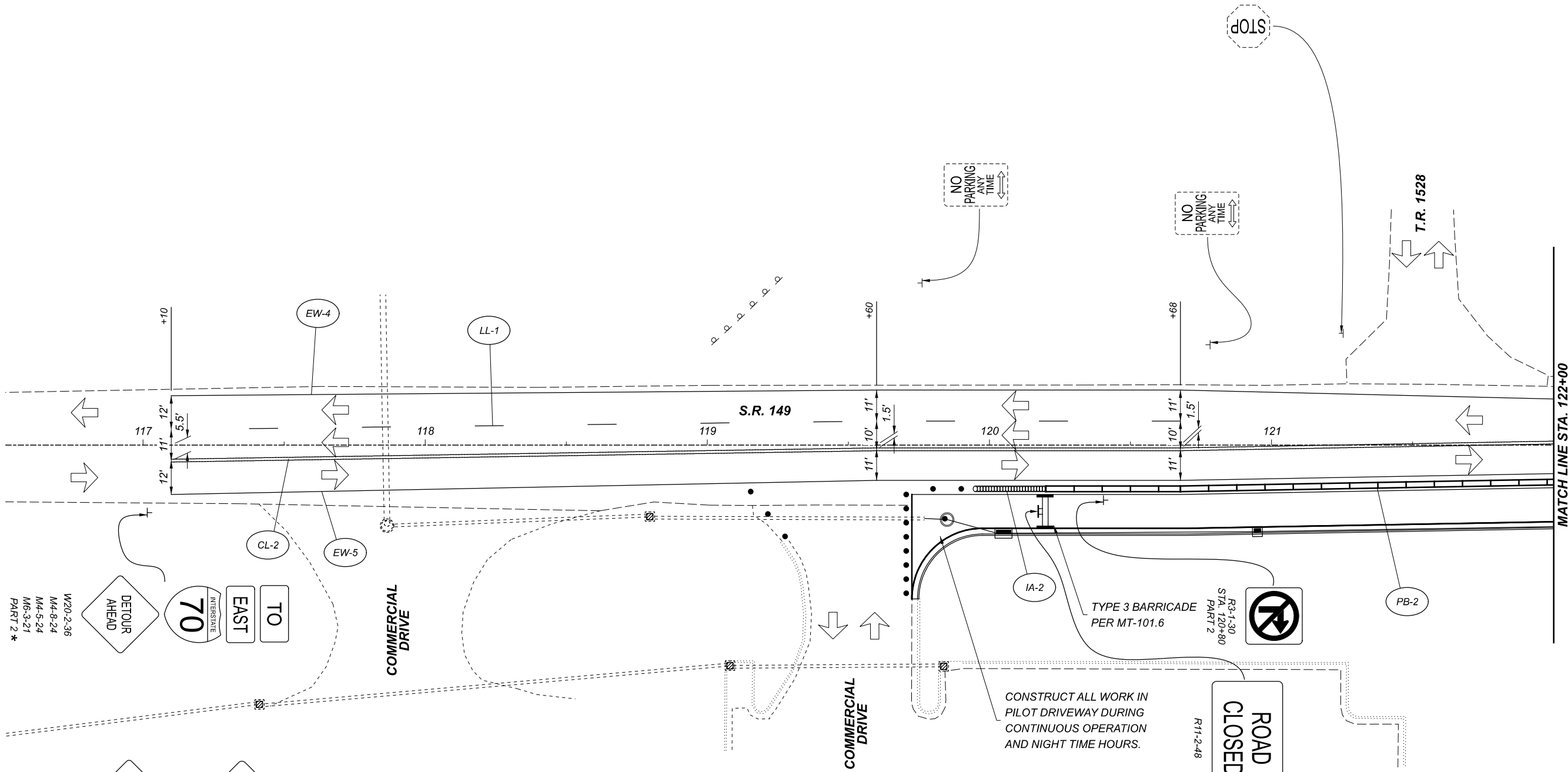
S.R. 149 - ADVANCED WARNING SIGNS


W20-1-36
STA. 112+75

NO PARKING ANY TIME

NO PARKING ANY TIME

750 FEET



FOR LEGEND, SEE SHEET 17.
FOR MOT ESTIMATED QUANTITIES, SEE SHEET 15.

FOR DETAILS NOT SHOWN, SEE MT-95.45

* SIGNS CARRIED WITH 614 DETOUR SIGNING,
SEE SHEET 13.

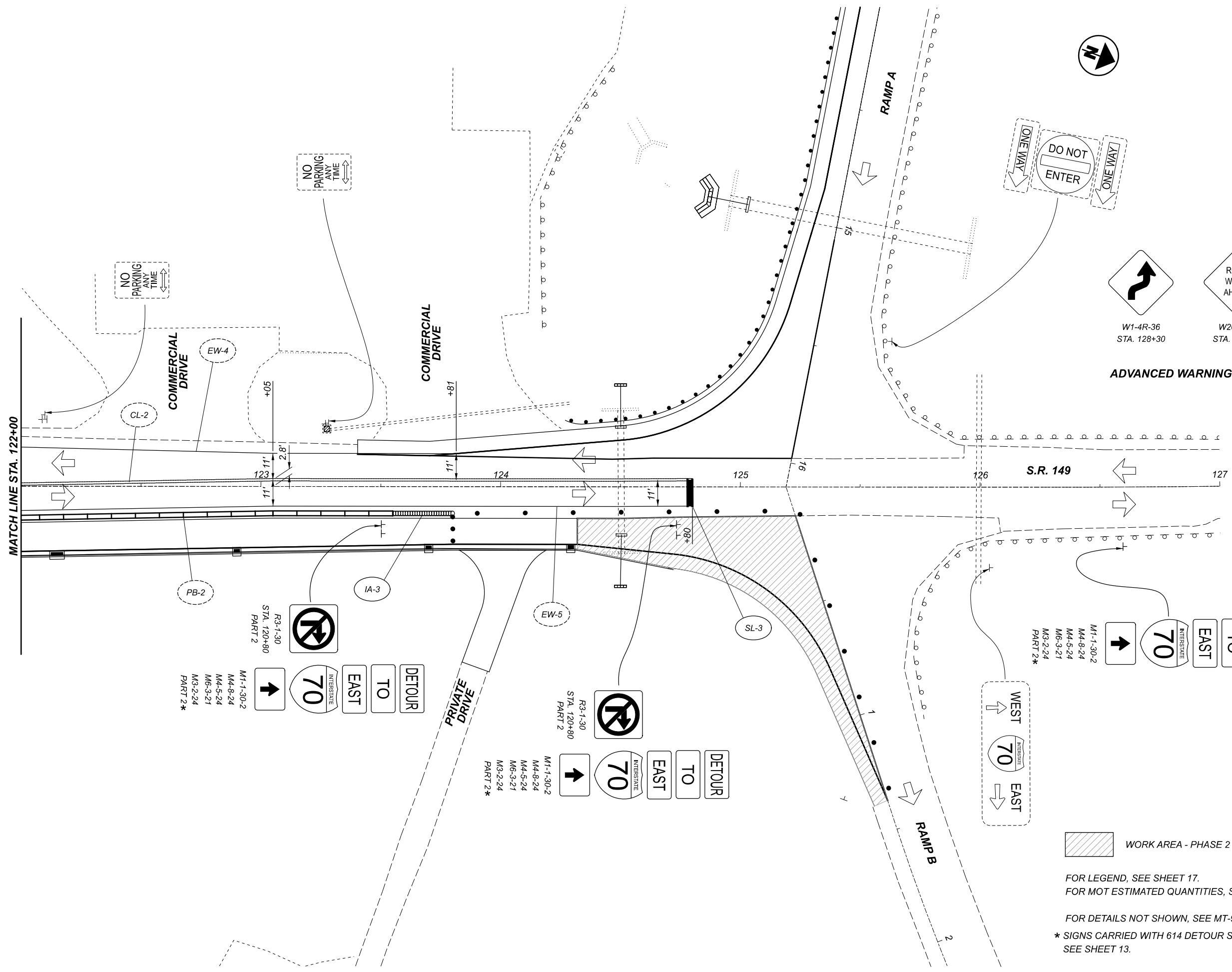


MAINTENANCE OF TRAFFIC - PHASE 2
S.R. 149 - STA. 117+00 TO STA. 122+00

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH 11-15-21
PROJECT ID	106789
SHEET	TOTAL
P.19	88

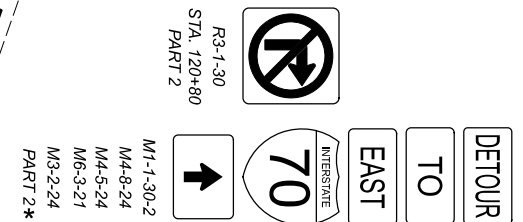
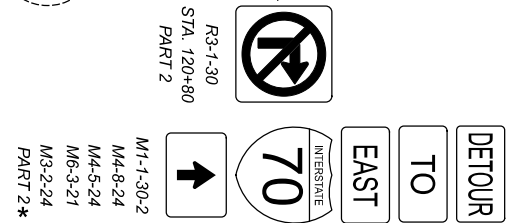
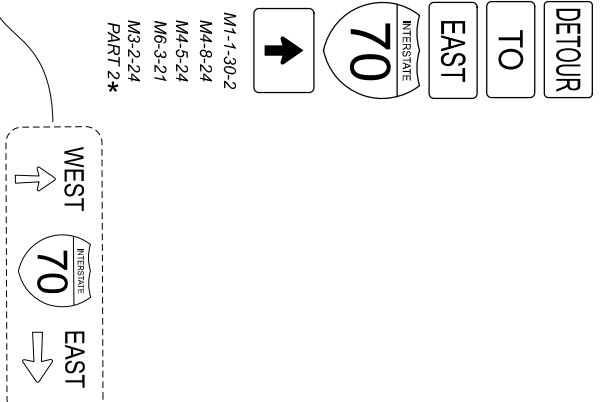


WORK AREA - PHASE 2 - PART 2

FOR LEGEND, SEE SHEET 17.
 FOR MOT ESTIMATED QUANTITIES, SEE SHEET 15.
 FOR DETAILS NOT SHOWN, SEE MT-95.45
 * SIGNS CARRIED WITH 614 DETOUR SIGNING, SEE SHEET 13.



ADVANCED WARNING SIGNS



MAINTENANCE OF TRAFFIC - PHASE 2
 S.R. 149 - STA. 122+00 TO STA. 127+00

DESIGN AGENCY



DESIGNER SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET	TOTAL
P.20	88

BEL-149-23.64

MODEL: Sheet PAPER: PAPER: SIZE: 11x17 (in.) DATE: 12/1/2021 TIME: 12:53:50 PM USER: snorrlsb
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SHEET NUM.											PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
7	28	40	64	79	80	OFFICE CALCS	01/ STR/OT										
DRAINAGE																	
		1.2	10.5					11.7	602	20000	11.7	CY	CONCRETE MASONRY				
	70	450	206					656	605	14000	656	FT	6" BASE PIPE UNDERDRAINS				
								70	605	31100	70	FT	AGGREGATE DRAINS				
		70	10	40				260	611	00510	260	FT	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS				
		453						453	611	04400	453	FT	12" CONDUIT, TYPE B				
		40						40	611	13200	40	FT	30" CONDUIT, TYPE A, 706.02				
			17					17	611	22200	17	FT	54" CONDUIT, TYPE A, 707.01 or 707.02				
		2						2	611	98150	2	EACH	CATCH BASIN, NO. 3				
		4						4	611	98180	4	EACH	CATCH BASIN, NO. 3A				
		1						1	611	99574	1	EACH	MANHOLE, NO. 3				
		1	1					2	611	99711	2	EACH	PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN			7	
PAVEMENT																	
	43								43	253	02000	43	CY	PAVEMENT REPAIR			
								137	137	301	46000	137	CY	ASPHALT CONCRETE BASE, PG64-22			
		15							344	359	304	20000	359	CY	AGGREGATE BASE		
									74	74	407	10000	74	GAL	TACK COAT		
									57	57	408	10001	57	GAL	PRIME COAT, AS PER PLAN		7
									21	21	441	50101	21	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), AS PER PLAN (PG70-22M)		6
									30	30	441	50300	30	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)		
		5							5	441	50401	5	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), AS PER PLAN (PG64-22)		6	
									947	947	452	16020	947	SY	13" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P WITH QC/QA		
									240	240	452	19200	240	SY	NON-REINFORCED CONCRETE PAVEMENT, MISC.: 13" THICK, CLASS QCFS		7
LIGHTING																	
									2	2	625	00450	2	EACH	CONNECTION, FUSED PULL APART		
									2	2	625	00460	2	EACH	CONNECTION, UNFUSED PULL APART		
									14	14	625	00480	14	EACH	CONNECTION, UNFUSED PERMANENT		
									1	1	625	10490	1	EACH	LIGHT POLE, CONVENTIONAL AT25B32.5		
									1	1	625	14100	1	EACH	LIGHT POLE FOUNDATION, 24" X 8' DEEP		
									486	486	625	23200	486	FT	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLE		
									385	385	625	23400	385	FT	NO. 10 AWG POLE AND BRACKET CABLE		
									594	594	625	24320	594	FT	1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 2400 VOLT CABLES		
									142	142	625	25900	142	FT	CONDUIT, JACKED OR DRILLED, 3"		
									2	2	625	26253	2	EACH	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), AS PER PLAN, IES-11-M, LED, 8750-9129 LUMENS		79
									524	524	625	29000	524	FT	TRENCH		
									6	6	625	30700	6	EACH	PULL BOX, 725.08, 18"		
									1	1	625	30706	1	EACH	PULL BOX, 725.08, 24"		
									2	2	625	31510	2	EACH	PULL BOX REMOVED		
									2	2	625	32000	2	EACH	GROUND ROD		
									1	1	625	34001	1	EACH	POWER SERVICE, AS PER PLAN		79
				LS				LS	SPECIAL	62540000	LS				MAINTAIN EXISTING LIGHTING		79
									1	1	625	75400	1	EACH	LIGHT POLE REMOVED		
									1	1	625	75500	1	EACH	LIGHT POLE FOUNDATION REMOVED		
									2	2	625	75504	2	EACH	LUMINAIRE REMOVED FOR STORAGE		
									1	1	625	75510	1	EACH	POWER SERVICE REMOVED		
									2	2	625	75800	2	EACH	DISCONNECT CIRCUIT		
									1	1	625	76000	1	EACH	ARC FLASH CALCULATIONS AND LABEL (BEL-149-23.67)		

GENERAL SUMMARY

DESIGN AGENCY




DESIGNER	SAH
REVIEWER	
DAH	11-15-21
PROJECT ID	106789
SHEET	TOTAL
P.22	88

BEL-149-23.64

MODEL: Sheet PAPER: 11x17 (in.) DATE: 12/1/2021 TIME: 12:53:58 PM USER: shorrjlsb
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SHEET NUM.												PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
				25		58	59					01/ STR/OT		EXT	TOTAL			
						33							33	621	00100	33	EACH	RPM
						33							33	621	54000	33	EACH	RAISED PAVEMENT MARKER REMOVED
				15														
							100.7						115.7	630	02100	115.7	FT	GROUND MOUNTED SUPPORT, NO. 2 POST
							140.1						140.1	630	03100	140.1	FT	GROUND MOUNTED SUPPORT, NO. 3 POST
							35						35	630	04100	35	FT	GROUND MOUNTED SUPPORT, NO. 4 POST
							31.8						31.8	630	06400	31.8	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, S4X7.7
							73.9						73.9	630	06500	73.9	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W6X9
							52.4						52.4	630	07600	52.4	FT	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X12
							29.6						29.6	630	08004	29.6	FT	ONE WAY SUPPORT, NO. 3 POST
							6						6	630	08600	6	EACH	SIGN POST REFLECTOR
							4						4	630	09000	4	EACH	BREAKAWAY STRUCTURAL BEAM CONNECTION
							2						2	630	79200	2	EACH	SIGN ATTACHMENT ASSEMBLY, MAST ARM
							6						6	630	79500	6	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
				2			59.75						61.75	630	80100	61.75	SF	SIGN, FLAT SHEET
							8						8	630	84500	8	EACH	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION
							5						5	630	84900	5	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL
							23						23	630	85100	23	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION
							5						5	630	85600	5	EACH	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND REERECTION
							14						14	630	86002	14	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL
							8						8	630	86102	8	EACH	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL
							0.35						0.35	644	00104	0.35	MILE	EDGE LINE, 6"
							0.08						0.08	644	00204	0.08	MILE	LANE LINE, 6"
							0.15						0.15	644	00300	0.15	MILE	CENTER LINE
							410						410	644	00400	410	FT	CHANNELIZING LINE, 8"
							250						250	644	00404	250	FT	CHANNELIZING LINE, 12"
							97						97	644	00500	97	FT	STOP LINE
							8						8	644	01300	8	EACH	LANE ARROW
							1						1	644	30020	1	EACH	REMOVAL OF PAVEMENT MARKING

GENERAL SUMMARY

DESIGN AGENCY	
DESIGNER	SAH
REVIEWER	SAH
PROJECT ID	DAH 11-15-21
SHEET	106789
TOTAL	88
P.23	

SHEET NUM.												PART.	ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
8	9	10	11	13	15	71	01/STR/OT	EXT	TOTAL									
TRAFFIC SIGNALS																		
						95	95	625	25500	95	FT	CONDUIT, 3", 725.04						
						173	173	625	25900	173	FT	CONDUIT, JACKED OR DRILLED, 3"						
						86	86	625	29000	86	FT	TRENCH						
						2	2	625	30700	2	EACH	PULL BOX, 725.08, 18"						
						4	4	625	32000	4	EACH	GROUND ROD						
						1	1	625	76000	1	EACH	ARC FLASH CALCULATIONS AND LABEL (BEL-149-23.67)						
						8	8	632	05006	8	EACH	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE						
						1	1	632	05086	1	EACH	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE						
						9	9	632	25000	9	EACH	COVERING OF VEHICULAR SIGNAL HEAD						
						765	765	632	40700	765	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG						
						3	3	632	64010	3	EACH	SIGNAL SUPPORT FOUNDATION						
						53	53	632	68200	53	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG						
						1	1	632	70001	1	EACH	POWER SERVICE, AS PER PLAN						
						1	1	632	70400	1	EACH	CONDUIT RISER, 2" DIAMETER						
						1	1	632	72100	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2						
						1	1	632	72130	1	EACH	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12						
						1	1	632	71388	1	EACH	SIGNAL SUPPORT, TYPE TC-12.31 DESIGN 10 POLE, WITH MAST ARMS TC-81.21 DESIGN 14 AND DESIGN 12						
						1	1	632	90100	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION						
						1	1	633	65523	1	EACH	CABINET, TYPE 332L, AS PER PLAN						
						1	1	633	67100	1	EACH	CABINET FOUNDATION						
						1	1	633	67200	1	EACH	CONTROLLER WORK PAD						
						1	1	633	68511	1	EACH	COMMUNICATIONS, AS PER PLAN						
						1	1	633	75001	1	EACH	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN						
						2	2	633	99000	2	EACH	CONTROLLER ITEM, MISC.: TIMING AND COORDINATION						
						2	2	809	69001	2	EACH	ADVANCE RADAR DETECTION, AS PER PLAN						
						2	2	809	69101	2	EACH	STOP LINE RADAR DETECTION, AS PER PLAN						
						1	1	809	69123	1	EACH	ATC CONTROLLER, AS PER PLAN						
MAINTENANCE OF TRAFFIC																		
						150	150	614	11110	150	hour	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE						
						50	50	614	11630	50	FT	INCREASED BARRIER DELINEATION						
		100				100	100	SPECIAL	61412200	100	FT	WORK ZONE GUARDRAIL						
						1	1	614	12380	1	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)						
						2	2	614	12384	2	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (BIDIRECTIONAL)						
				LS	LS	LS	LS	614	12420	LS		DETOUR SIGNING						
						12	12	614	13310	12	EACH	BARRIER REFLECTOR, TYPE 1 (TWO WAY)						
						9	9	614	13350	9	EACH	OBJECT MARKER, ONE WAY						
						12	12	614	13360	12	EACH	OBJECT MARKER, TWO WAY						
		9				9	9	614	18601	9	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN						
						0.07	0.07	614	20560	0.07	MILE	WORK ZONE LANE LINE, CLASS III, 6", 642 PAINT						
						0.19	0.19	614	21550	0.19	MILE	WORK ZONE CENTER LINE, CLASS III, 642 PAINT						
						0.57	0.57	614	22360	0.57	MILE	WORK ZONE EDGE LINE, CLASS III, 6", 642 PAINT						
						47	47	614	26610	47	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT						
						10	10	616	10000	10	MGAL	WATER						
						865	865	622	41100	865	FT	PORTABLE BARRIER, UNANCHORED						
INCIDENTALS																		
		LS				LS	LS	614	11000	LS		MAINTAINING TRAFFIC						
						6	6	619	16010	6	MNTH	FIELD OFFICE, TYPE B						
						LS	LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING						
						LS	LS	624	10000	LS		MOBILIZATION						

GENERAL SUMMARY

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET

P.24

TOTAL

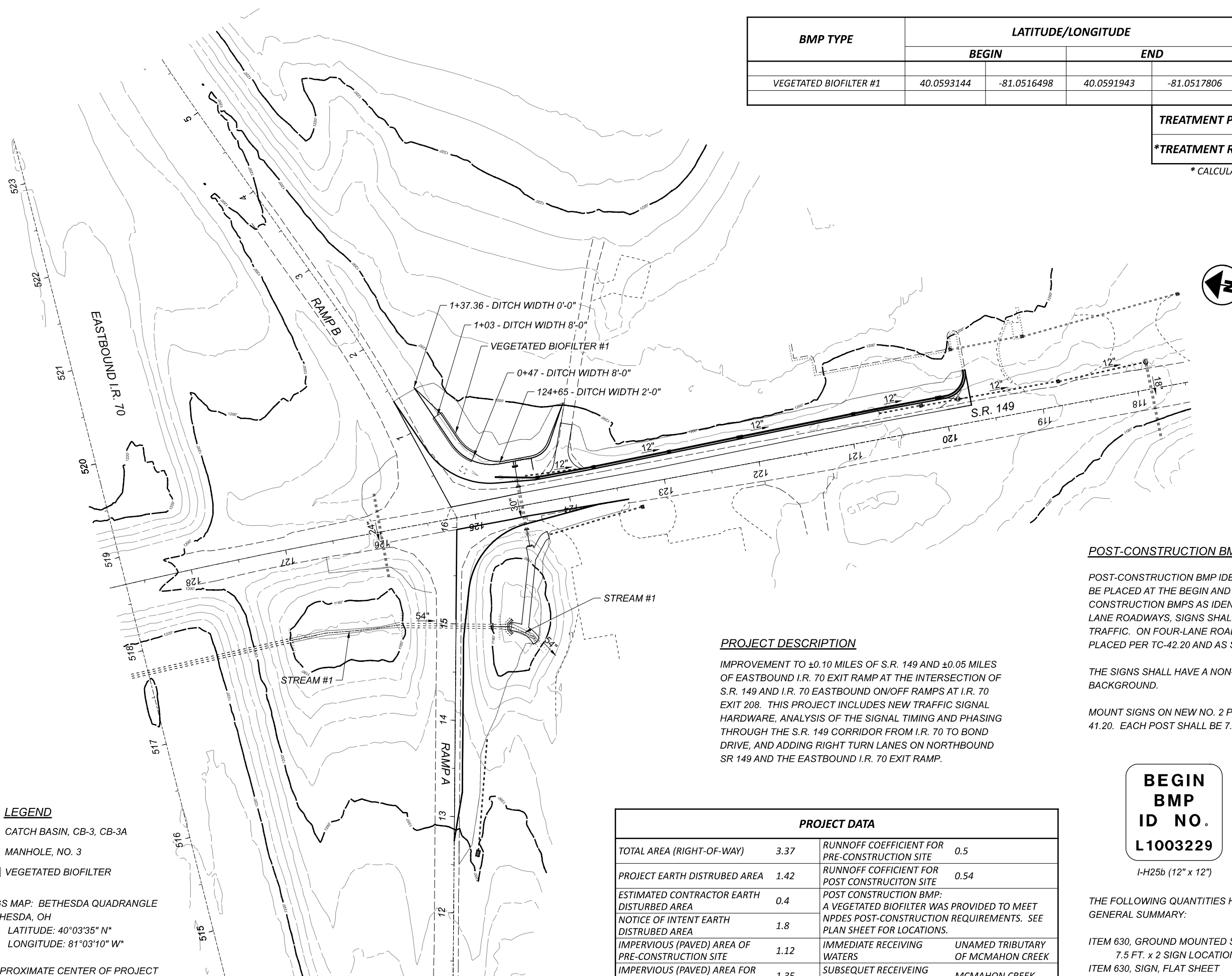
88

LEGEND

- CATCH BASIN, CB-3, CB-3A
- MANHOLE, NO. 3
- ▨ VEGETATED BIOFILTER

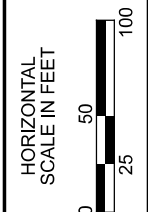
USGS MAP: BETHESDA QUADRANGLE
 BETHESDA, OH
 LATITUDE: 40°03'35" N*
 LONGITUDE: 81°03'10" W*

* APPROXIMATE CENTER OF PROJECT



BMP TYPE	LATITUDE/LONGITUDE		BMP WIDTH (FEET)	EDA TREATMENT CREDIT (ACRES)		
	BEGIN	END				
VEGETATED BIOFILTER #1	40.0593144	-81.0516498	40.0591943	-81.0517806	8	1.84
TREATMENT PROVIDED				1.84		
*TREATMENT REQUIRED				0.32		

* CALCULATED PER sec 1115.7 L&D V2



PROJECT SITE PLAN

PROJECT DESCRIPTION

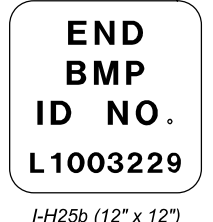
IMPROVEMENT TO ±0.10 MILES OF S.R. 149 AND ±0.05 MILES OF EASTBOUND I.R. 70 EXIT RAMP AT THE INTERSECTION OF S.R. 149 AND I.R. 70 EASTBOUND ON/OFF RAMP AT I.R. 70 EXIT 208. THIS PROJECT INCLUDES NEW TRAFFIC SIGNAL HARDWARE, ANALYSIS OF THE SIGNAL TIMING AND PHASING THROUGH THE S.R. 149 CORRIDOR FROM I.R. 70 TO BOND DRIVE, AND ADDING RIGHT TURN LANES ON NORTHBOUND SR 149 AND THE EASTBOUND I.R. 70 EXIT RAMP.

POST-CONSTRUCTION BMP IDENTIFICATION SIGNS

POST-CONSTRUCTION BMP IDENTIFICATION SIGNS (I-H25b) SHALL BE PLACED AT THE BEGIN AND END POINTS OF THE POST-CONSTRUCTION BMPs AS IDENTIFIED IN THE PLANS. ON TWO-LANE ROADWAYS, SIGNS SHALL BE PLACED PER TC-42.20, FACING TRAFFIC. ON FOUR-LANE ROADWAYS, THE SIGNS SHALL BE PLACED PER TC-42.20 AND AS SHOWN IN THE PLANS.

THE SIGNS SHALL HAVE A NON-REFLECTIVE WHITE SHEETING BACKGROUND.

MOUNT SIGNS ON NEW NO. 2 POSTS AND INSTALL PER SCD TC-41.20. EACH POST SHALL BE 7.5' IN LENGTH.



THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

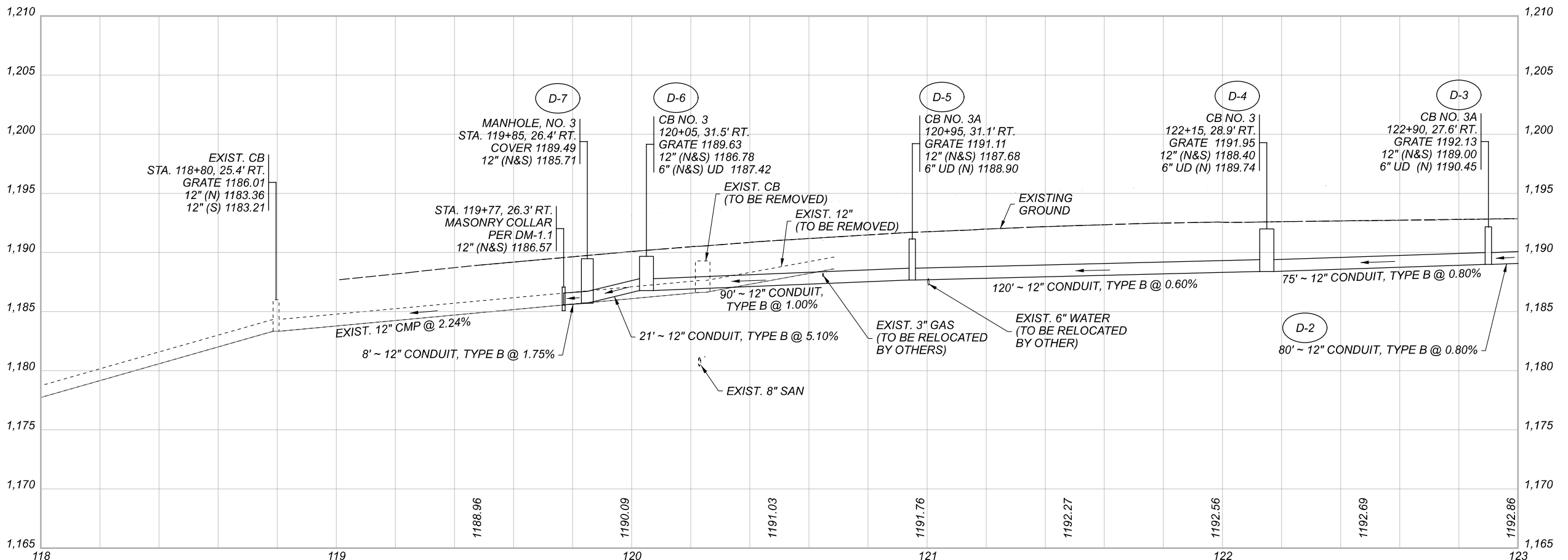
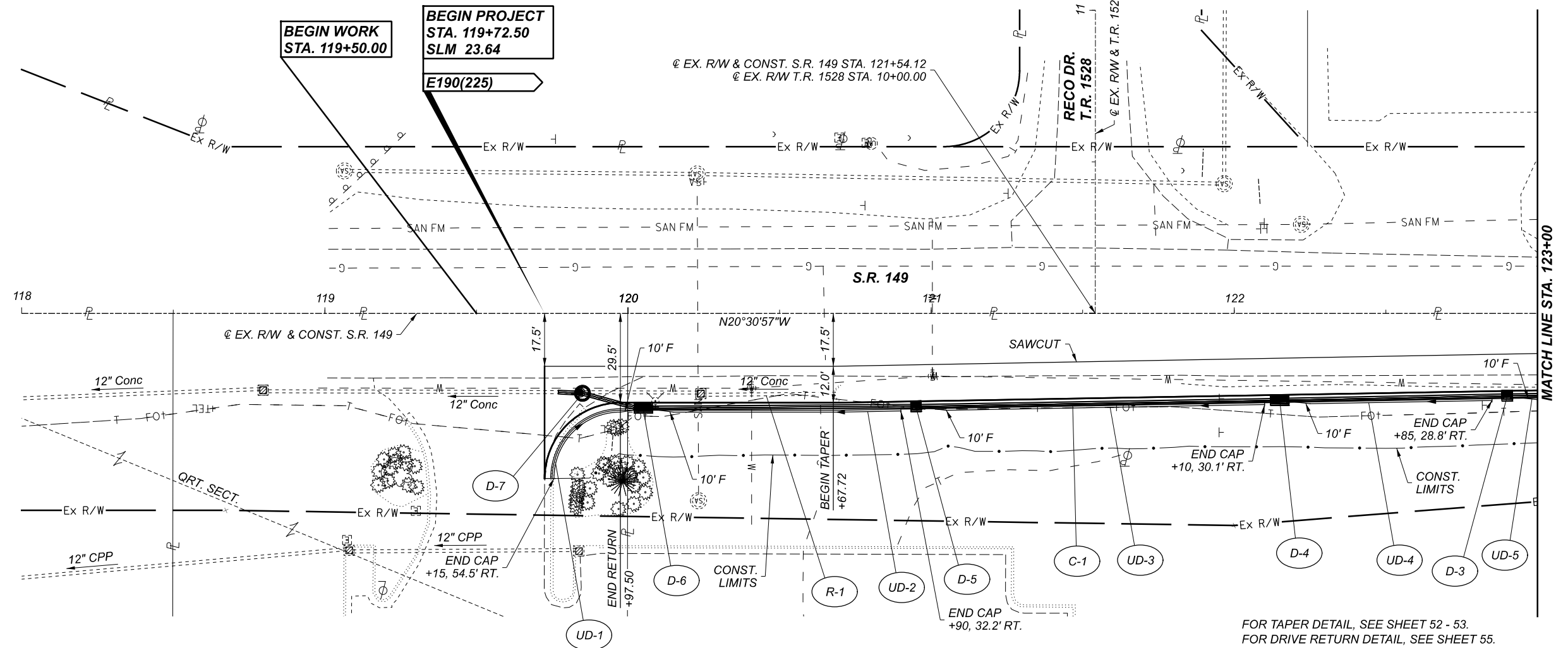
- ITEM 630, GROUND MOUNTED SUPPORT, NO. 2 POST 7.5 FT. x 2 SIGN LOCATIONS = 15 FT.
- ITEM 630, SIGN, FLAT SHEET 1 SQ. FT. x 2 SIGNS = 2.0 SQ. FT.

PROJECT DATA		
TOTAL AREA (RIGHT-OF-WAY)	3.37	RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE 0.5
PROJECT EARTH DISTURBED AREA	1.42	RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE 0.54
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	0.4	POST CONSTRUCTION BMP: A VEGETATED BIOFILTER WAS PROVIDED TO MEET NPDES POST-CONSTRUCTION REQUIREMENTS. SEE PLAN SHEET FOR LOCATIONS.
NOTICE OF INTENT EARTH DISTURBED AREA	1.8	
IMPERVIOUS (PAVED) AREA OF PRE-CONSTRUCTION SITE	1.12	IMMEDIATE RECEIVING WATERS UNAMED TRIBUTARY OF MCMAHON CREEK
IMPERVIOUS (PAVED) AREA FOR POST-CONSTRUCTION SITE	1.35	SUBSEQUENT RECEIVING WATER MCMAHON CREEK

DESIGN AGENCY

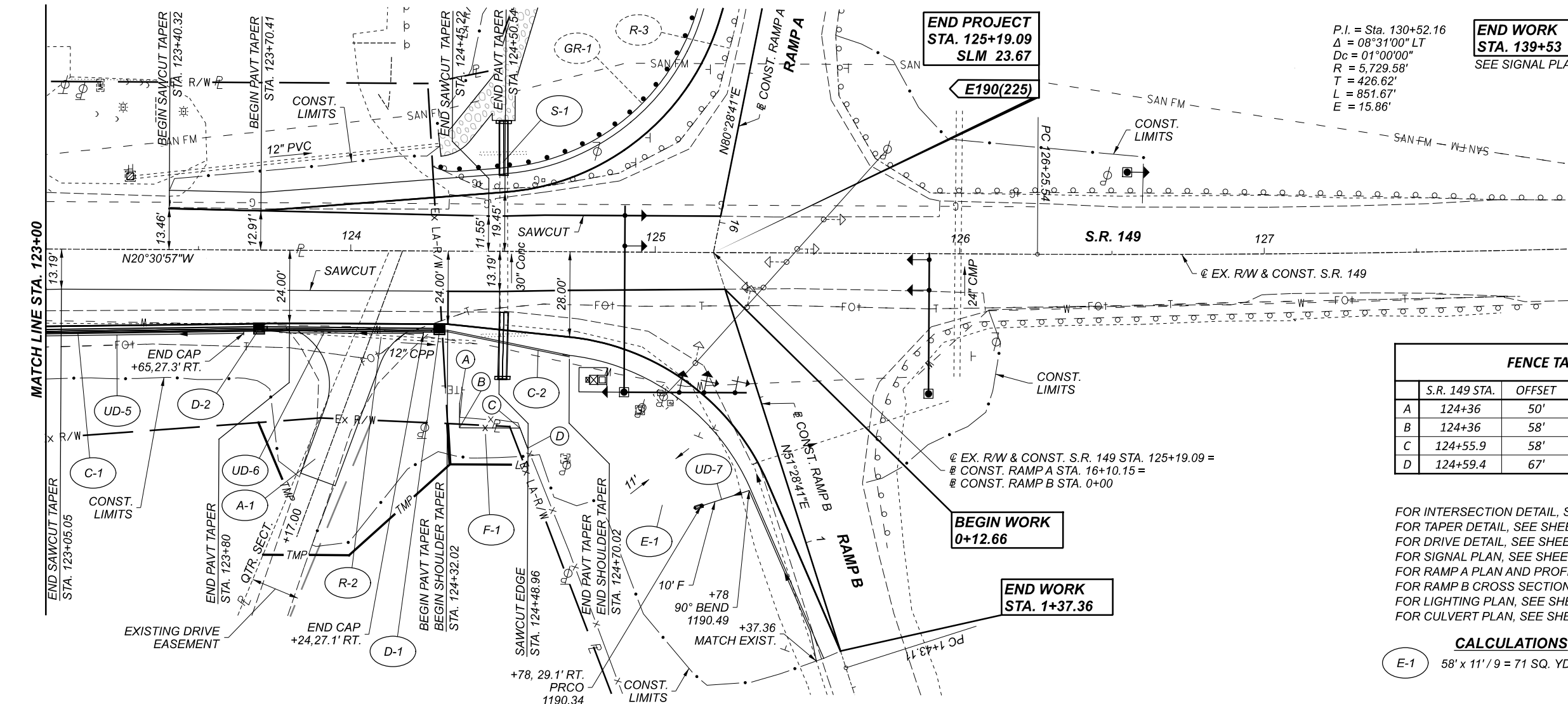


DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	P.25
TOTAL	88



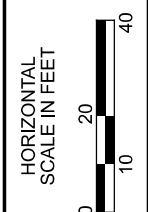
PLAN AND PROFILE SHEET
S.R. 149 - STA. 118+00 TO STA. 123+00

DESIGN AGENCY	
DESIGNER	SAH
REVIEWER	DAH 11-15-21
PROJECT ID	106789
SHEET	P.26
TOTAL	88



P.I. = Sta. 130+52.16
 $\Delta = 08^{\circ}31'00''$ LT
 $D_c = 01^{\circ}00'00''$
 $R = 5,729.58'$
 $T = 426.62'$
 $L = 851.67'$
 $E = 15.86'$

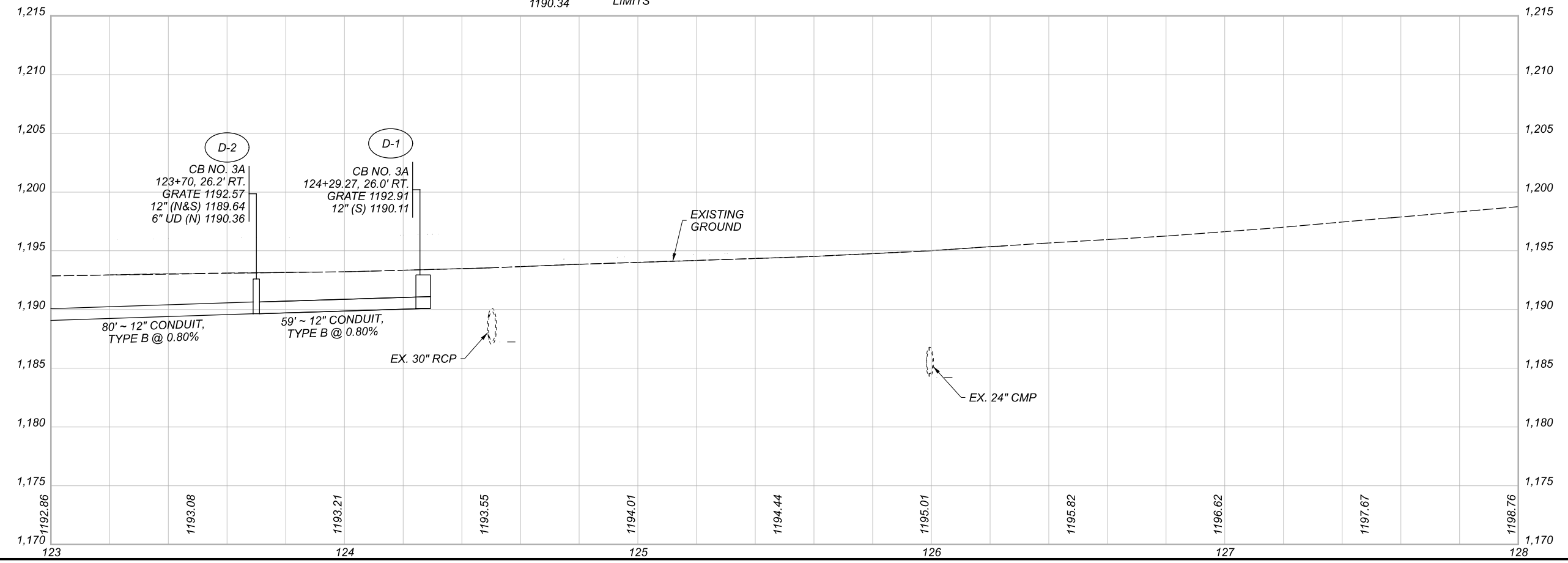
**END WORK
 STA. 139+53**
 SEE SIGNAL PLAN, SHEET 72.



FENCE TABLE			
	S.R. 149 STA.	OFFSET	DESCRIPTION
A	124+36	50'	END POST ASSEMBLY
B	124+36	58'	CORNER POST ASSEMBLY
C	124+55.9	58'	CORNER POST ASSEMBLY
D	124+59.4	67'	LINE POST W/SPLICE

FOR INTERSECTION DETAIL, SEE SHEET 51.
 FOR TAPER DETAIL, SEE SHEET 52 - 53.
 FOR DRIVE DETAIL, SEE SHEET 55.
 FOR SIGNAL PLAN, SEE SHEET 72.
 FOR RAMP A PLAN AND PROFILE, SEE SHEET 39.
 FOR RAMP B CROSS SECTIONS, SEE SHEET 47 - 50.
 FOR LIGHTING PLAN, SEE SHEET 81.
 FOR CULVERT PLAN, SEE SHEET 56.

CALCULATIONS
 E-1 $58' \times 11' / 9 = 71$ SQ. YD.



PLAN AND PROFILE SHEET
 S.R. 149 - STA. 123+00 TO STA. 128+00

DESIGN AGENCY	
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	P.27
TOTAL	88

SHEET NO.	REFERENCE NO.	STATION		SIDE	202				304	441	601	602	607	609		611										659	670	BENDS & BRANCHES					
					PIPE REMOVE 24" AND UNDER	PIPE REMOVED, OVER 24"	CATCH BASIN REMOVED	FENCE REMOVED	AGGREGATE BASE	ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), (AS PER PLAN PG64-22)	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	CONCRETE MASONRY	FENCE, TYPE 47	COMBINATION CURB AND GUTTER, TYPE 2	CURB, TYPE 2-A	6" BASE PIPE UNDERDRAINS	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	CATCH BASIN, NO. 3	CATCH BASIN, NO. 3A	MANHOLE, NO. 3	12" CONDUIT, TYPE B	30" CONDUIT, TYPE A, 706.02	PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	TOPSOIL (4" THICK)	DITCH EROSION PROTECTION MAT TYPE B (11' WIDTH)	FOR INFORMATION ONLY							
																										6" END CAP	6" x 90" BEND						
FROM	TO	FT	FT	EACH	FT	CU YD	CU YD	CU YD	CU YD	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	FT	FT	EACH	CU YD	SQ YD	EACH	EACH								
27	D-1	123+70	124+29.27	RT.													1	59															
26 - 27	D-2	122+90	123+70	RT.													1	80															
26	D-3	122+15	122+90	RT.														1	75														
26	D-4	120+95	122+15	RT.													1	120															
26	D-5	120+05	120+95	RT.													1	90															
26	D-6	119+85	120+05	RT.													1	21															
26	D-7	119+77	119+85	RT.														1	8														
26	UD-1	119+75.6	120+05	RT.										34	10															1			
26	UD-2	120+05	120+90	RT.										75	10															1			
26	UD-3	120+95	122+10	RT.										105	10															1			
26	UD-4	122+15	122+85	RT.										60	10															1			
26 - 27	UD-5	122+90	123+65	RT.										65	10															1			
27	UD-6	123+70	124+24	RT.										44	10															1			
27	UD-7	RAMP B ~ 0+78	RAMP B ~ 1+37.36	RT.										67	10						1										1		
26	R-1	119+77	120+69	RT.	92		1																										
27	R-2	123+77	124+42	RT.	65																												
26 - 27	C-1	119+75	124+32.02	RT.									471																				
27	C-2	124+32.02	124+70.02	RT.								41																					
27 & 55	A-1	124+17		RT.				15	5																								
27	F-1	124+36	124+58.4	RT.						37			37																				
27 & 56	S-1	124+50		RT & LT			16				75	1.2										40											
27	E-1	0+47	1+03	RT.																			8		71								
TOTAL CARRIED TO GENERAL SUMMARY					157	16	1	37	15	5	75	1.2	37	471	41	450	70	2	4	1	453	40	1	8	71	6	1						

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

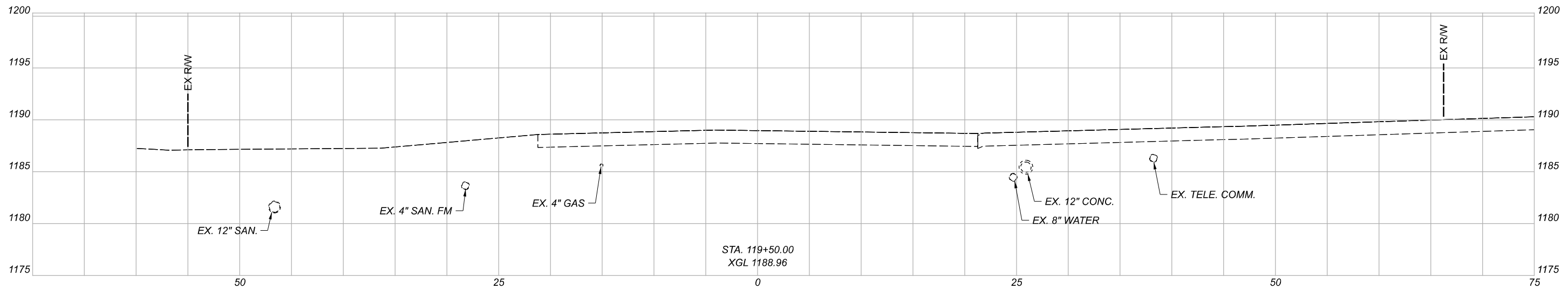
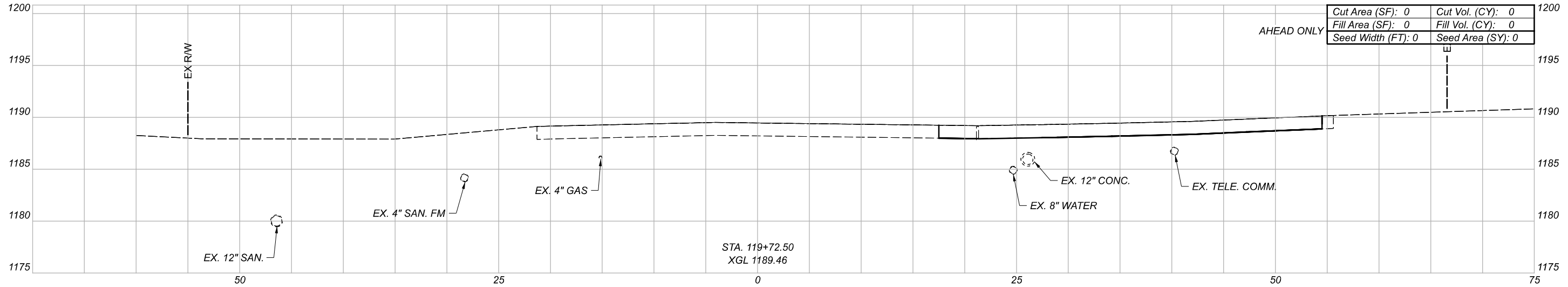
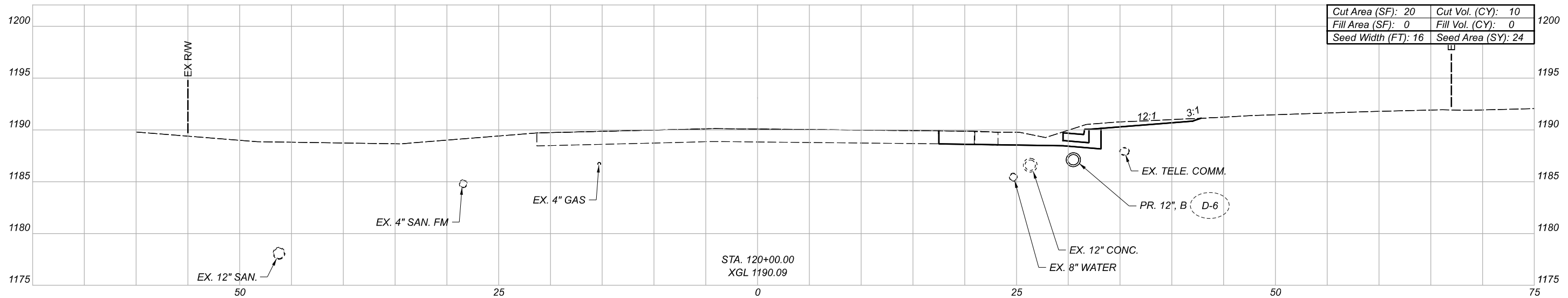
SHEET

P.28

TOTAL

88

S.R. 149 - ESTIMATED QUANTITIES



CROSS SECTIONS - S.R. 149
 STA. 119+50.00 TO STA. 120+00.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

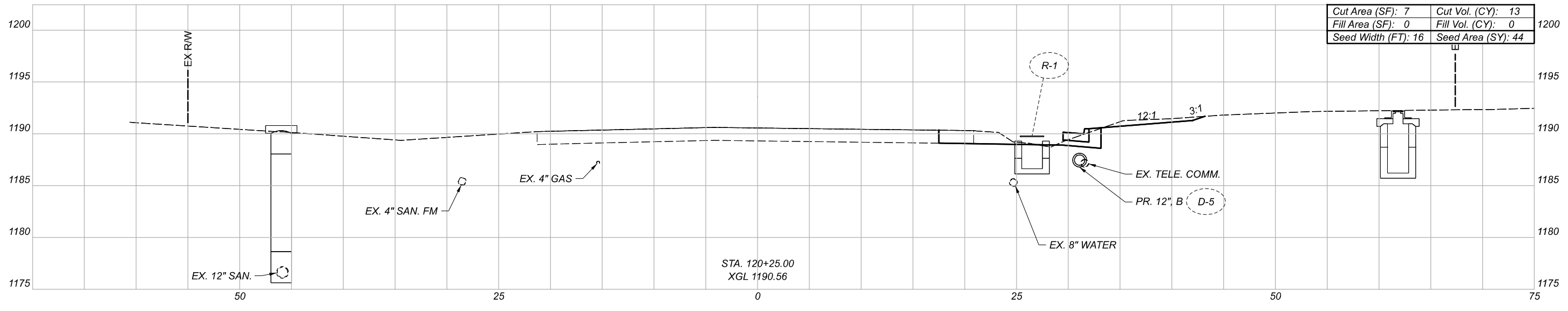
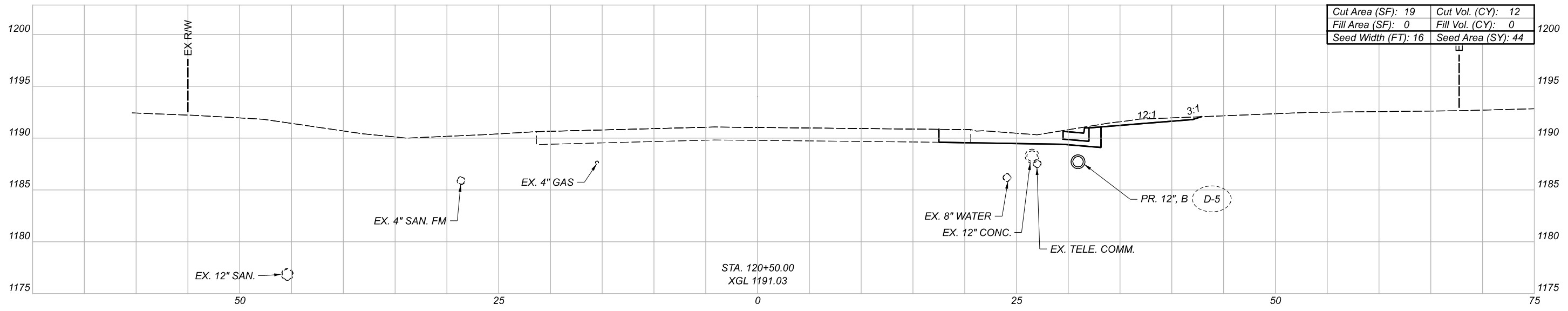
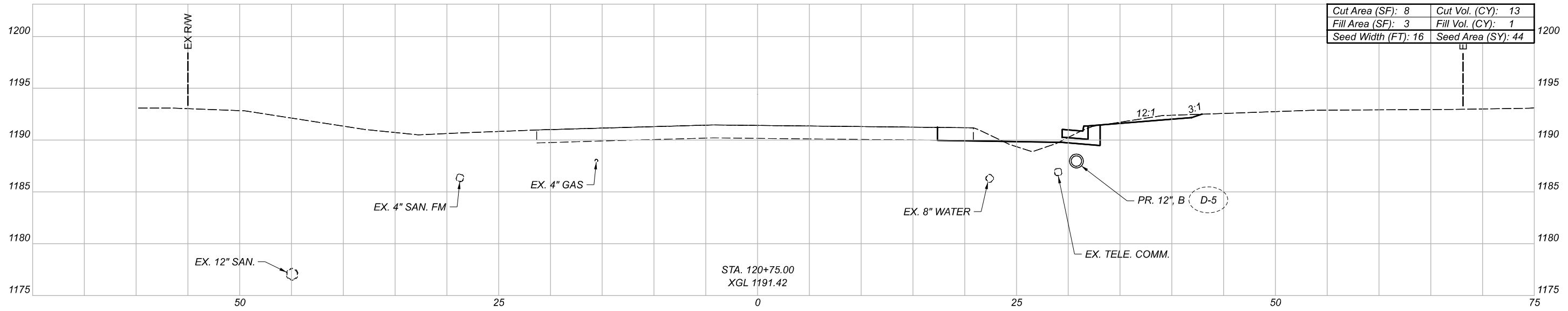
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
24	10	0

SHEET	TOTAL
P.29	88



CROSS SECTIONS - S.R. 149
 STA. 120+25.00 TO STA. 120+75.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

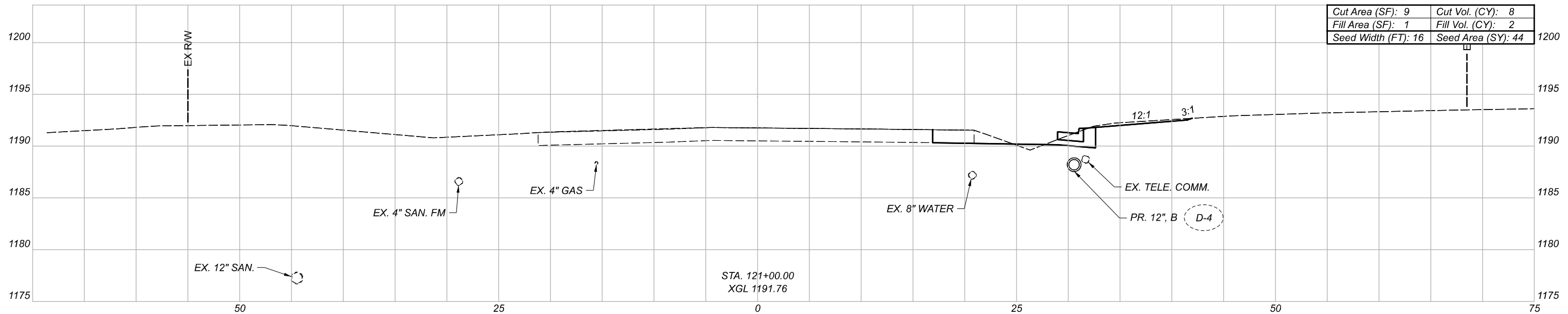
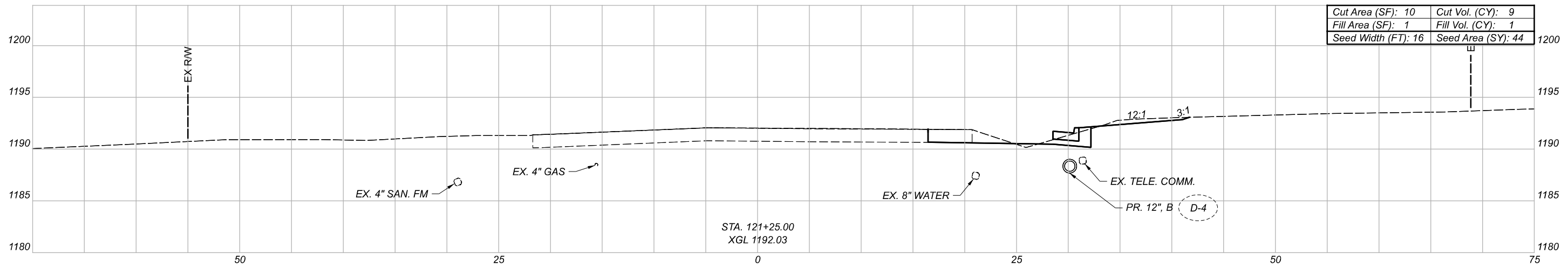
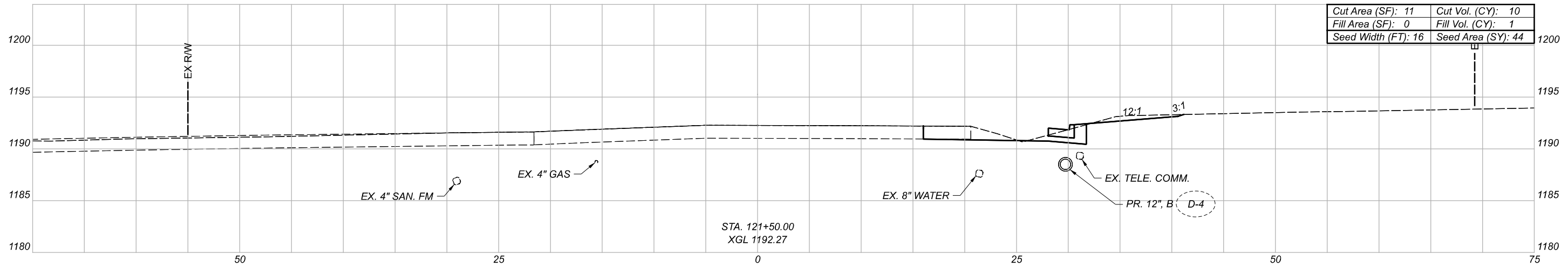
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
132	38	1

SHEET	TOTAL
P.30	88



CROSS SECTIONS - S.R. 149
 STA. 121+00.00 TO STA. 121+50.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

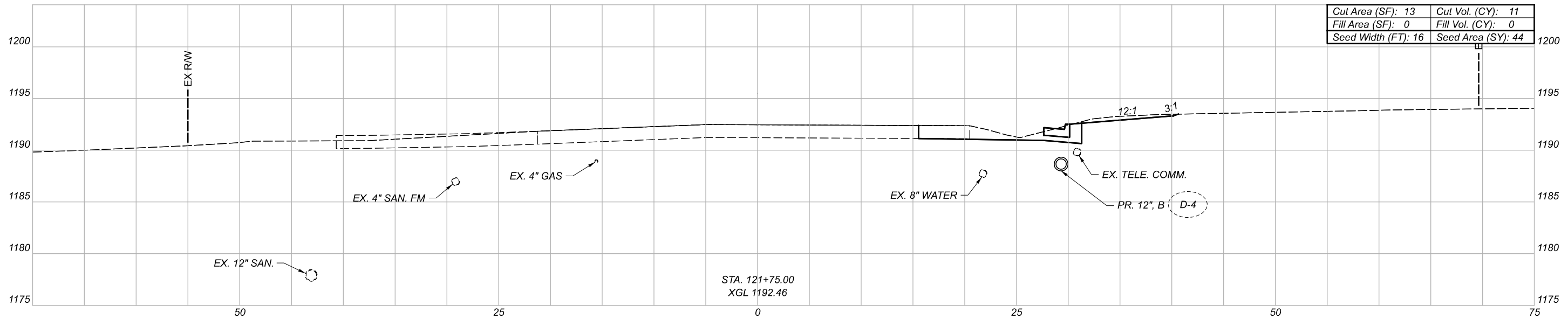
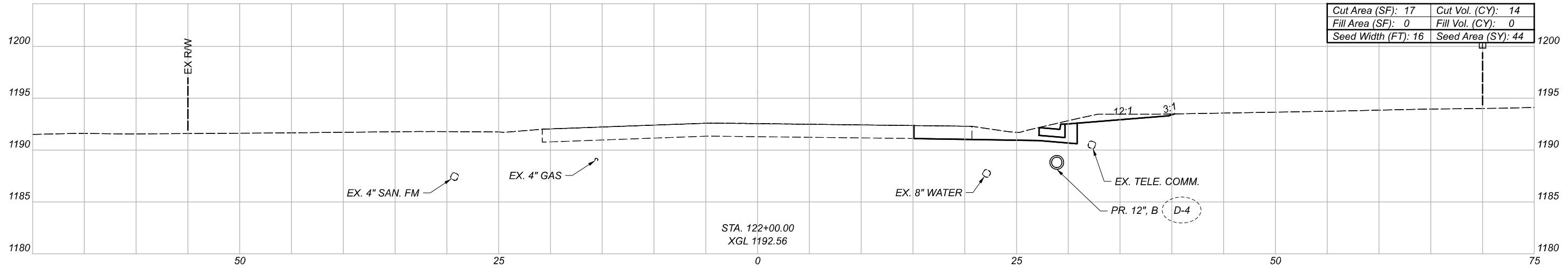
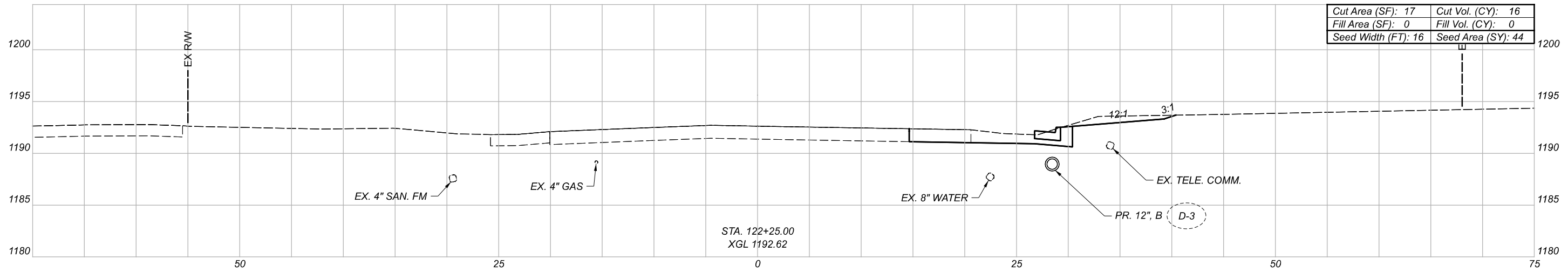
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
132	27	4

SHEET	TOTAL
P.31	88



CROSS SECTIONS - S.R. 149
 STA. 121+75.00 TO STA. 122+25.00

DESIGN AGENCY



DESIGNER

SAH

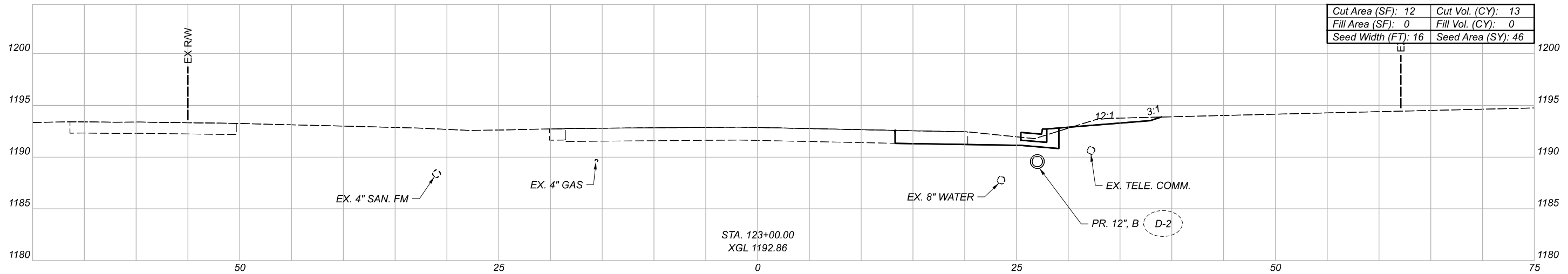
REVIEWER

DAH 11-15-21

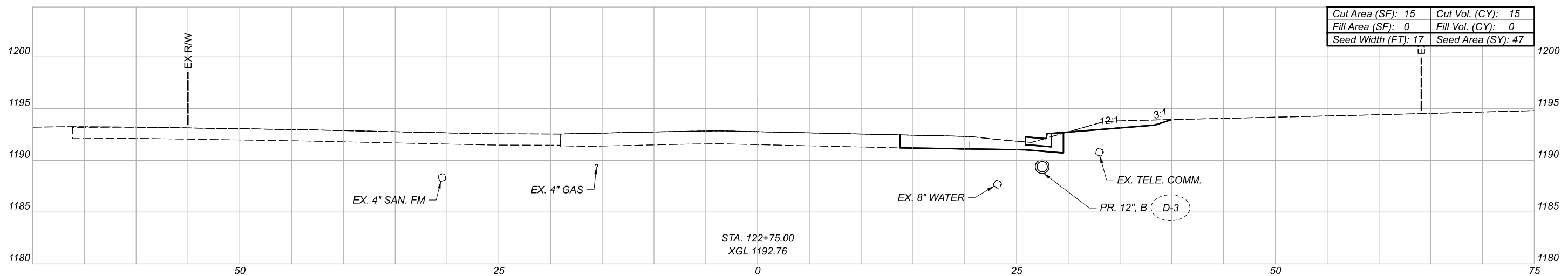
PROJECT ID

106789

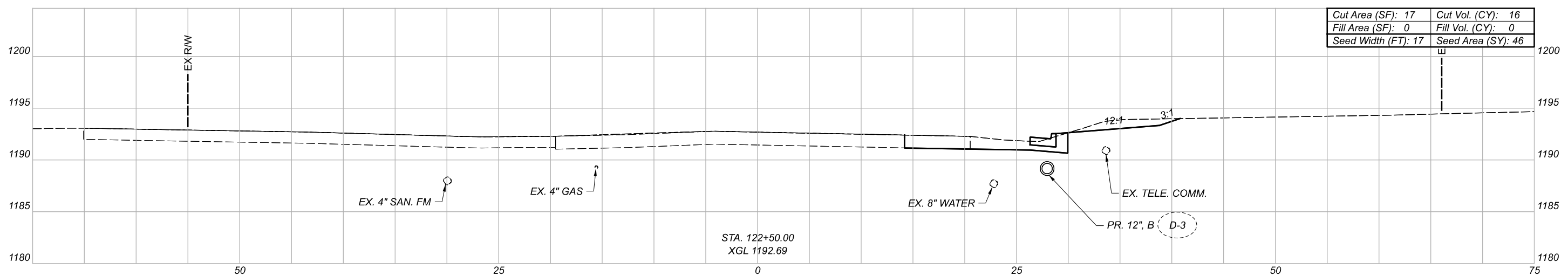
Sheet Totals			106789	
Seeding	Cut	Fill	SHEET	TOTAL
132	41	0	P.32	88



Cut Area (SF): 12	Cut Vol. (CY): 13
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 16	Seed Area (SY): 46




Cut Area (SF): 15	Cut Vol. (CY): 15
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 17	Seed Area (SY): 47

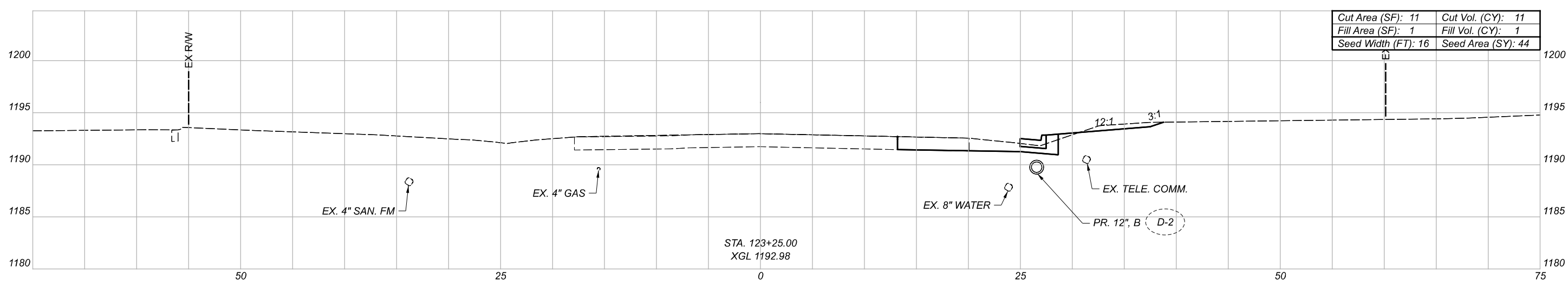
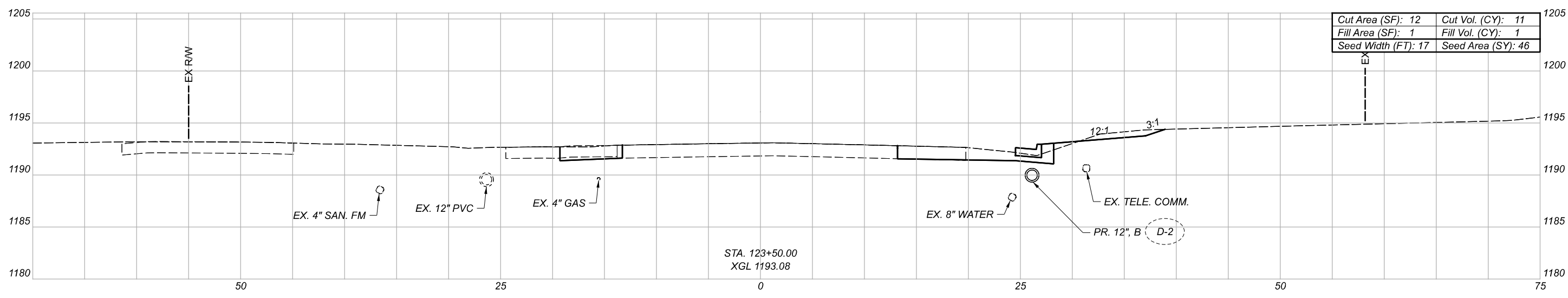
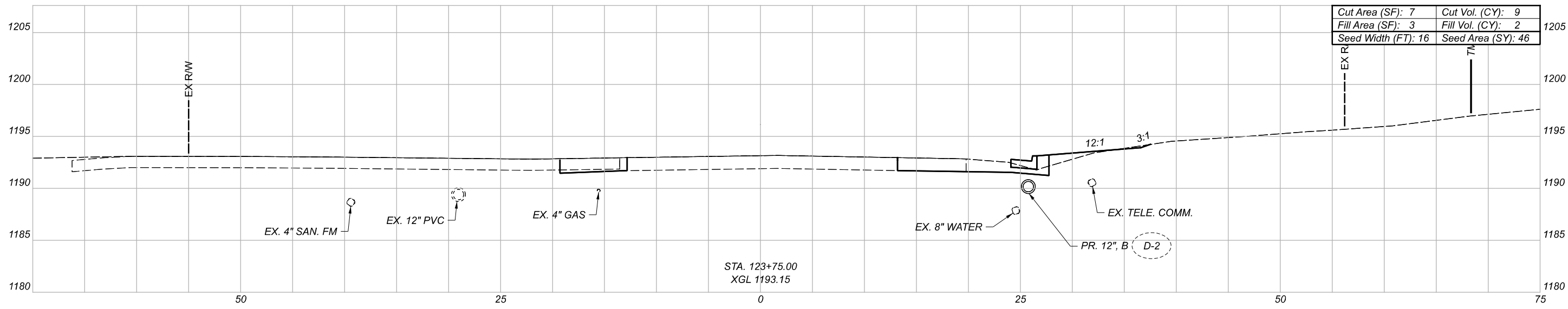


Cut Area (SF): 17	Cut Vol. (CY): 16
Fill Area (SF): 0	Fill Vol. (CY): 0
Seed Width (FT): 17	Seed Area (SY): 46


CROSS SECTIONS - S.R. 149
 STA. 122+50.00 TO STA. 123+00.00

DESIGN AGENCY

 DESIGNER
 SAH
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 DAH 11-15-21
 PROJECT ID
 106789

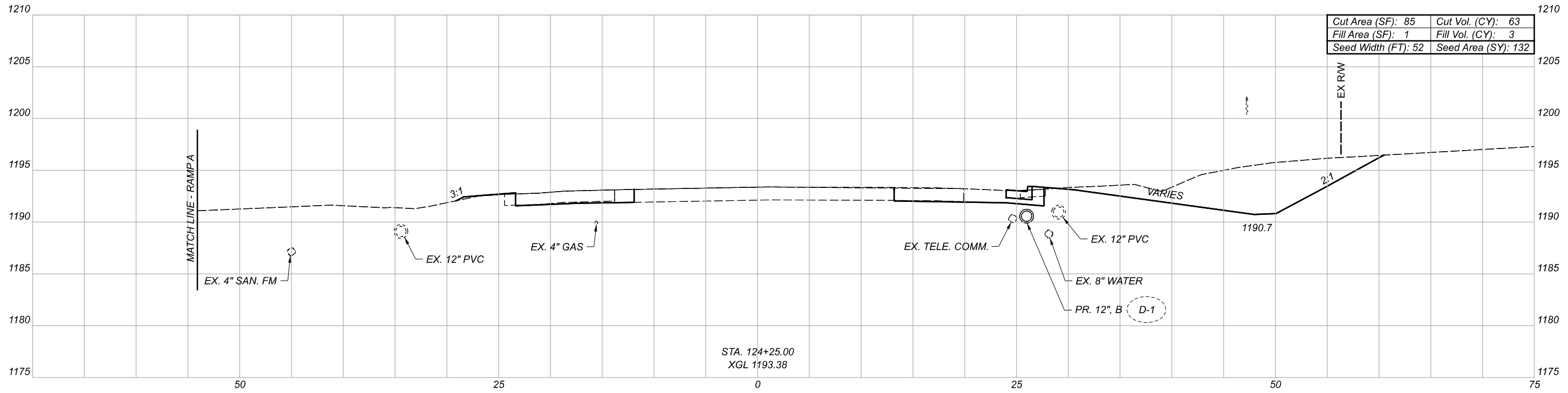
Sheet Totals			SHEET TOTAL	
Seeding	Cut	Fill	P.33	88
139	44	0		



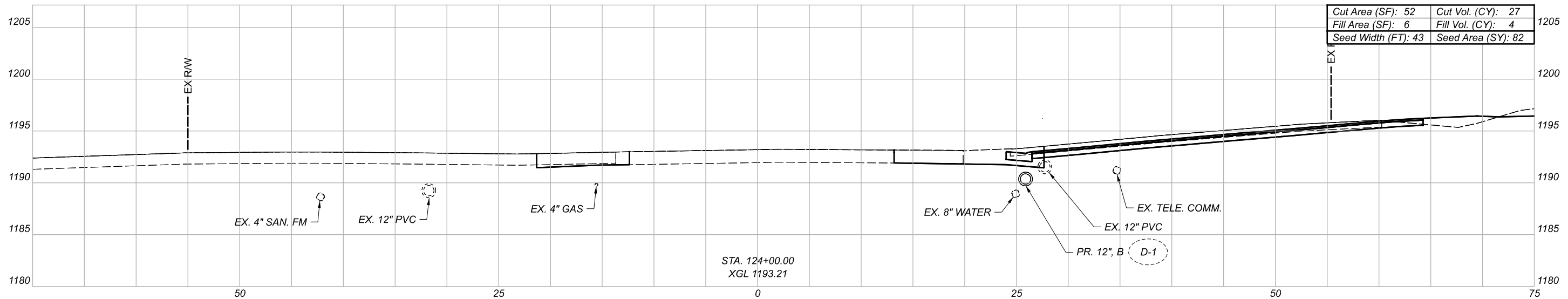
CROSS SECTIONS - S.R. 149
 STA. 123+25.00 TO STA. 123+75.00

DESIGN AGENCY

 DESIGNER
 SAH
 REVIEWER
 DAH 11-15-21
 PROJECT ID
 106789

Sheet Totals			SHEET	TOTAL
Seeding	Cut	Fill		
136	31	4	P.34	88




Cut Area (SF): 85	Cut Vol. (CY): 63
Fill Area (SF): 1	Fill Vol. (CY): 3
Seed Width (FT): 52	Seed Area (SY): 132

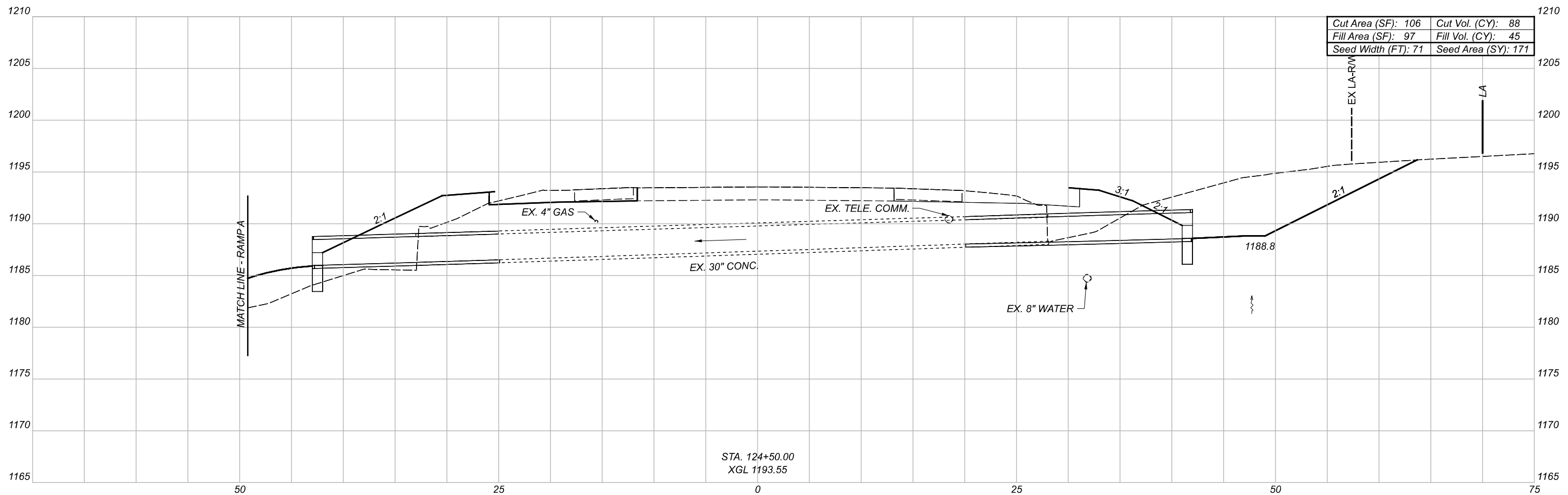
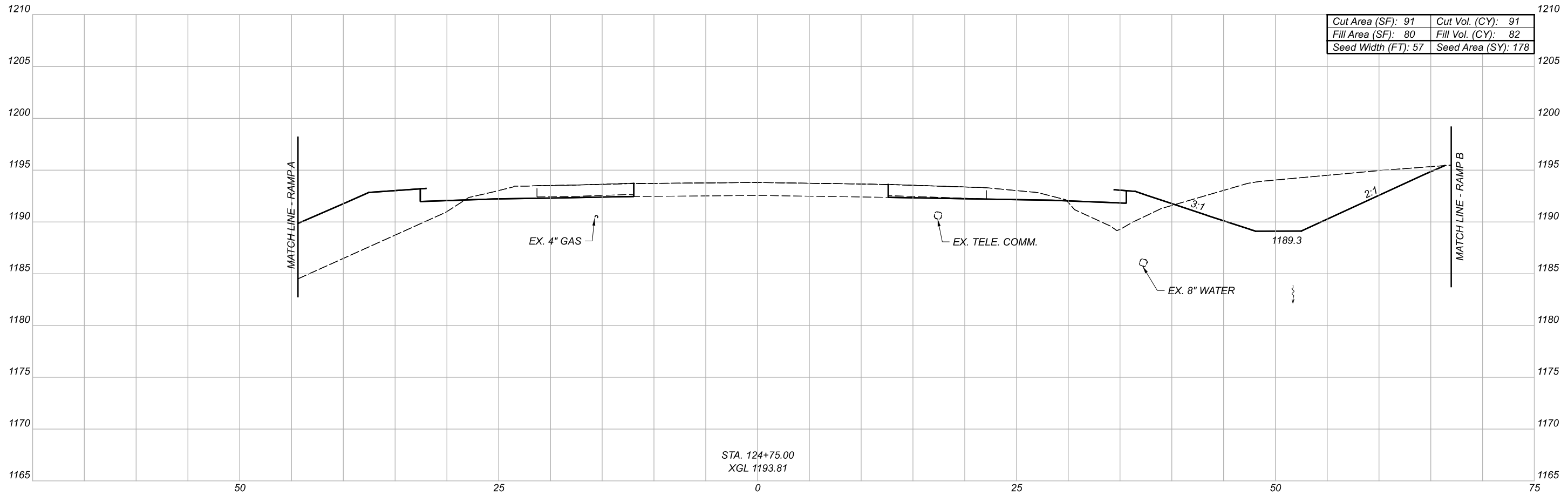


Cut Area (SF): 52	Cut Vol. (CY): 27
Fill Area (SF): 6	Fill Vol. (CY): 4
Seed Width (FT): 43	Seed Area (SY): 82

Sheet Totals			106789	
Seeding	Cut	Fill	SHEET	TOTAL
214	90	7	P.35	88

CROSS SECTIONS - S.R. 149
 STA. 124+00.00 TO STA. 124+25.00

DESIGN AGENCY

 DESIGNER
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 REVIEWER
 DAH 11-15-21
 PROJECT ID
 106789



CROSS SECTIONS - S.R. 149
 STA. 124+50.00 TO STA. 124+75.00

DESIGN AGENCY

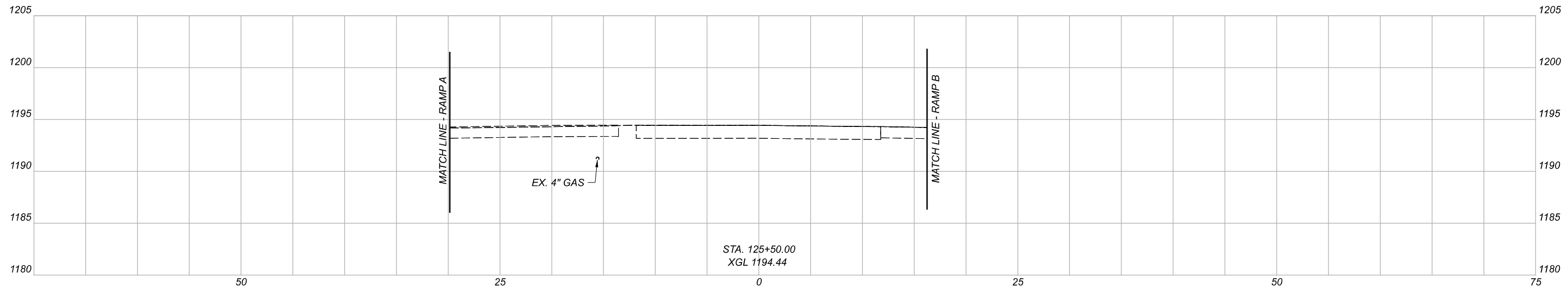


DESIGNER
SAH

REVIEWER
DAH 11-15-21

PROJECT ID
106789

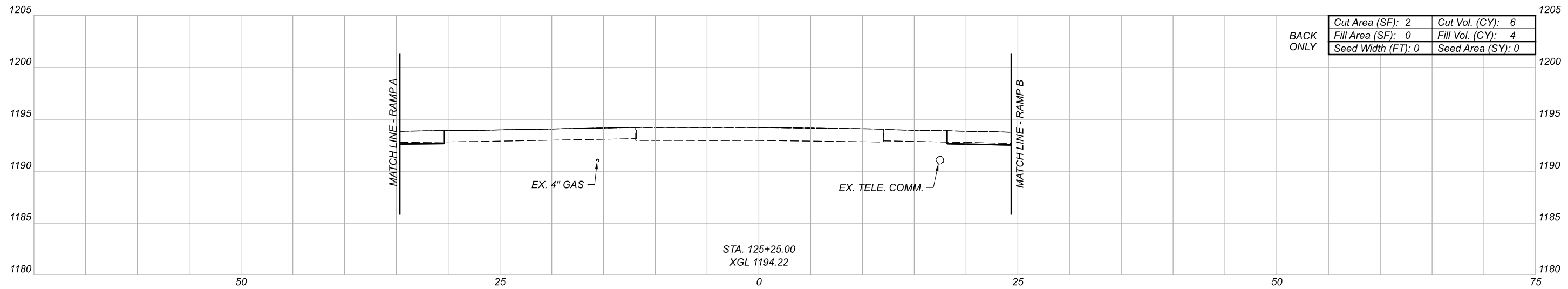
Sheet Totals			106789	
Seeding	Cut	Fill	SHEET	TOTAL
349	179	127	P.36	88



STA. 125+50.00
XGL 1194.44

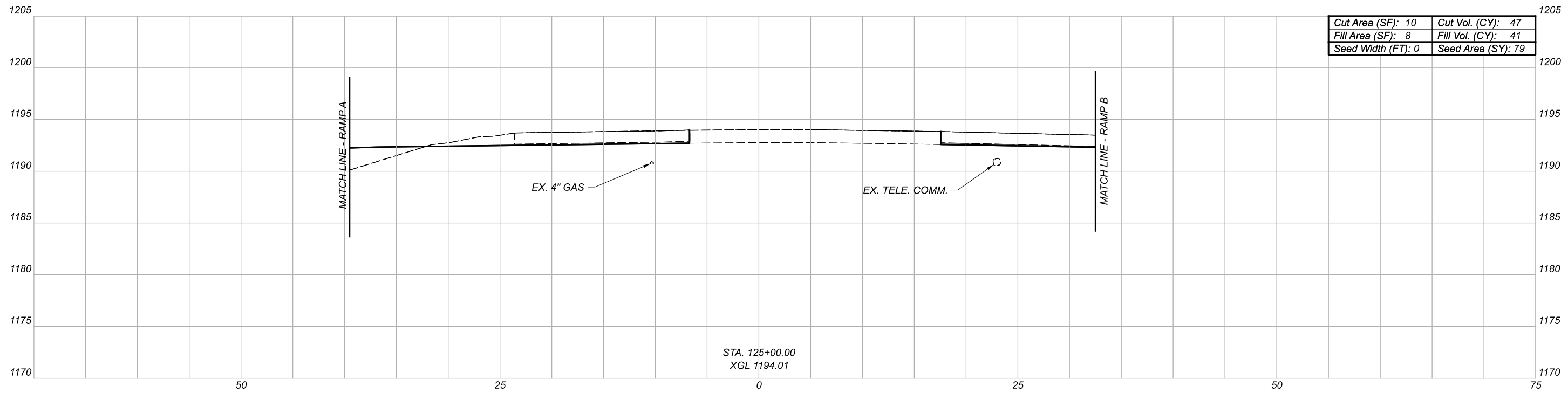
BACK ONLY

Cut Area (SF): 2	Cut Vol. (CY): 6
Fill Area (SF): 0	Fill Vol. (CY): 4
Seed Width (FT): 0	Seed Area (SY): 0



STA. 125+25.00
XGL 1194.22

Cut Area (SF): 10	Cut Vol. (CY): 47
Fill Area (SF): 8	Fill Vol. (CY): 41
Seed Width (FT): 0	Seed Area (SY): 79



STA. 125+00.00
XGL 1194.01

CROSS SECTIONS - S.R. 149
STA. 125+00.00 TO STA. 125+50.00

DESIGN AGENCY



DESIGNER

SAH

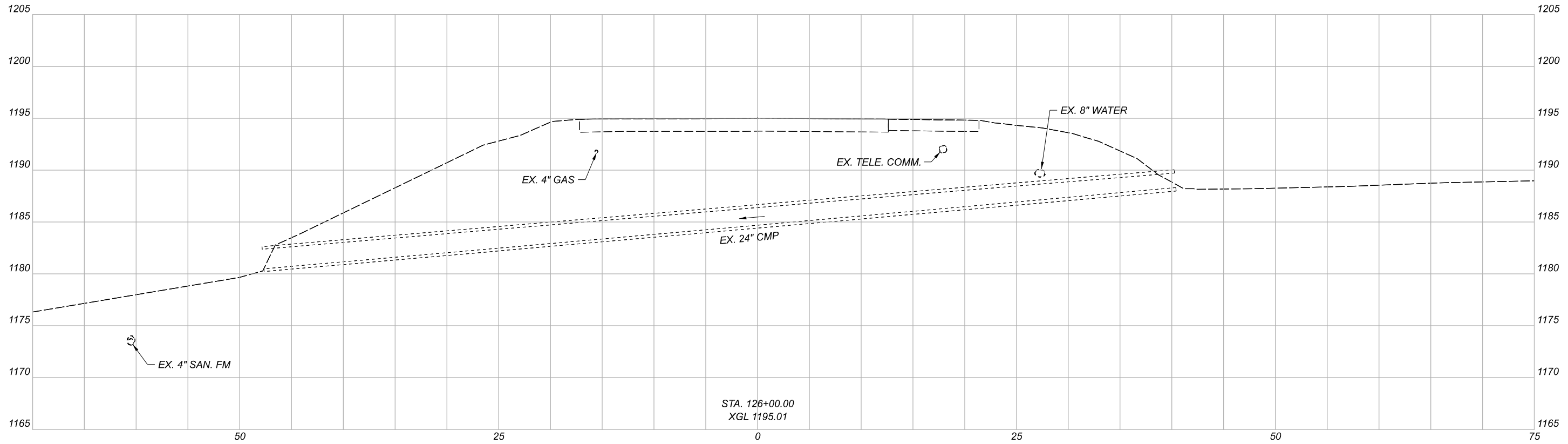
REVIEWER

DAH 11-15-21

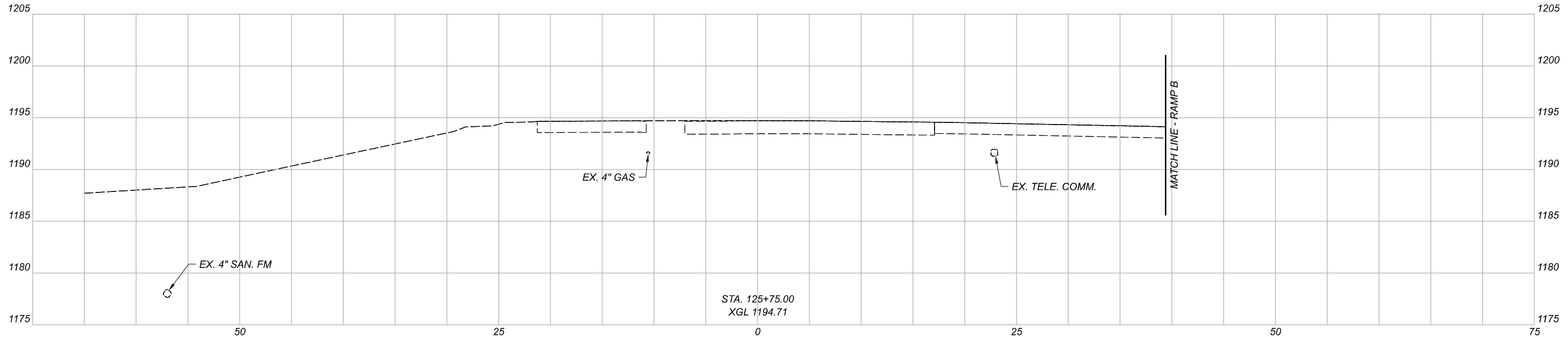
PROJECT ID

106789

Sheet Totals			106789	
Seeding	Cut	Fill	SHEET	TOTAL
79	53	45	P.37	88



STA. 126+00.00
XGL 1195.01



STA. 125+75.00
XGL 1194.71

CROSS SECTIONS - S.R. 149
 STA. 125+75.00 TO STA. 126+00.00

DESIGN AGENCY



DESIGNER
SAH

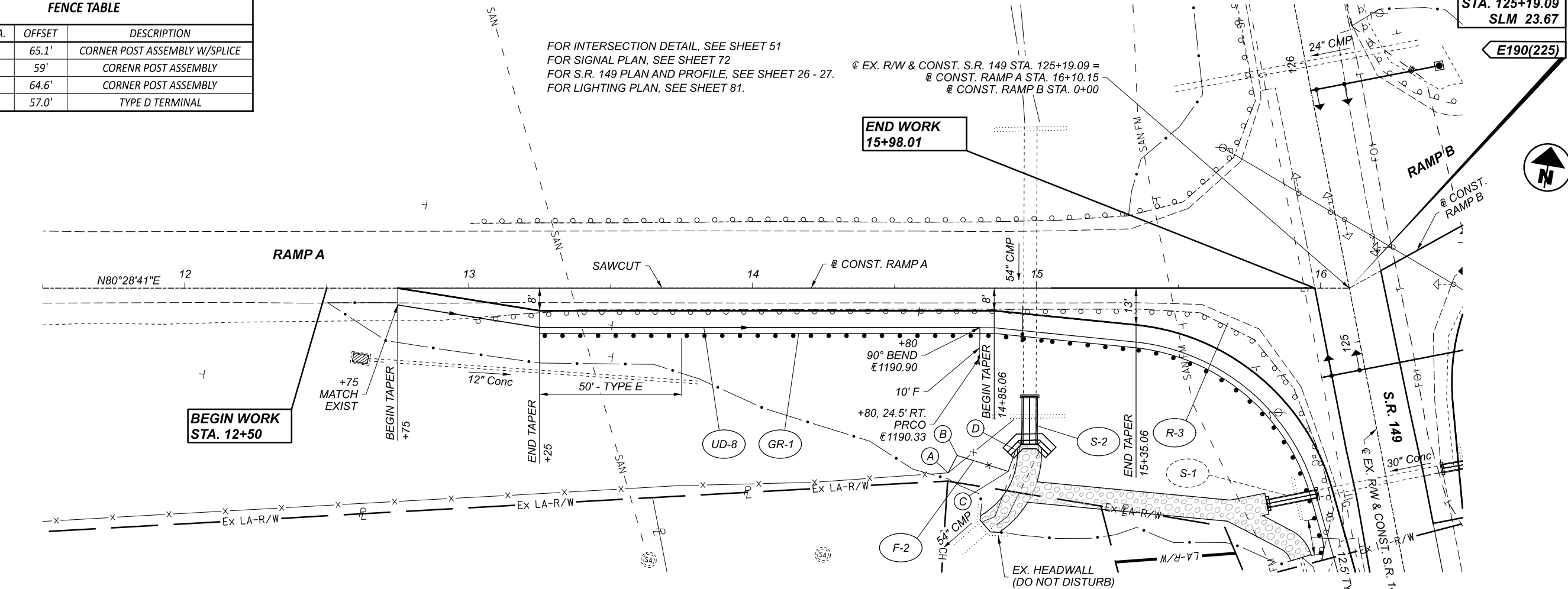
REVIEWER
DAH 11-15-21

PROJECT ID
106789

Sheet Totals		
Seeding	Cut	Fill
0	0	0

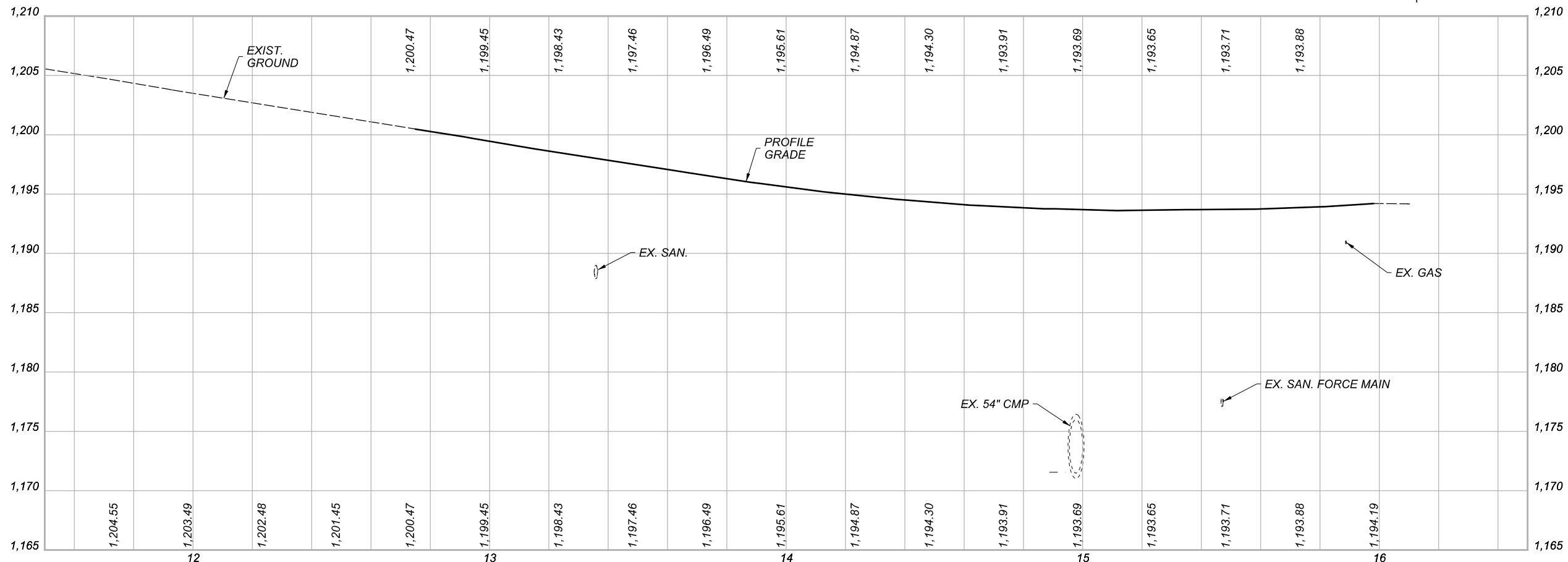
SHEET	TOTAL
P.38	88

FENCE TABLE			
RAMP A STA.	OFFSET	DESCRIPTION	
A	14+68.8	65.1'	CORNER POST ASSEMBLY W/SPLICE
B	14+72	59'	CORNER POST ASSEMBLY
C	14+90	64.6'	CORNER POST ASSEMBLY
D	14+92.7	57.0'	TYPE D TERMINAL



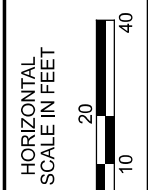
FOR INTERSECTION DETAIL, SEE SHEET 51
 FOR SIGNAL PLAN, SEE SHEET 72
 FOR S.R. 149 PLAN AND PROFILE, SEE SHEET 26 - 27.
 FOR LIGHTING PLAN, SEE SHEET 81.

EX. R/W & CONST. S.R. 149 STA. 125+19.09 =
 CONST. RAMP A STA. 16+10.15
 CONST. RAMP B STA. 0+00



END PROJECT
 STA. 125+19.09
 SLM 23.67

E190(225)



PLAN AND PROFILE SHEET
 I.R. 70 - RAMP A - STA. 11+50 TO STA. 16+10.15

DESIGN AGENCY



DESIGNER
 SAH

REVIEWER
 DAH 11-15-21


PROJECT ID
 106789

SHEET TOTAL
 P.39 88

SHEET NO.	REFERENCE NO.	STATION		SIDE	202			601	602	606			607	626		611				BENDS & BRANCHES		
					PIPE REMOVED, OVER 24"	GUARDRAIL REMOVED	FENCE REMOVED	ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER	CONCRETE MASONRY	GUARDRAIL, TYPE MGS	ANCHOR ASSEMBLY, MGS TYPE T	ANCHOR ASSEMBLY, MGS TYPE E (MASH 2016)	FENCE, TYPE 47	BARRIER REFLECTOR, TYPE 2 (ONE WAY)	BARRIER REFLECTOR, TYPE 2 (TWO WAY)	6" BASE PIPE UNDERDRAINS	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	54" CONDUIT, TYPE A, 707.01 OR 707.02	PRECAST REINFORCED CONCRETE OUTLET, AS PER PLAN	FOR INFORMATION ONLY		
																				FT	FT	FT
39	UD-8	12+75	14+80	RT.													206	10		1		1
39	R-3	13+00	SR 149 - 124+27 LT	RT.		363																
39	GR-1	13+25	SR 149 - 124+27 LT	RT.						287.5	1	1		6	6							
39	F-2	14+68.8	14+92.7	RT.									27									
39 & 57	S-2	14+97		RT.	8		27	10.5														17
TOTAL CARRIED TO GENERAL SUMMARY					8	363	27	27	10.5	287.5	1	1	27	6	6		206	10	17	1		1

I.R. 70 - RAMP A - ESTIMATED QUANTITIES

DESIGN AGENCY

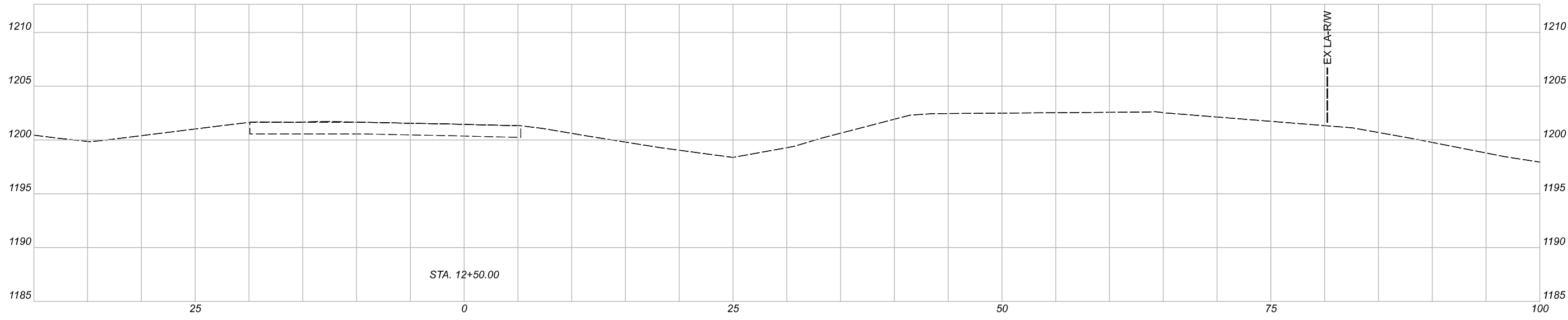
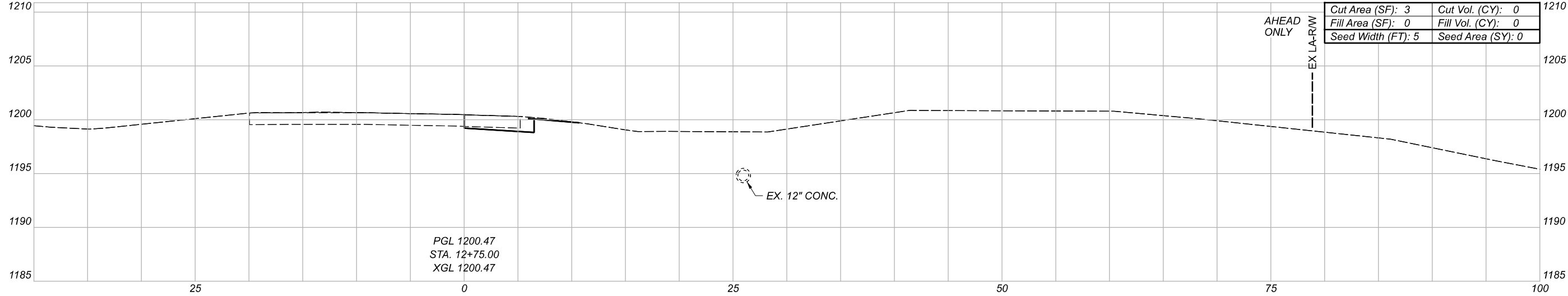
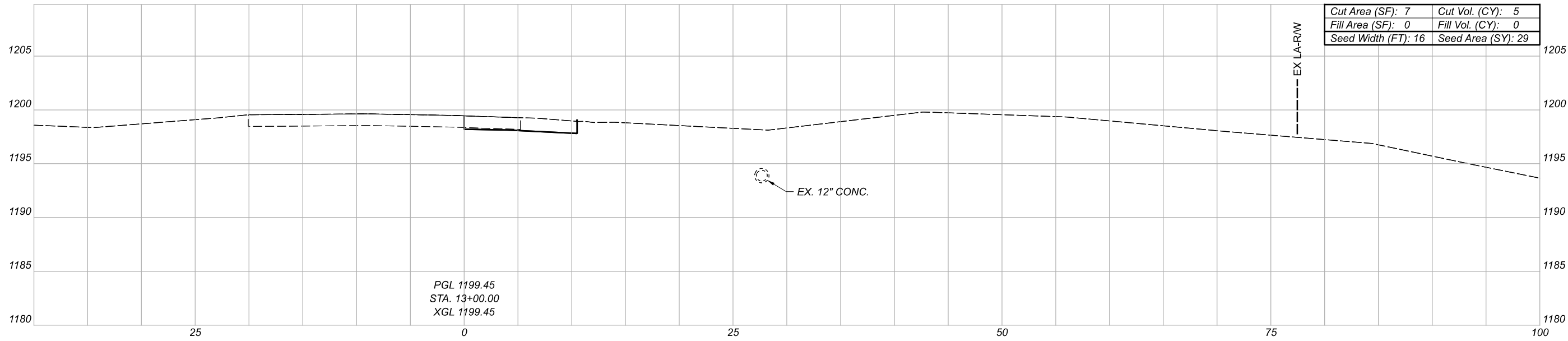


DESIGNER
SAH

REVIEWER
DAH 11-15-21

PROJECT ID
106789

SHEET TOTAL
P.40 88



CROSS SECTIONS - RAMP A
 STA. 12+50.00 TO STA. 13+00.00

DESIGN AGENCY

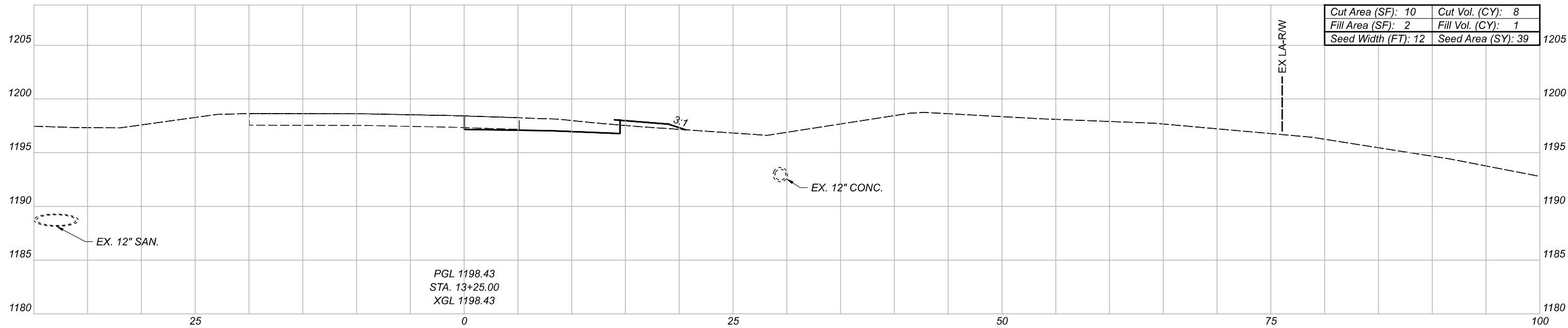
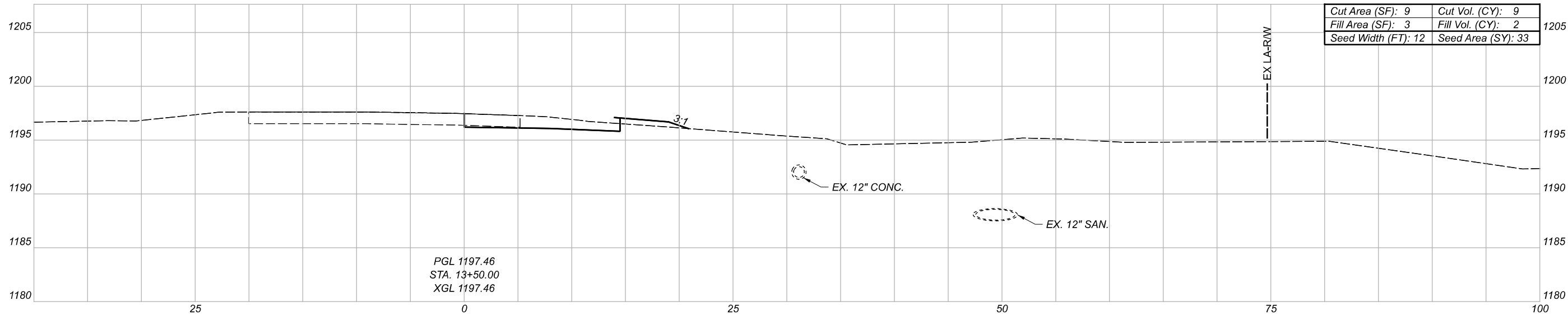
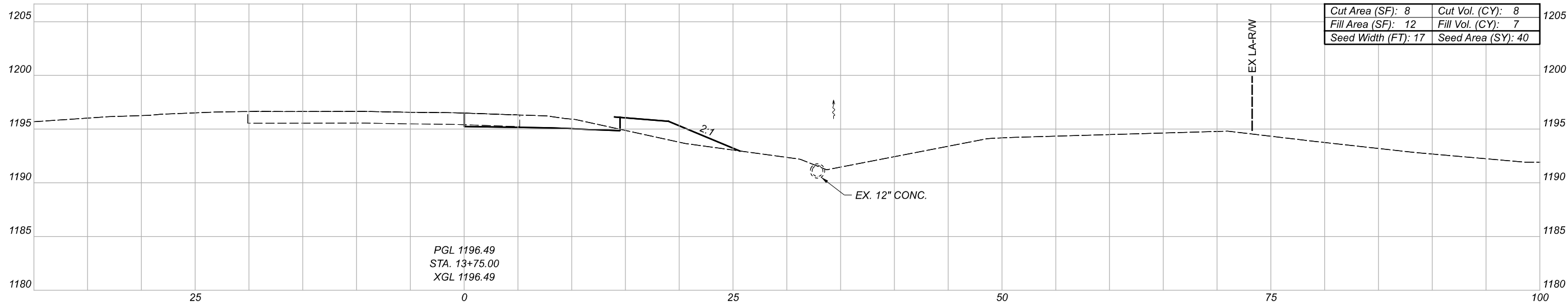


DESIGNER
 SAH

REVIEWER
 DAH 11-15-21

PROJECT ID
 106789

Sheet Totals			SHEET TOTAL	
Seeding	Cut	Fill	P.41	88
29	5	0		



CROSS SECTIONS - RAMP A
 STA. 13+25.00 TO STA. 13+75.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

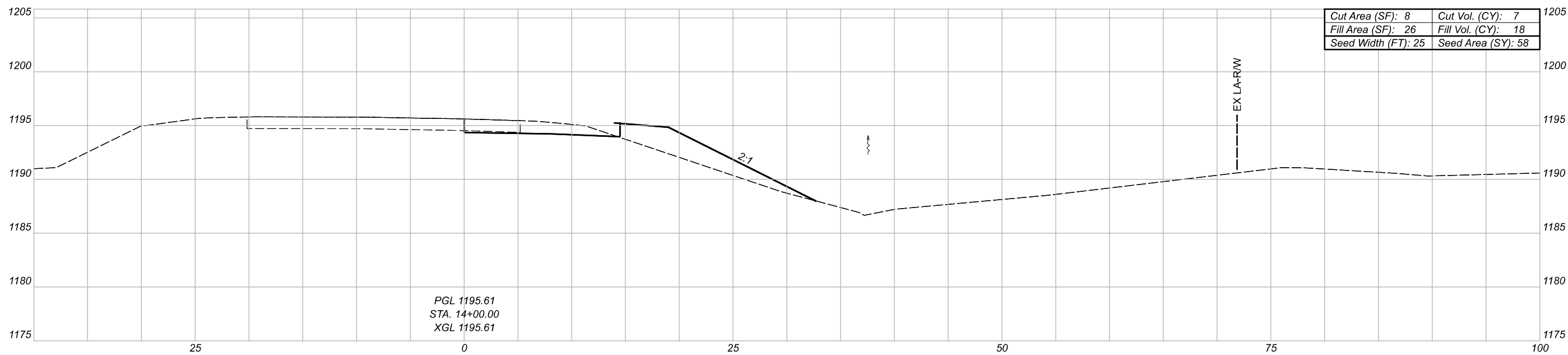
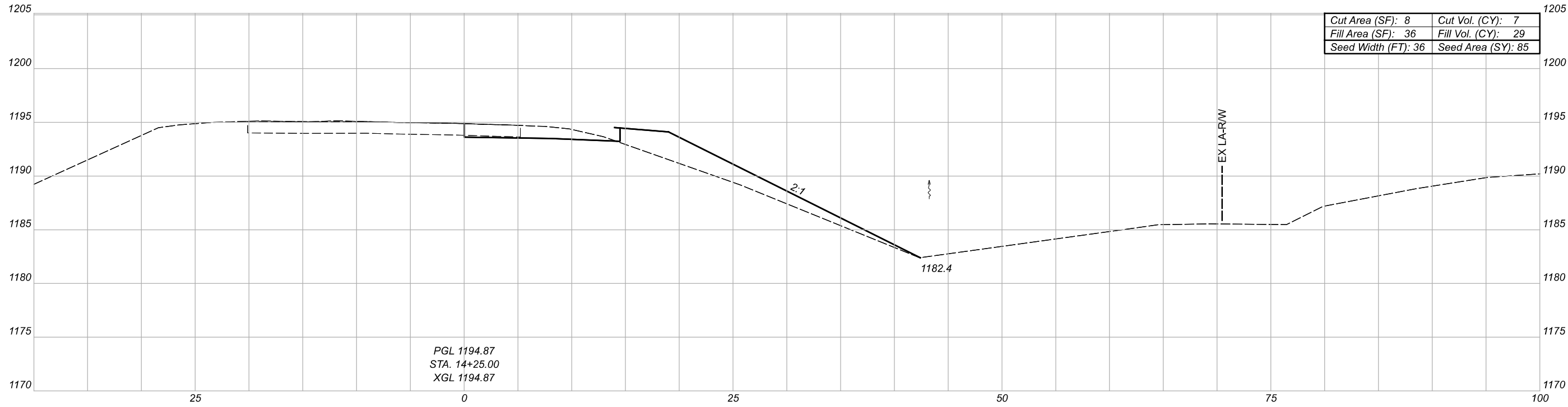
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
112	25	10

SHEET	TOTAL
P.42	88



CROSS SECTIONS - RAMP A
 STA. 14+00.00 TO STA. 14+25.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

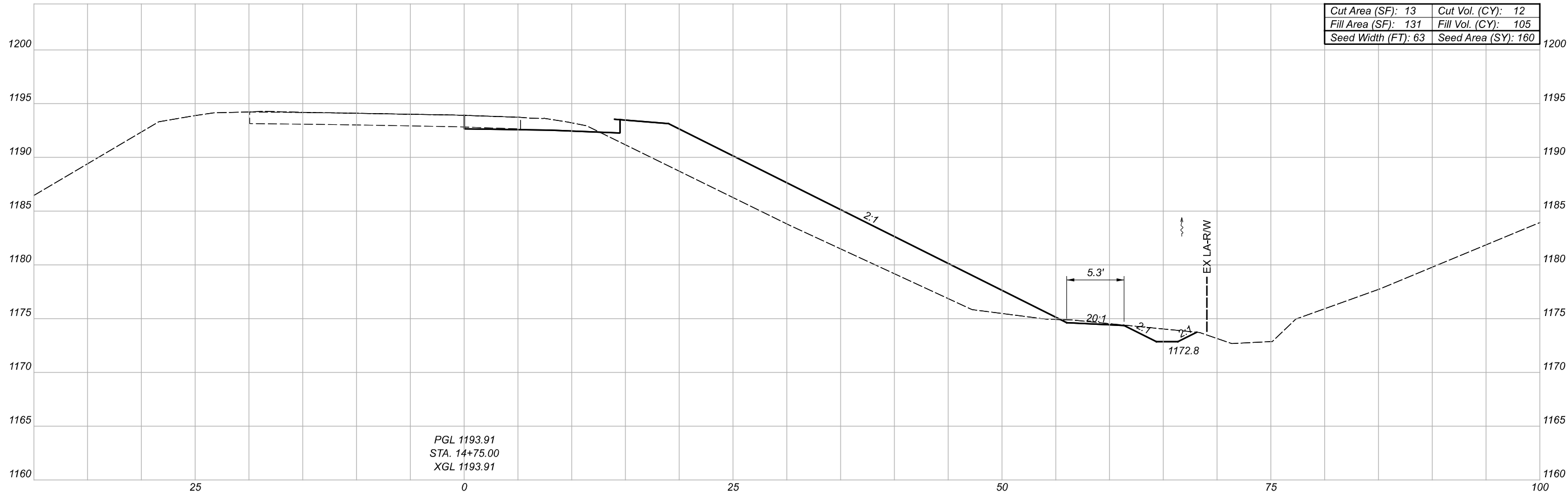
DAH 11-15-21

PROJECT ID

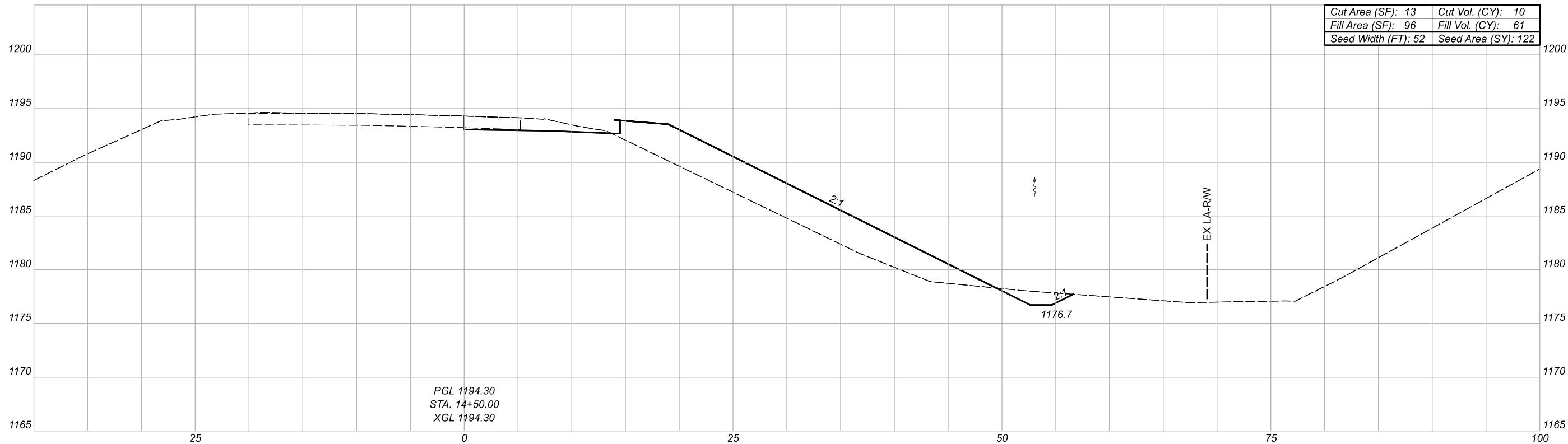
106789

Sheet Totals		
Seeding	Cut	Fill
143	14	47

SHEET	TOTAL
P.43	88




PGL 1193.91
 STA. 14+75.00
 XGL 1193.91

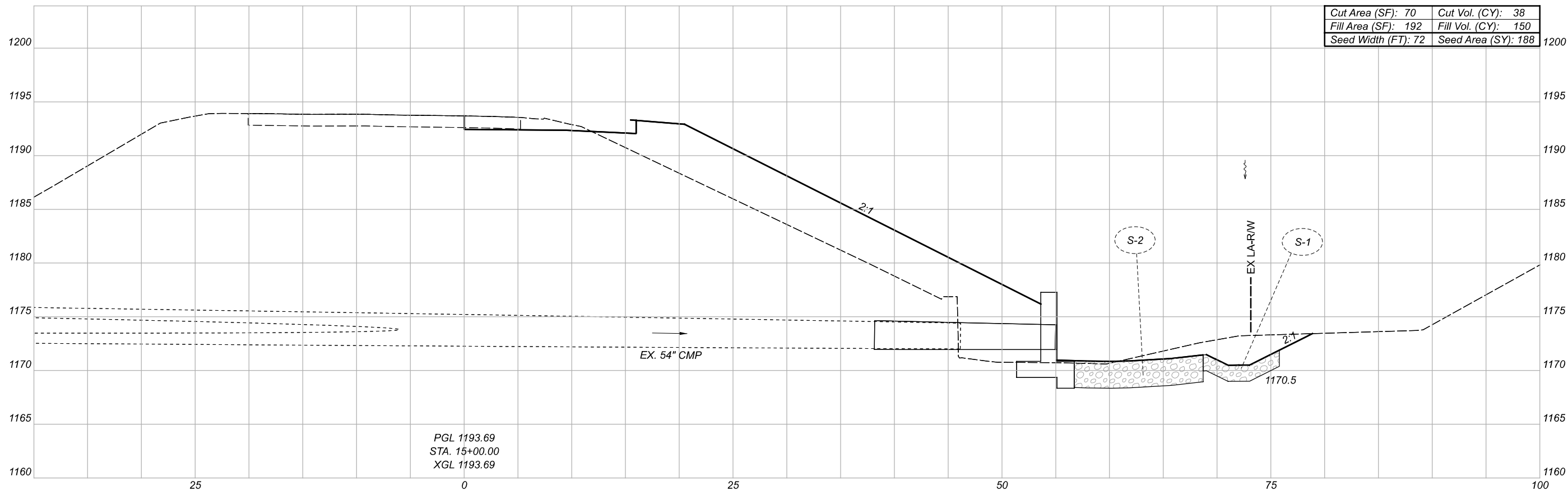
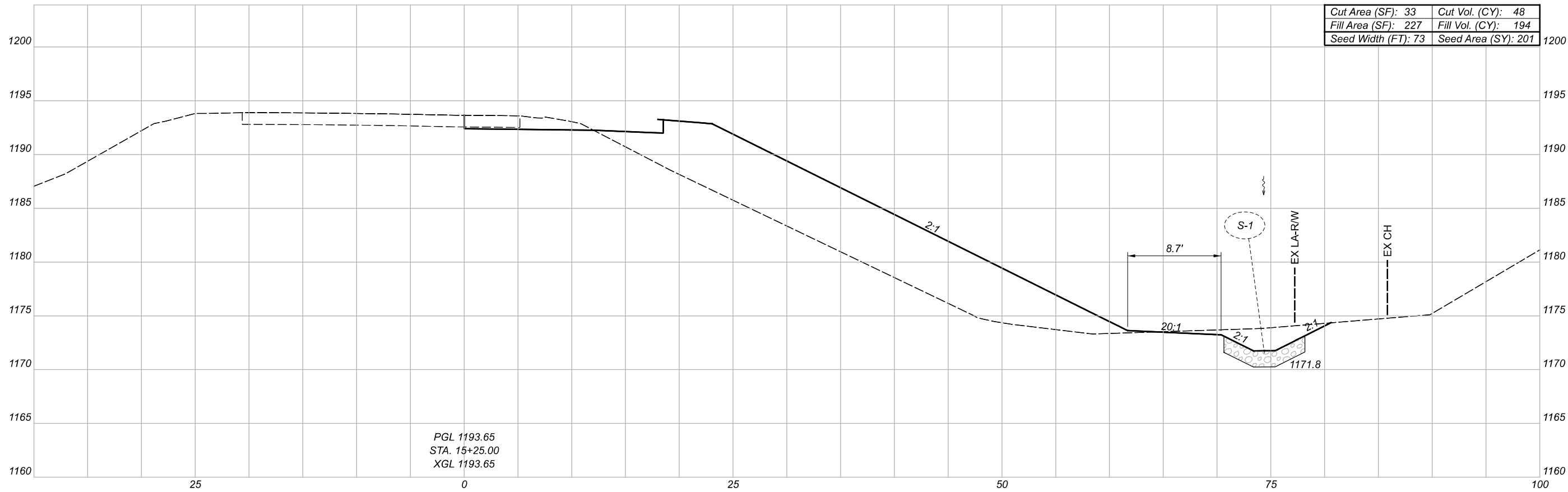


PGL 1194.30
 STA. 14+50.00
 XGL 1194.30

CROSS SECTIONS - RAMP A
 STA. 14+50.00 TO STA. 14+75.00

DESIGN AGENCY

 DESIGNER
 SAH
 REVIEWER
 DAH 11-15-21
 PROJECT ID
 106789

Sheet Totals			SHEET	TOTAL
Seeding	Cut	Fill	P.44	88
282	22	166		



CROSS SECTIONS - RAMP A
 STA. 15+00.00 TO STA. 15+25.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

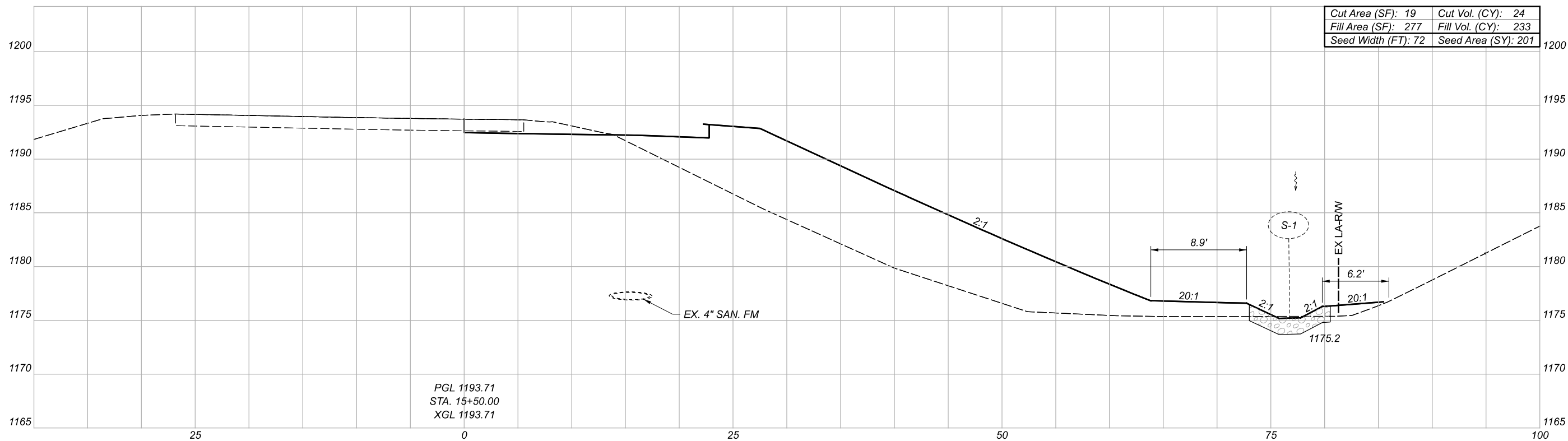
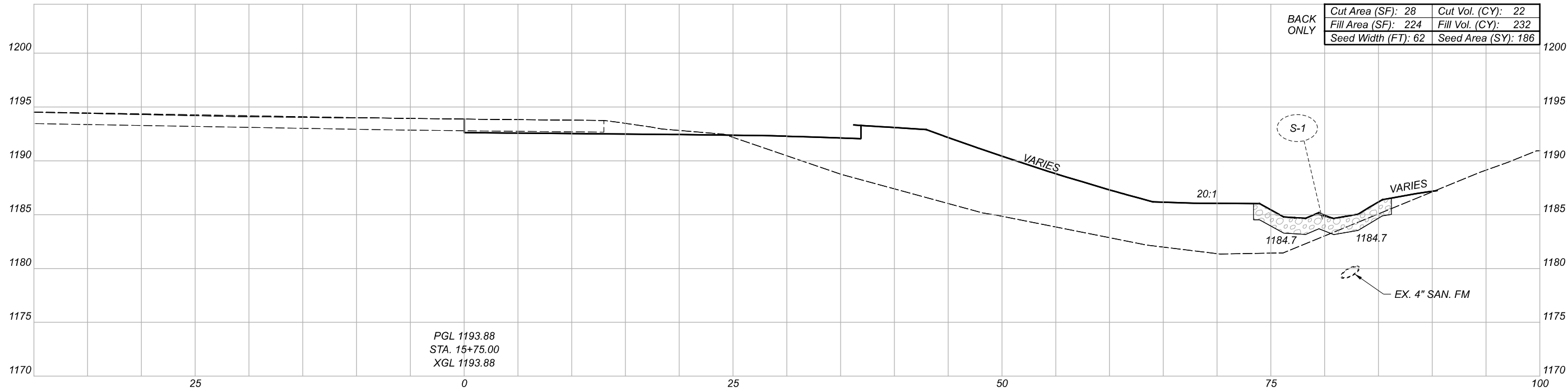
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
389	86	344

SHEET	TOTAL
P.45	88



CROSS SECTIONS - RAMP A
 STA. 15+50.00 TO STA. 15+75.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

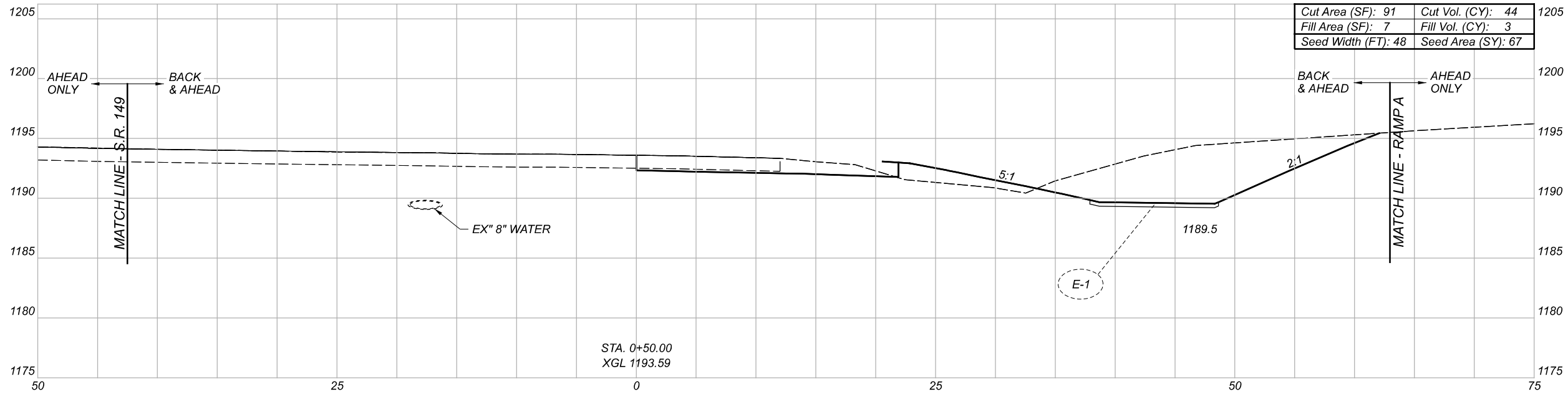
DAH 11-15-21

PROJECT ID

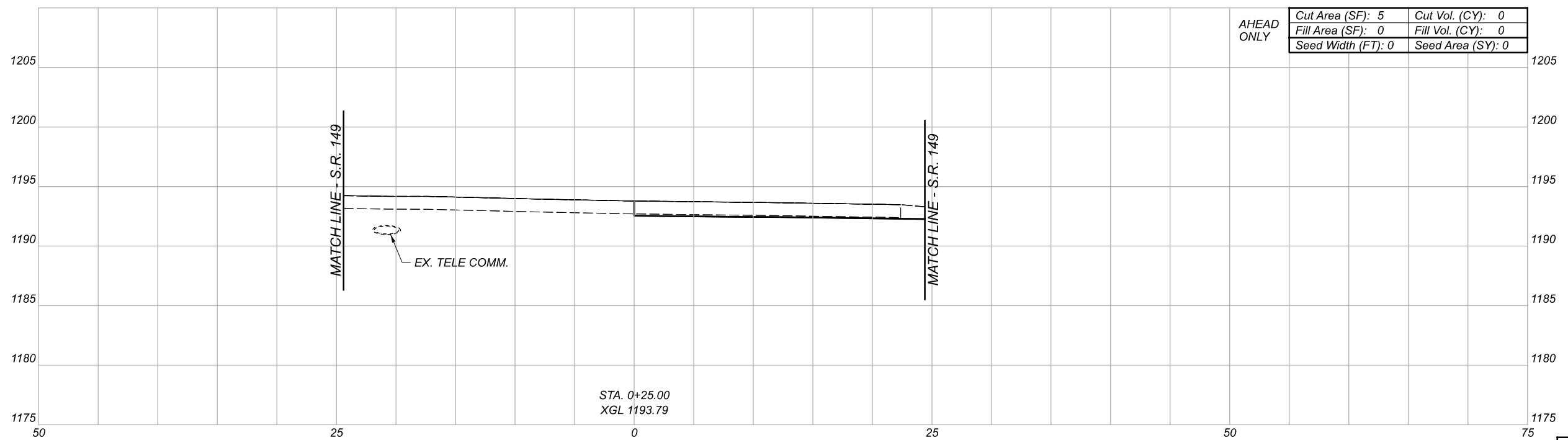
106789

Sheet Totals		
Seeding	Cut	Fill
387	46	465

SHEET	TOTAL
P.46	88



Cut Area (SF): 91	Cut Vol. (CY): 44
Fill Area (SF): 7	Fill Vol. (CY): 3
Seed Width (FT): 48	Seed Area (SY): 67



AHEAD ONLY	Cut Area (SF): 5	Cut Vol. (CY): 0
	Fill Area (SF): 0	Fill Vol. (CY): 0
	Seed Width (FT): 0	Seed Area (SY): 0

CROSS SECTIONS - RAMP B
 STA. 0+25.00 TO STA. 0+50.00

DESIGN AGENCY



DESIGNER

SAH

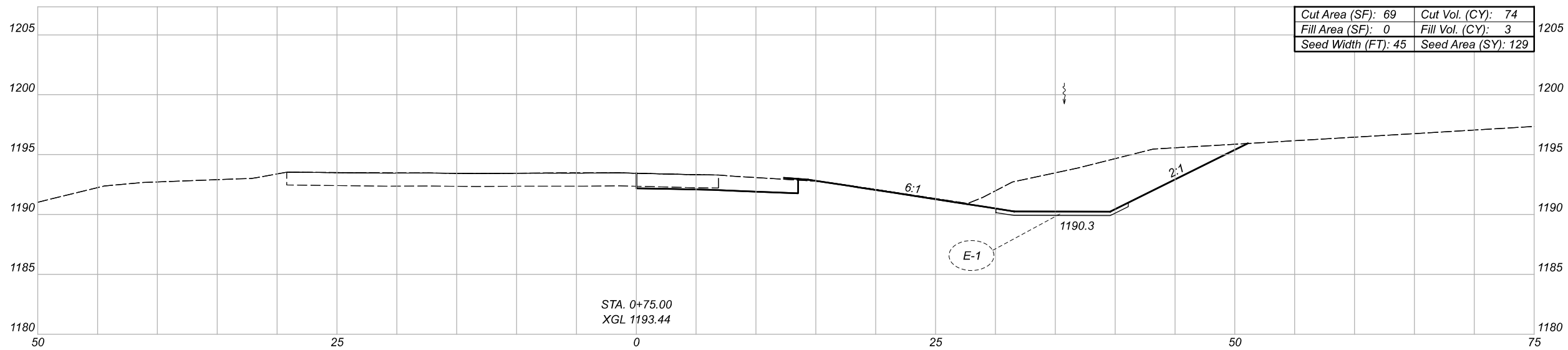
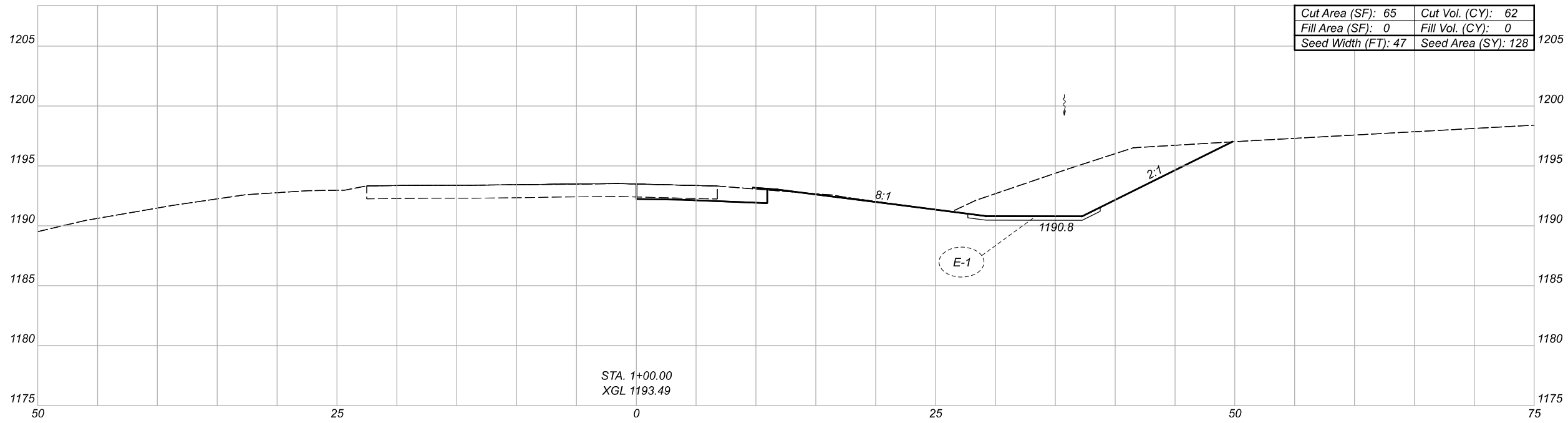
REVIEWER

DAH 11-15-21

PROJECT ID

106789

Sheet Totals			SHEET	TOTAL
Seeding	Cut	Fill		
67	44	3	P.47	88



CROSS SECTIONS - RAMP B
 STA. 0+75.00 TO STA. 1+00.00

DESIGN AGENCY



DESIGNER

SAH

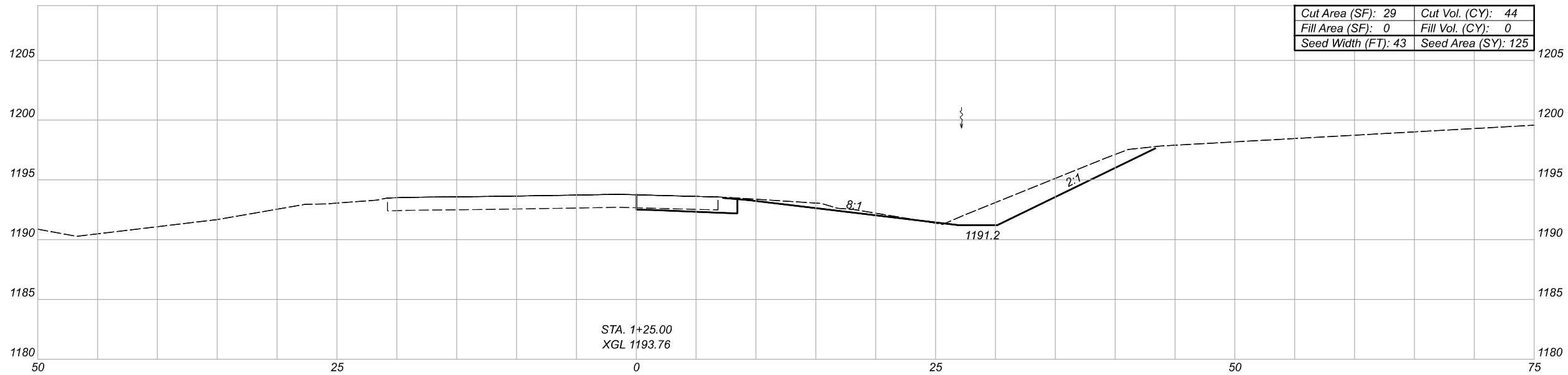
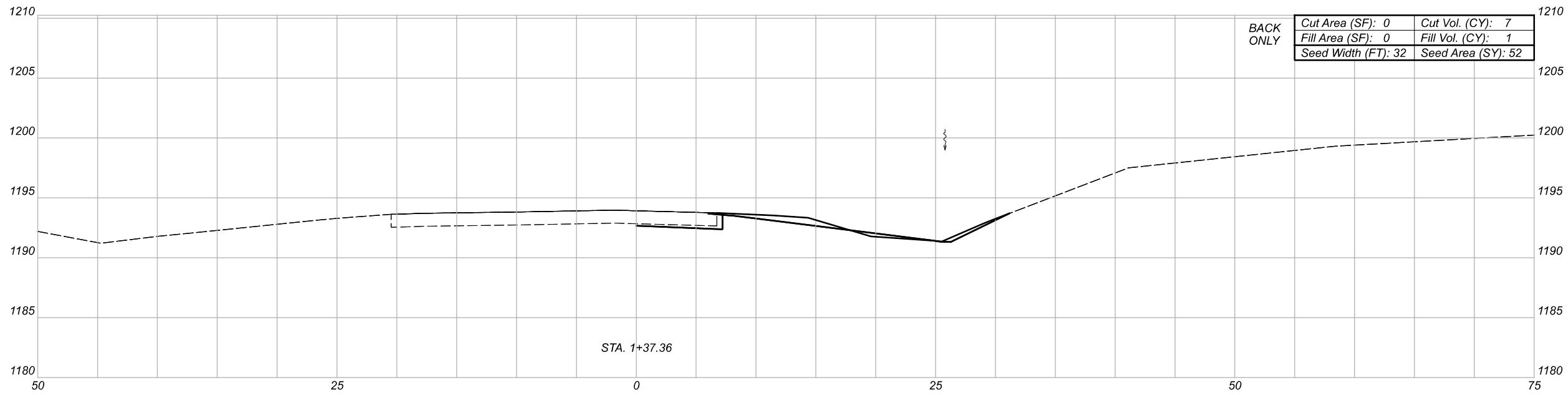
REVIEWER

DAH 11-15-21

PROJECT ID

106789

Sheet Totals			106789	
Seeding	Cut	Fill	SHEET	TOTAL
257	136	3	P.48	88



CROSS SECTIONS - RAMP B
 STA. 1+25.00 TO STA. 1+37.36

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

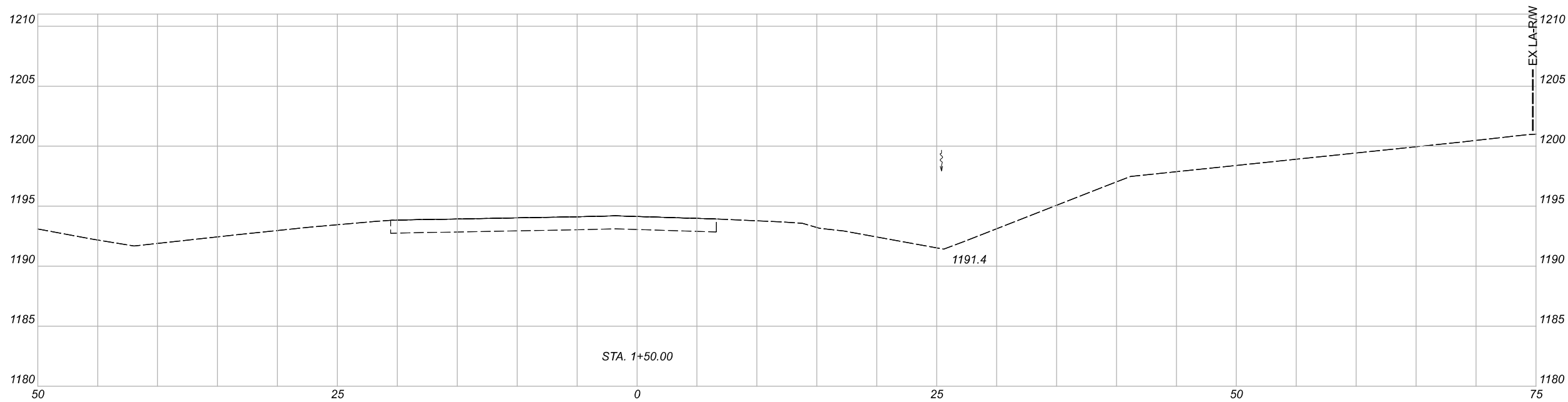
DAH 11-15-21

PROJECT ID

106789

Sheet Totals		
Seeding	Cut	Fill
177	51	1

SHEET	TOTAL
P.49	88



STA. 1+50.00

1191.4

EX LA-R/W

CROSS SECTIONS - RAMP B
STA. 1+50.00

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

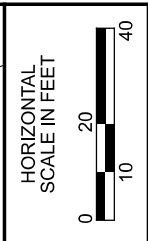
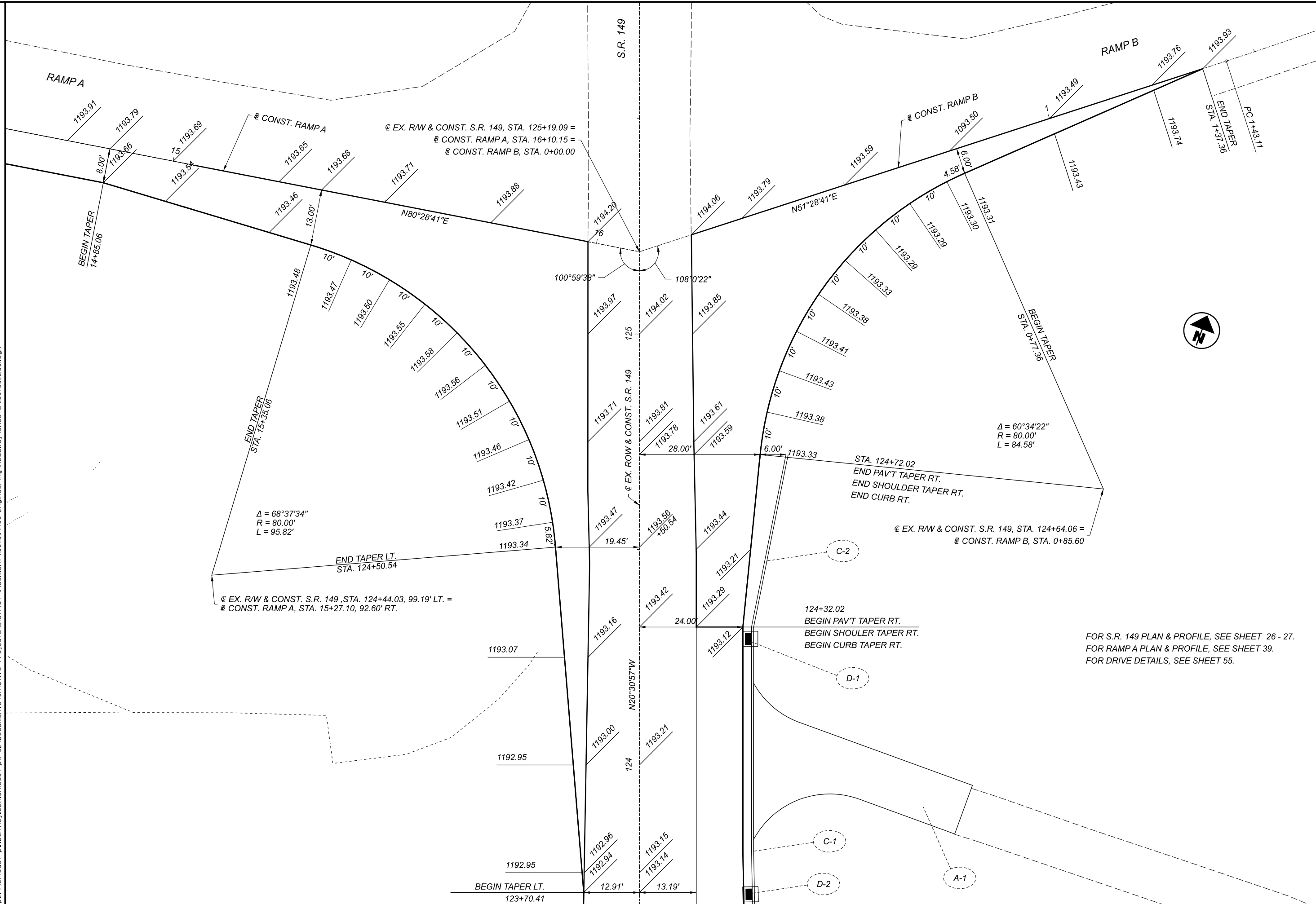
PROJECT ID

106789

Sheet Totals

Seeding	Cut	Fill
0	0	0

SHEET	TOTAL
P.50	88



INTERSECTION DETAIL
S.R. 149 & I.R. 70 RAMPS

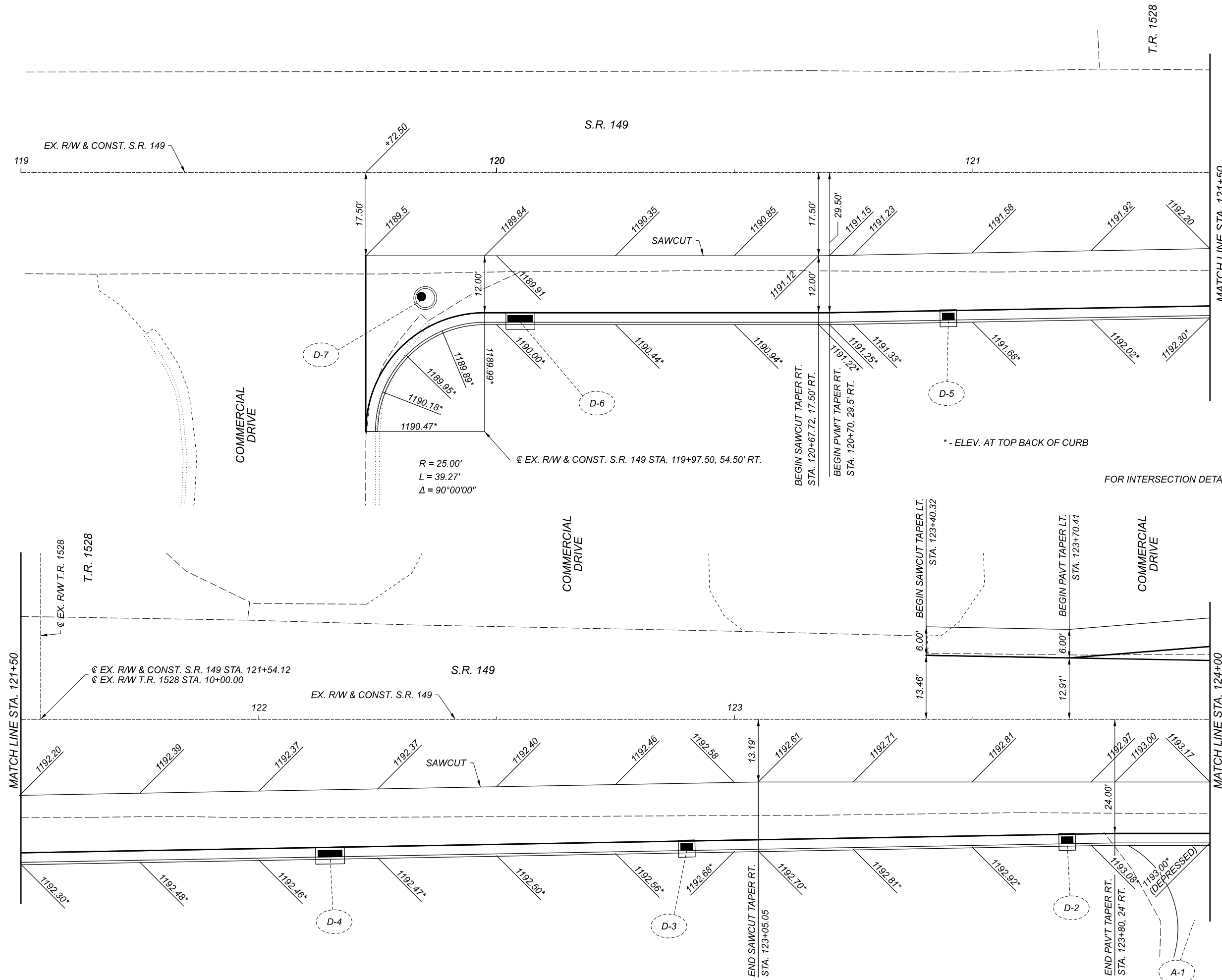


FOR S.R. 149 PLAN & PROFILE, SEE SHEET 26 - 27.
FOR RAMP A PLAN & PROFILE, SEE SHEET 39.
FOR DRIVE DETAILS, SEE SHEET 55.

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	P.51
TOTAL	88

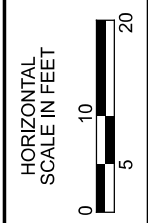


$R = 25.00'$
 $L = 39.27'$
 $\Delta = 90^{\circ}00'00''$

ϕ EX. RW & CONST. S.R. 149 STA. 119+97.50, 54.50' RT.

* - ELEV. AT TOP BACK OF CURB

FOR INTERSECTION DETAILS, SEE SHEET 51.

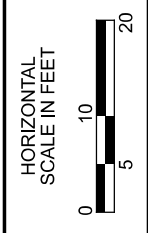
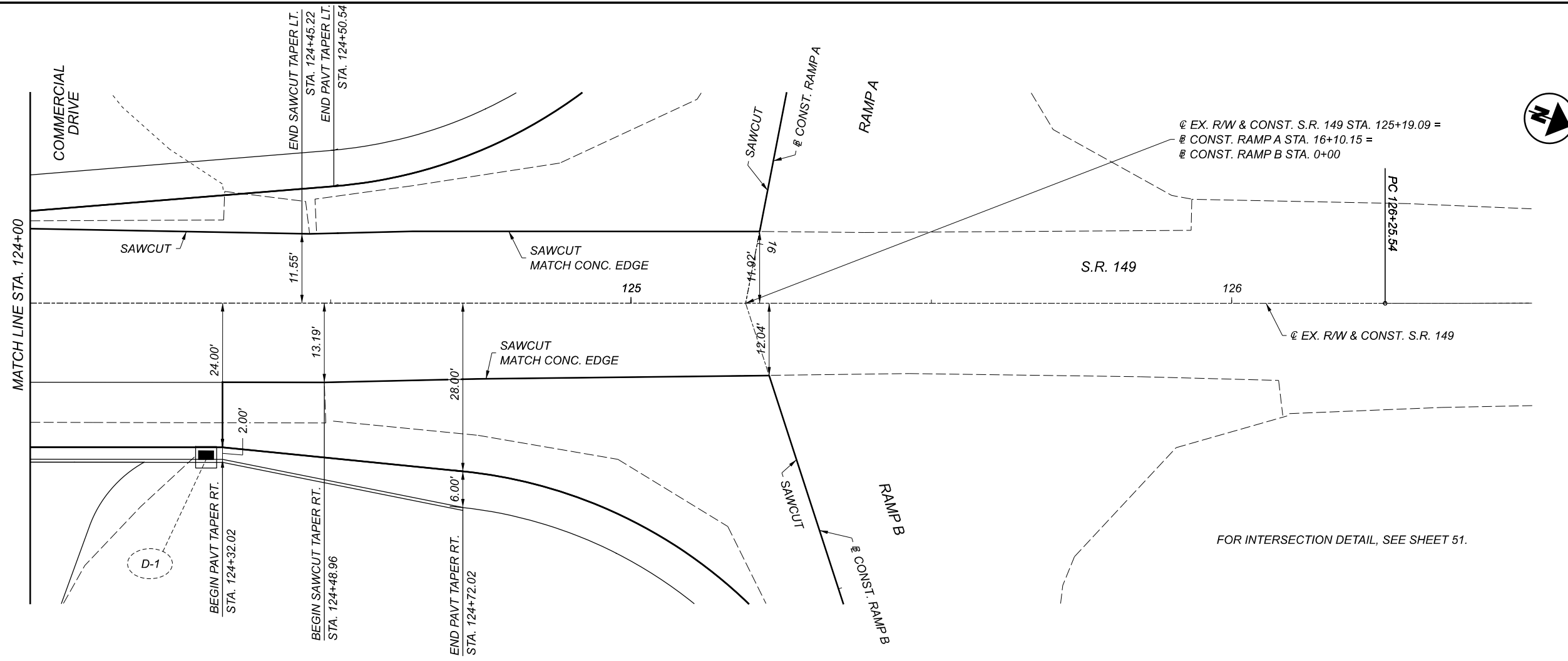


TAPER DETAIL
S.R. 149 - STA. 119+00 TO STA. 124+00

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	P.52
TOTAL	88

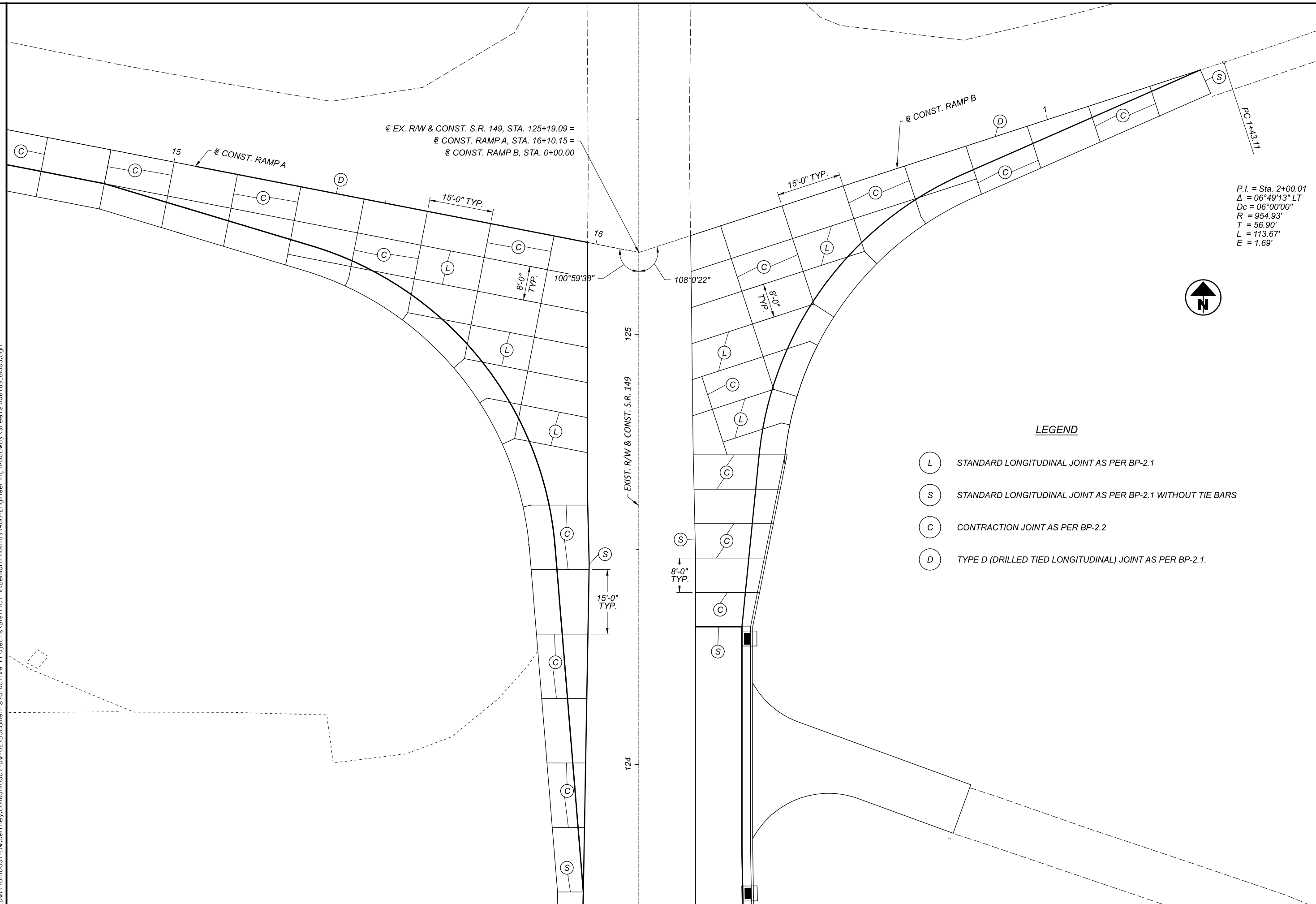


TAPER DETAIL
 S.R. 149 - STA. 124+00 TO STA. 126+50

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	TOTAL
P.53	88

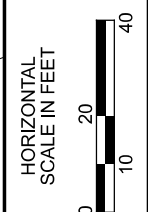


@ EX. R/W & CONST. S.R. 149, STA. 125+19.09 =
 @ CONST. RAMP A, STA. 16+10.15 =
 @ CONST. RAMP B, STA. 0+00.00

P.I. = Sta. 2+00.01
 $\Delta = 06^\circ 49' 13''$ LT
 $D_c = 06^\circ 00' 00''$
 $R = 954.93'$
 $T = 56.90'$
 $L = 113.67'$
 $E = 1.69'$

LEGEND

- (L) STANDARD LONGITUDINAL JOINT AS PER BP-2.1
- (S) STANDARD LONGITUDINAL JOINT AS PER BP-2.1 WITHOUT TIE BARS
- (C) CONTRACTION JOINT AS PER BP-2.2
- (D) TYPE D (DRILLED TIED LONGITUDINAL) JOINT AS PER BP-2.1.

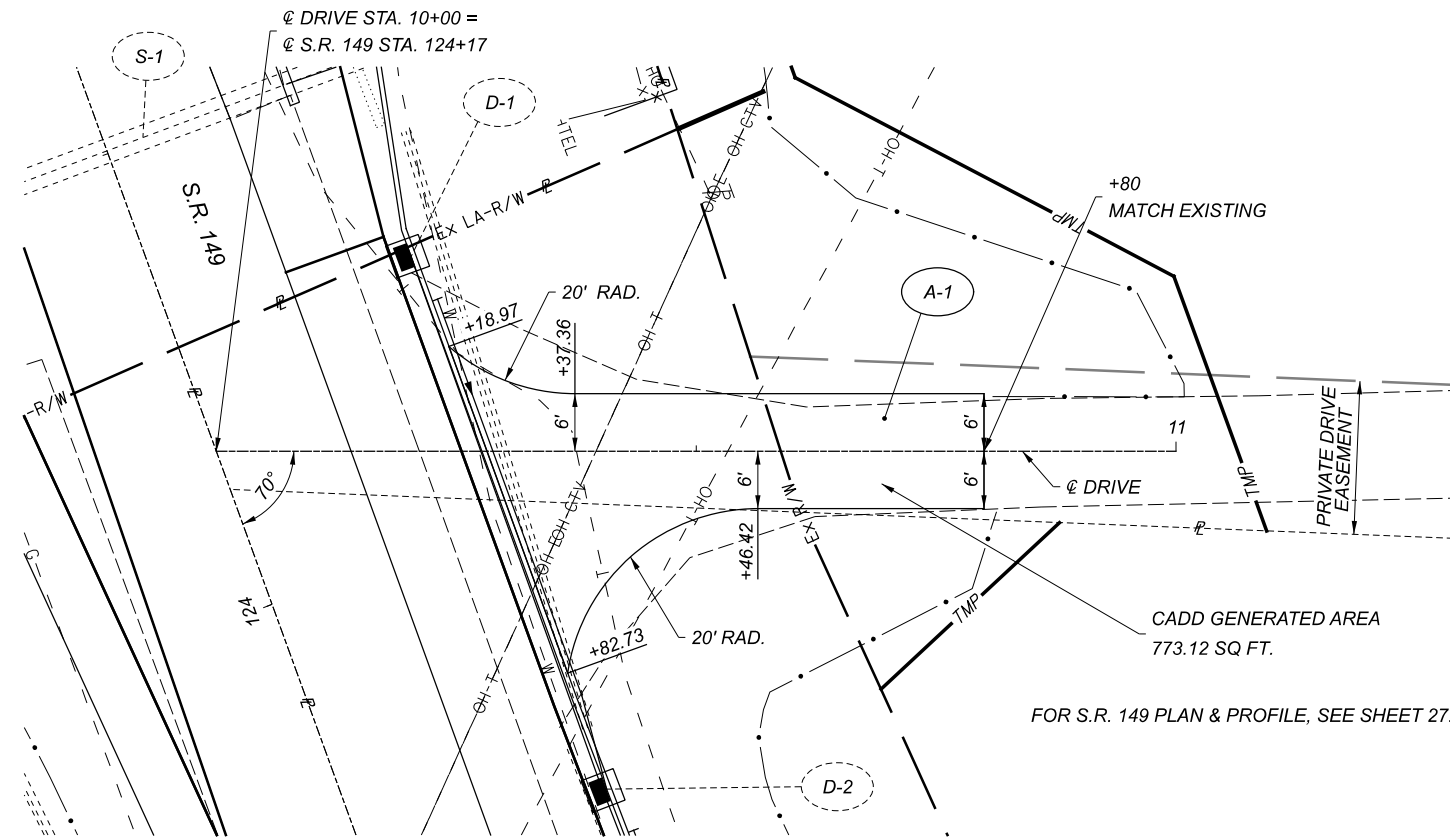


PAVEMENT JOINT DETAIL
S.R. 149 & I.R. 70 RAMPS

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
	106789
SHEET	TOTAL
P.54	88



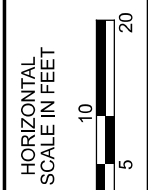
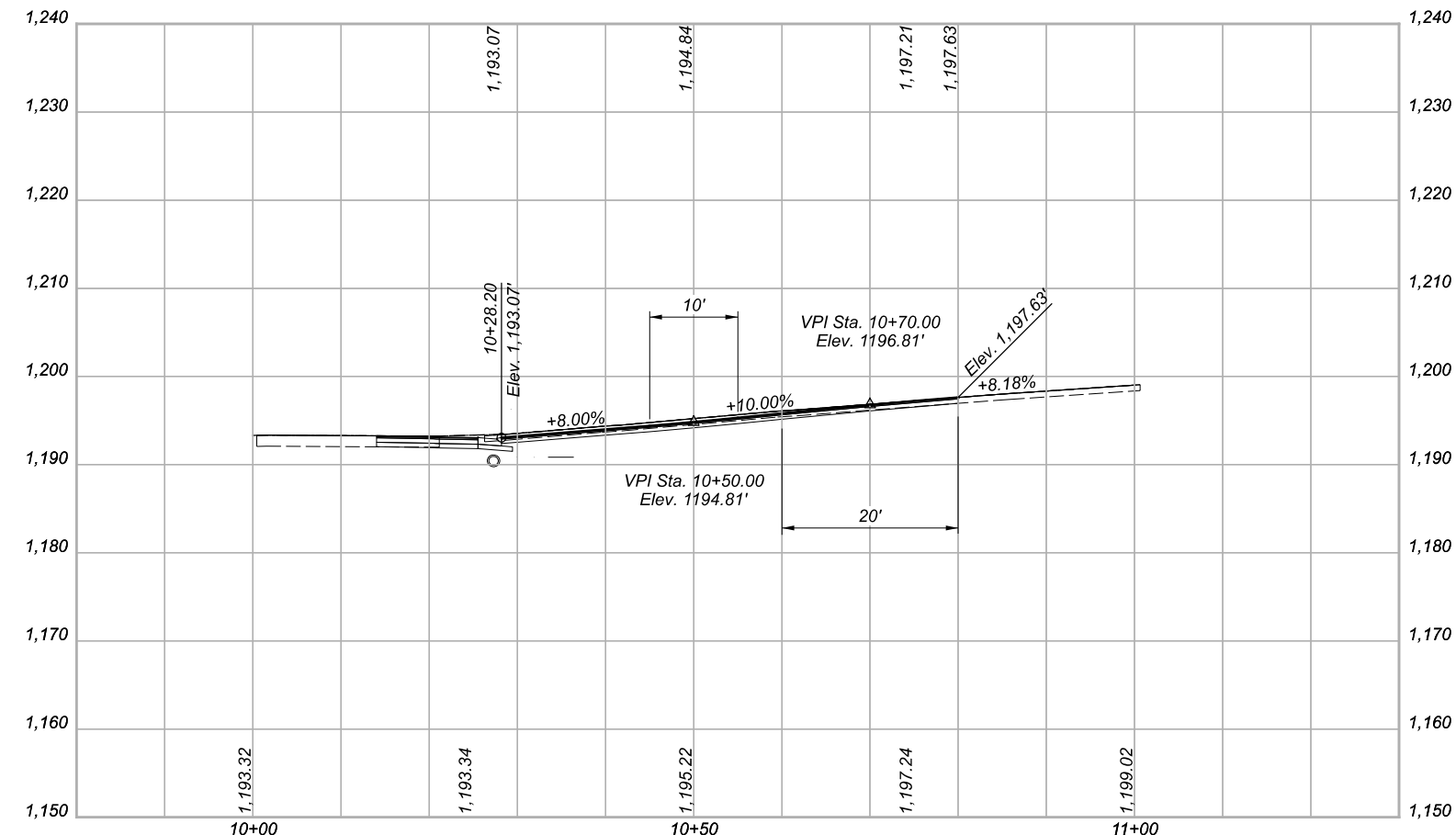
FOR S.R. 149 PLAN & PROFILE, SEE SHEET 27.



PAVEMENT BUILD-UP
 2" ~ ITEM 441 - ASPHALT CONCRETE, SURFACE COURSE,
 TYPE 1, (448), (DRIVEWAYS), AS PER PLAN (PG64-22)
 6" ~ ITEM 304 - AGGREGATE BASE

A-1 ESTIMATED QUANTITIES	
ITEM 441 - ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS), AS PER PLAN (PG64-22) *773.12 S.F. x 2"/12 / 27 = 4.77 CU YD	5 CU. YD.
ITEM 304 - AGGREGATE BASE *773.12 S.F. x 6"/12 / 27 = 14.32 CU YD	15 CU. YD.
TOTALS CARRIED TO SHEET 28.	

* - CADD GENERATED AREA



DRIVE DETAIL
 STA. 124+17

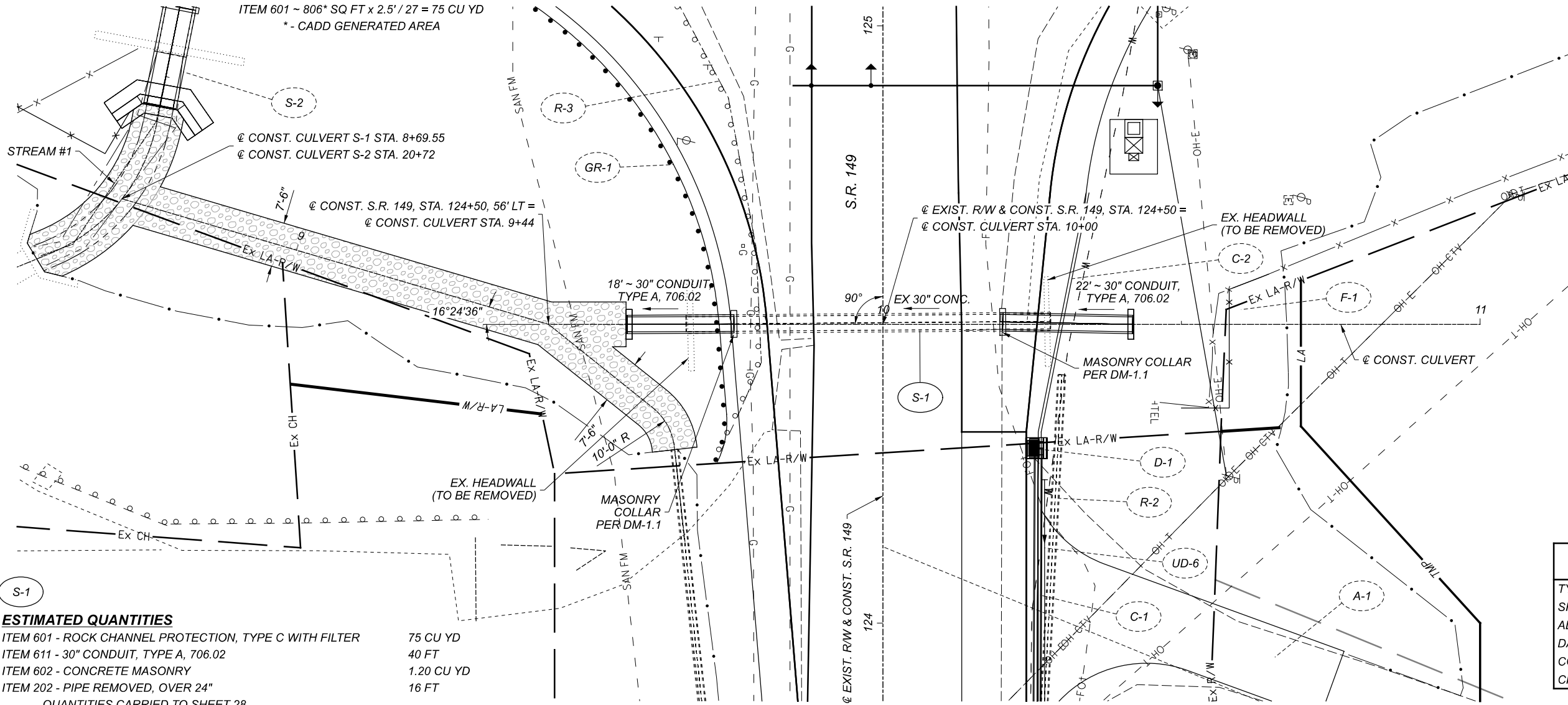
DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
SHEET	106789
TOTAL	P.55 / 88

CALCULATIONS

ITEM 601 ~ 806* SQ FT x 2.5' / 27 = 75 CU YD
 *- CADD GENERATED AREA

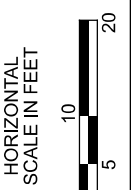
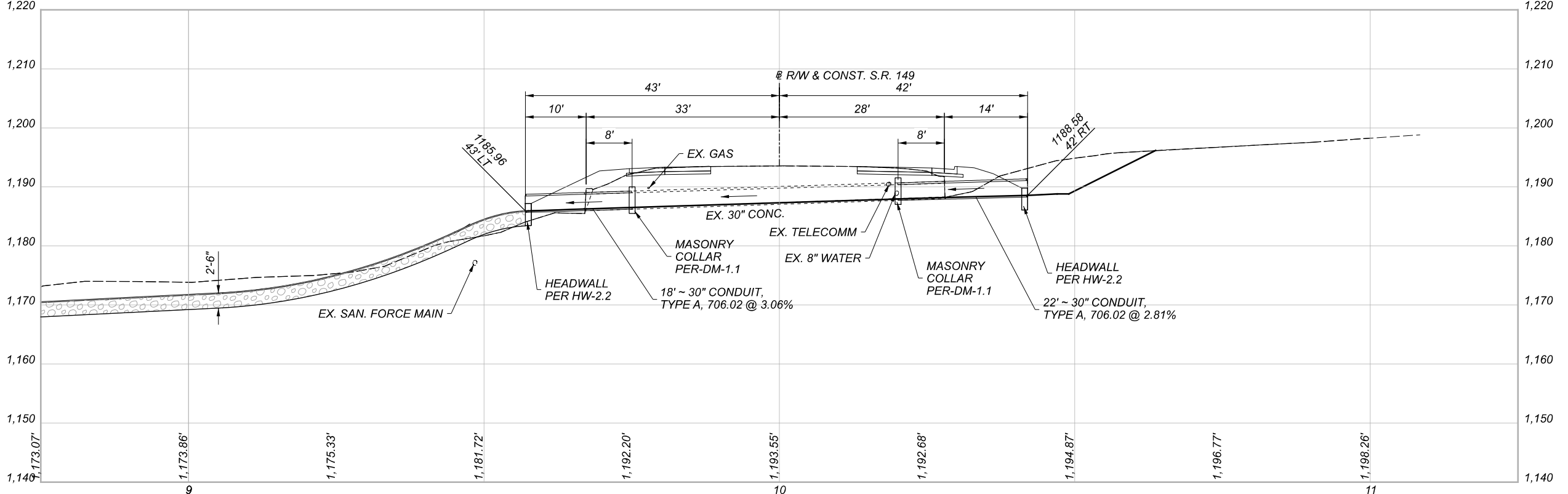


ESTIMATED QUANTITIES

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	75 CU YD
ITEM 611 - 30" CONDUIT, TYPE A, 706.02	40 FT
ITEM 602 - CONCRETE MASONRY	1.20 CU YD
ITEM 202 - PIPE REMOVED, OVER 24"	16 FT

QUANTITIES CARRIED TO SHEET 28.

EXISTING STRUCTURE	
TYPE:	CIRCULAR CONC.
SIZE:	30"
ALIGNMENT:	TANGENT
DATE BUILT:	1963
CONDITION:	GOOD
CFN:	1843317



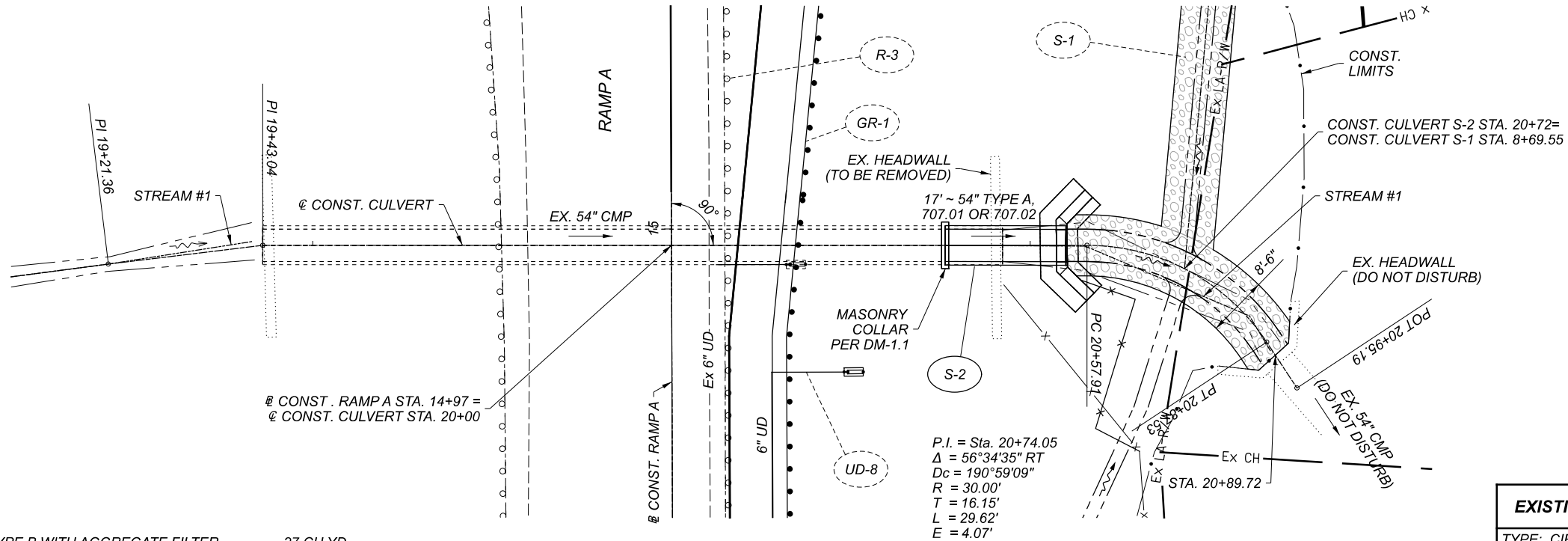
CULVERT DETAIL
 S.R. 149 ~ STA. 124+50

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	106789
SHEET	P.56
TOTAL	88

CALCULATIONS
 ITEM 601 ~ (34' x 8'-6" x 2'-6") / 27 = 27 CU YD

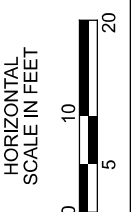
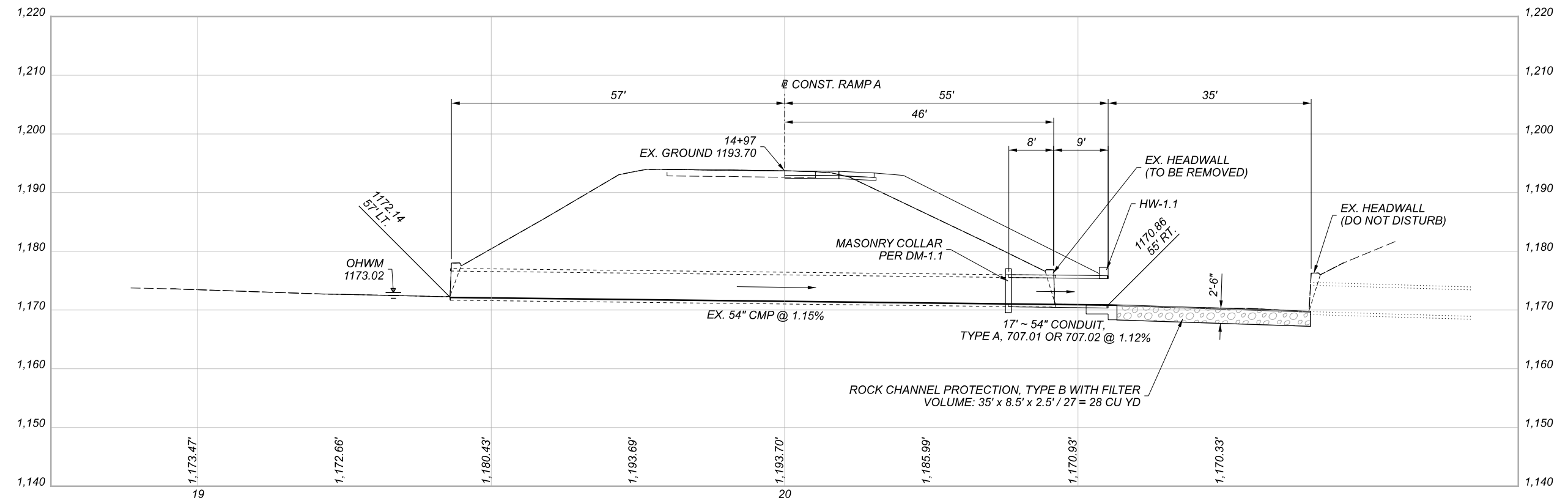


S-2

ESTIMATED QUANTITIES

ITEM 601 - ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER	27 CU YD
ITEM 611 - 54" CONDUIT, TYPE A, 707.01 OR 707.02	17 FT
ITEM 602 - CONCRETE MASONRY	10.5 CU YD
ITEM 202 - PIPE REMOVED, OVER 24"	8 FT
QUANTITIES CARRIED TO SHEET 40.	

EXISTING STRUCTURE	
TYPE:	CIRCULAR CMP
SIZE:	54"
ALIGNMENT:	TANGENT
DATE BUILT:	1963
CONDITION:	GOOD
CFN:	1858224



CULVERT DETAIL
 RAMP A - STA. 14+97

DESIGN AGENCY



DESIGNER
 SAH

REVIEWER
 DAH 11-15-21


PROJECT ID
 106789

SHEET TOTAL
 P.57 88

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630																	
							GROUND MOUNTED SUPPORT, NO 2 POST	GROUND MOUNTED SUPPORT, NO 3 POST	GROUND MOUNTED SUPPORT, NO 4 POST	BREAKAWAY STRUCTURAL BEAM CONNECTION	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, S4x7.7	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W6X9	GROUND MOUNTED STRUCTURAL BEAM SUPPORT, W10X12	ONE WAY SUPPORT, NO. 3 POST	SIGN, FLAT SHEET	GROUND MOUNTED STRUCTURAL BEAM SUPPORT FOUNDATION	SIGN POST REFLECTOR	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	SIGN ATTACHMENT ASSEMBLY, MAST ARM	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF GROUND MOUNTED STRUCTURAL BEAM SUPPORT AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF GROUND MOUNTED MAJOR SIGN AND REERECTION
							FT	FT	FT	EACH	FT	FT	FT	FT	SQ FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH		
60	S-1	S.R. 149	120+70	RT.	R3-H8bb-30	30 x 30		13							6.25									
60,63	S-2	S.R. 149	122+05	RT.	D1-H60-132	132 x 48			2		16.7	16				2					2		1	
60	S-3	S.R. 149	122+70	RT.	R3-H8bb-30	30 x 30		13							6.25									
60	S-4	S.R. 149	122+82	RT.	REMOVE															1	2			
61	S-5	S.R. 149	123+50	RT.	REMOVE															1	1			
61	S-6	S.R. 149	124+65	RT.	R3-H8bb-30	30 x 30		13							6.25									
61	S-7	S.R. 149	124+98	LT.	REMOVE															1	1			
61,63	S-8	S.R. 149	125+95	LT.	E6-2A-72	72 x 66					19.8	21.4				2						2	1	
61,63	S-9	S.R. 149	125+95	RT.	M2-H4-108	108 x 30					14.9	16.9				2						2	1	
61,63	S-10	RAMP B	0+43	RT.	D9-9-18	18 x 18																1		
					I-H12-24	24 x 6																1		
					D9-3A-18	18 x 18			17.1	17.9												2		
					I-H12-24	24 x 6																1		
					D7-H4-72	72 x 24																1		
					D7-H4-72	72 x 12																1		
61,63	S-11	RAMP B	0+45	RT.	D9-11-18	18 x 18																1		
					D9-8-18	18 x 18					14.9											2		
					I-H12A-24	24 x 6																1		
					REMOVE																	1		
61	S-12	RAMP B	1+31	RT.	R5-H10D-36	36 x 36	14.2	14.7														2	1	
62	S-13	RAMP A	12+90	RT	R5-1A-36	36 x 24					12.7	13.2					2						2	
					R5-1A-36	36 x 24																		
62,63	S-14	RAMP A	13+90	RT	M4-5-24	24 x 12																1		
					M1-4-24	24 x 24					11.3											1		
					M6-1L-21	21 x 15																1		
					M1-5-30-3	30 x 24					8.5		2	24.5	27.9		2					2	1	
					M6-4-21	21 x 15																1		
					D1-H6A-132	132 x 48																	1	
					D1-H6A-132	132 x 48																	1	
62	S-15	RAMP A	15+45	LT	R5-1-30	30 x 30																2	1	
					R6-1L-36	36 x 12																2	1	
					R6-1R-36	36 x 12																2	1	
62	S-16	RAMP A	15+45	RT	R5-1-30	30 x 30																2	1	
					R6-1L-36	36 x 12																2	1	
					R6-1R-36	36 x 12																2	1	
62	S-17	RAMP A	13+35	RT	R3-H8bj-30	30 x 36	13.7	14.1							7.5									
62	S-18	RAMP A	14+57	RT	R3-H8bj-30	30 x 36	13.9	15.2							7.5									
72	S1	SR 149	124+80	LT	R9-3-18	18 x 18									2.25							1		
72	S2	SR 149	124+80	RT	R9-3-18	18 x 18									2.25							1		
72	S3	SR 149	124+80	LT	R9-3-18	18 x 18									2.25							1		
72	S4	SR 149	124+80	RT	R9-3-18	18 x 18									2.25							1		
72	S5	SR 149	125+70	LT	R9-3-18	18 x 18									2.25							13		
72	S6	SR 149	125+90	RT	R9-3-18	18 x 18									2.25							1		
72	S7	SR 149	125+90	LT	R9-3-18	18 x 18									2.25							13		
72	S8	SR 149	125+90	RT	R9-3-18	18 x 18									2.25							1		
72	S9	SR 149	124+90	LT	R3-1-24	24 x 24									4							1		
72	S10	SR 149	125+90	RT	R3-2-24	24 x 24									4							1		
TOTALS CARRIED TO GENERAL SUMMARY							100.7	140.1	35	4	31.8	73.9	52.4	29.6	59.75	8	6	6	2	5	14	8	23	5

SIGNING QUANTITIES

DESIGN AGENCY

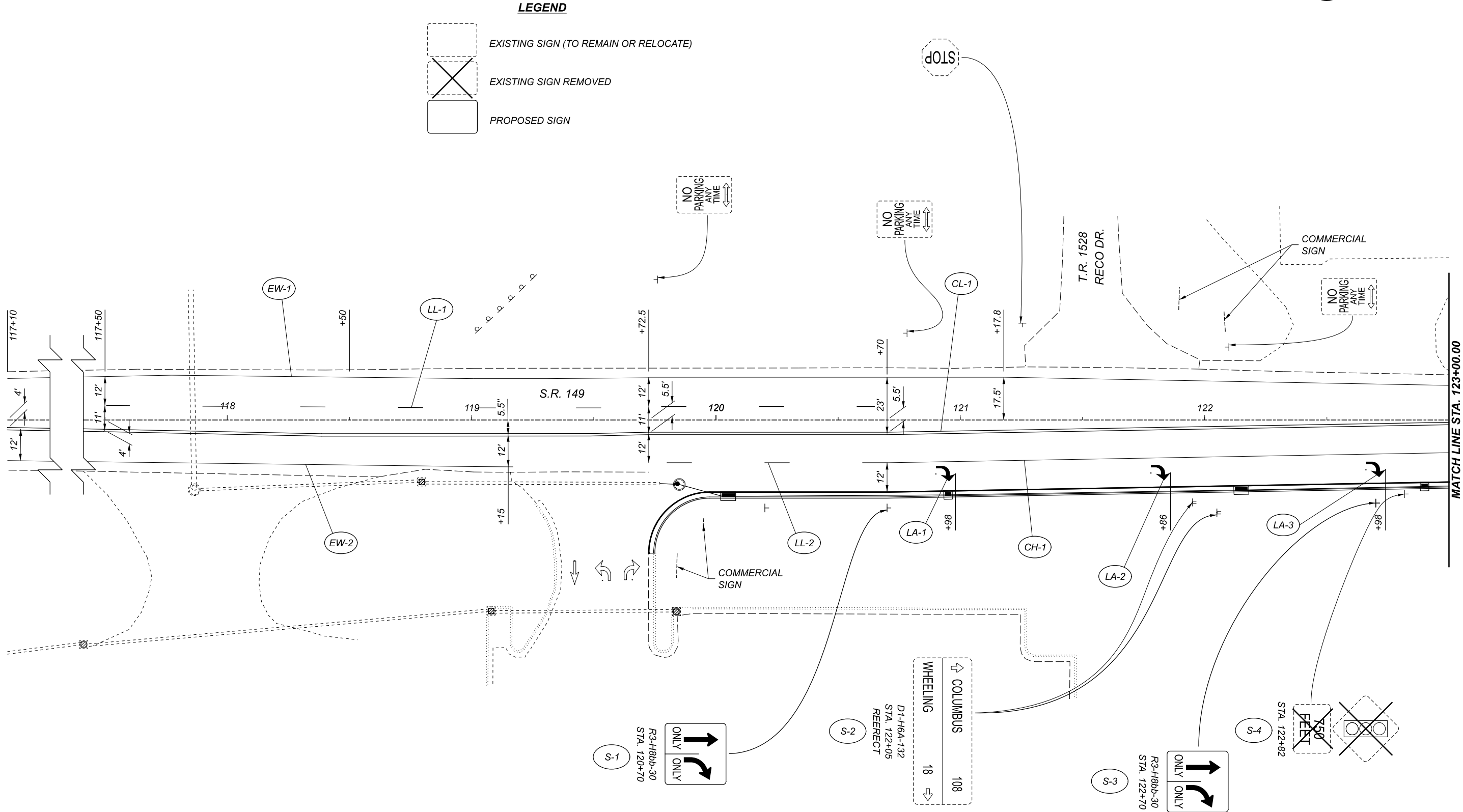





DESIGNER
SAH

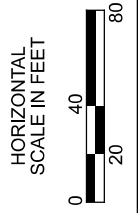
REVIEWER
DAH 11-15-21

PROJECT ID
106789


SHEET TOTAL
P.59 88

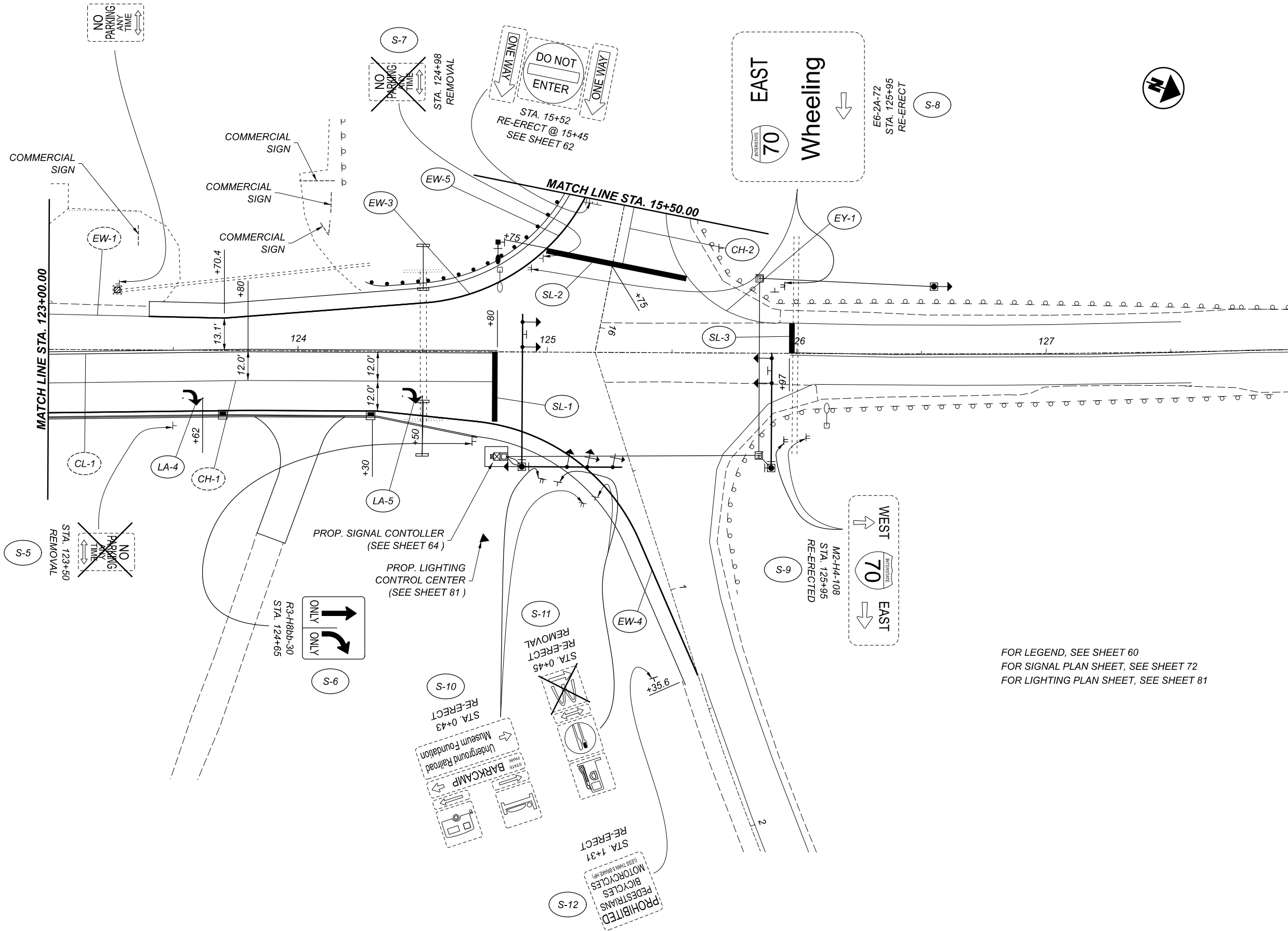


-  EXISTING SIGN (TO REMAIN OR RELOCATE)
-  EXISTING SIGN REMOVED
-  PROPOSED SIGN

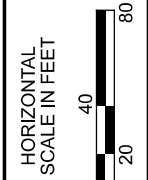


TRAFFIC CONTROL PLAN
 S.R. 149 - STA. 117+10 TO STA. 123+00

DESIGN AGENCY	
	
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
106789	
SHEET	TOTAL
P.60	88



FOR LEGEND, SEE SHEET 60
 FOR SIGNAL PLAN SHEET, SEE SHEET 72
 FOR LIGHTING PLAN SHEET, SEE SHEET 81

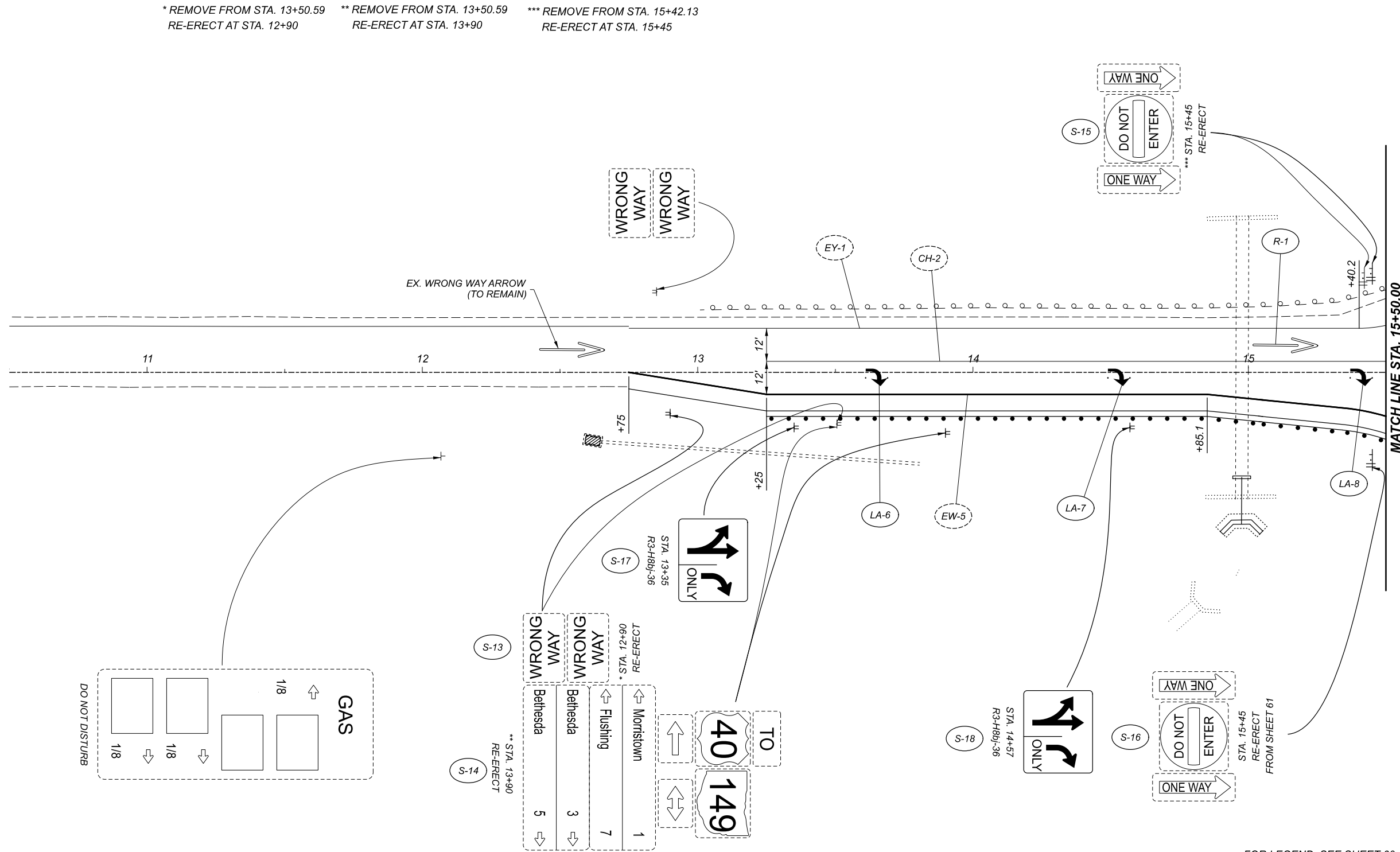


TRAFFIC CONTROL PLAN
 S.R. 149 - STA. 123+00 TO STA. 128+00

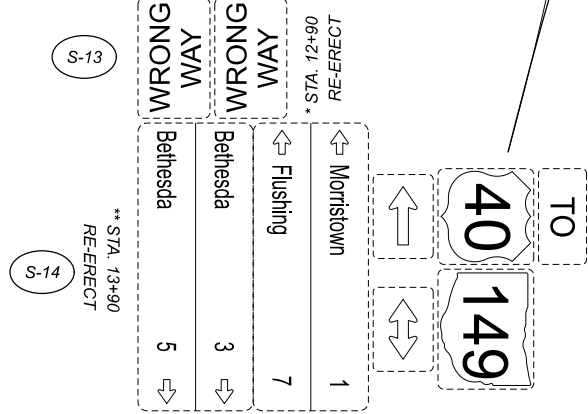
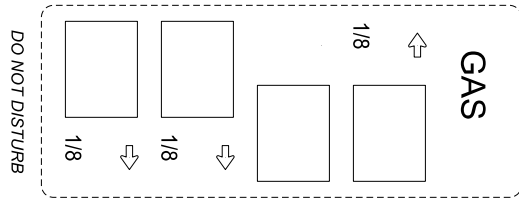
DESIGN AGENCY



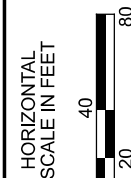
DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
	106789
SHEET	TOTAL
P.61	88



* REMOVE FROM STA. 13+50.59 RE-ERECT AT STA. 12+90
 ** REMOVE FROM STA. 13+50.59 RE-ERECT AT STA. 13+90
 *** REMOVE FROM STA. 15+42.13 RE-ERECT AT STA. 15+45



FOR LEGEND, SEE SHEET 60
 FOR SIGNAL PLAN SHEET, SEE SHEET 72
 FOR LIGHTING PLAN SHEET, SEE SHEET 81

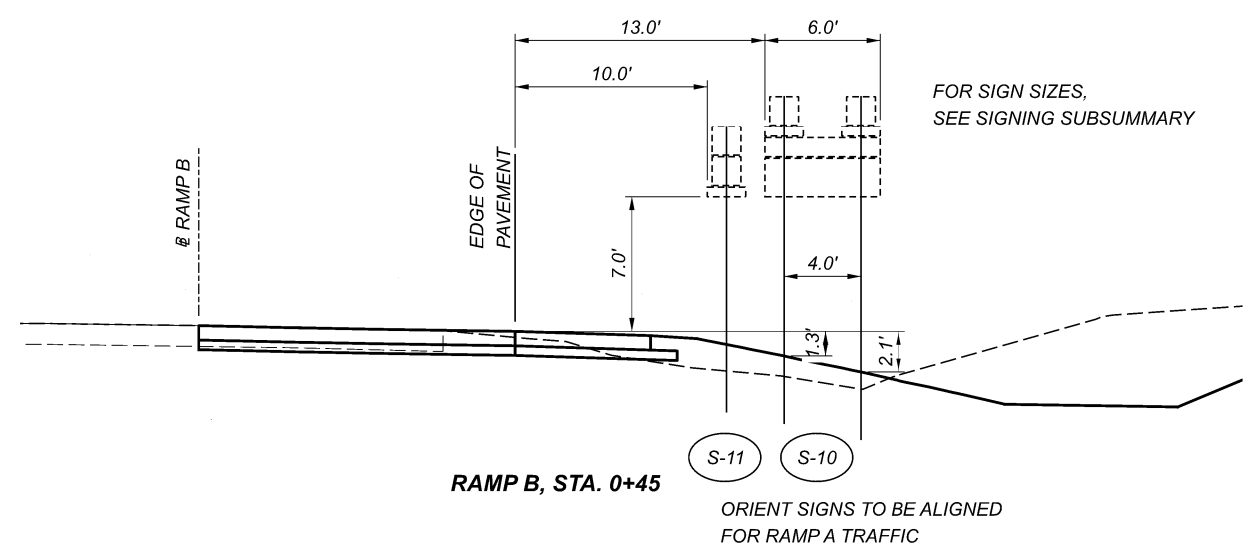
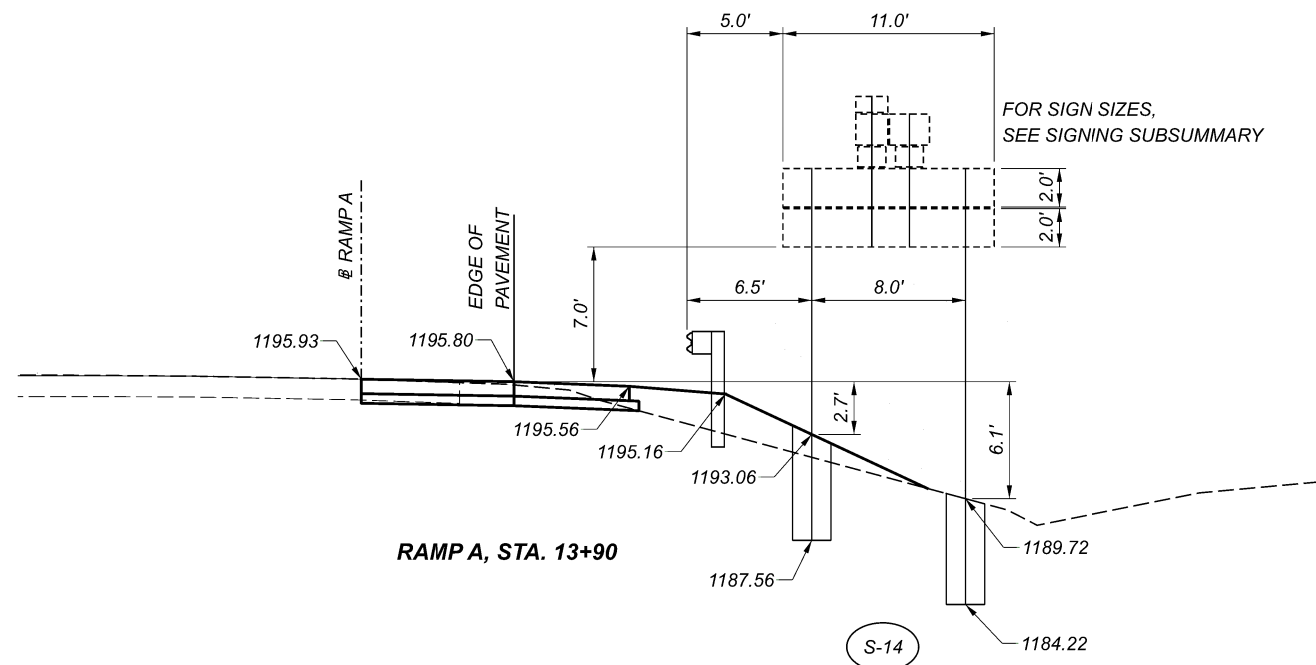
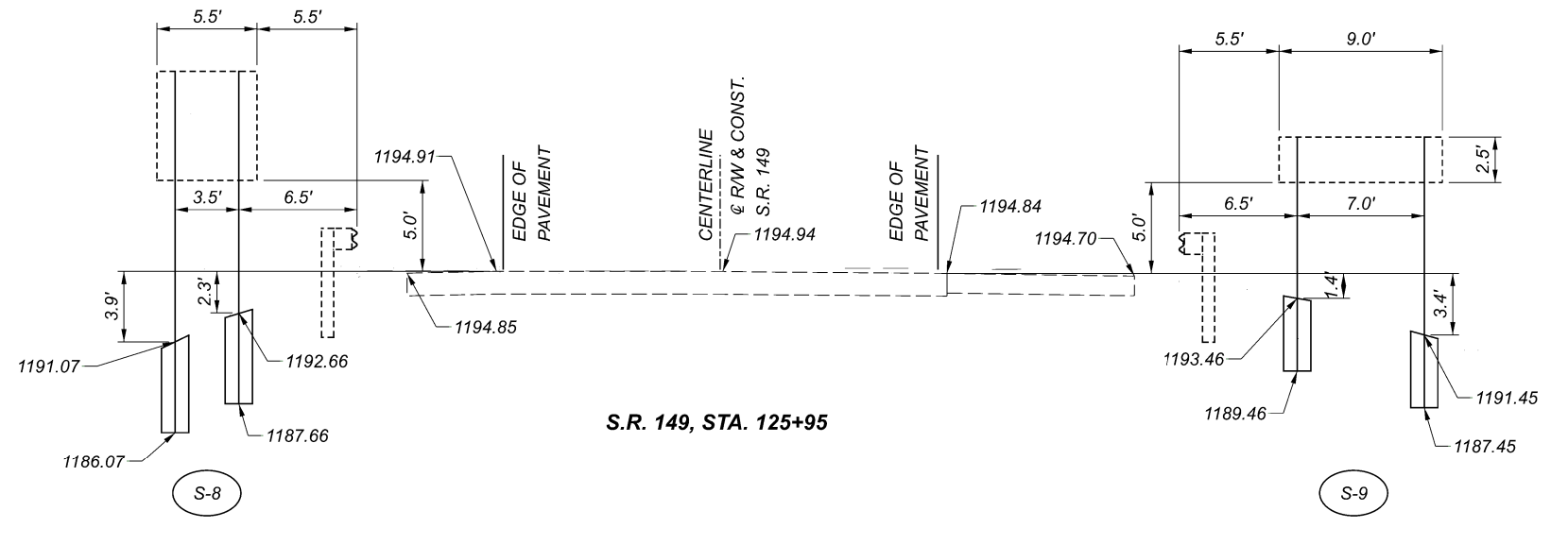
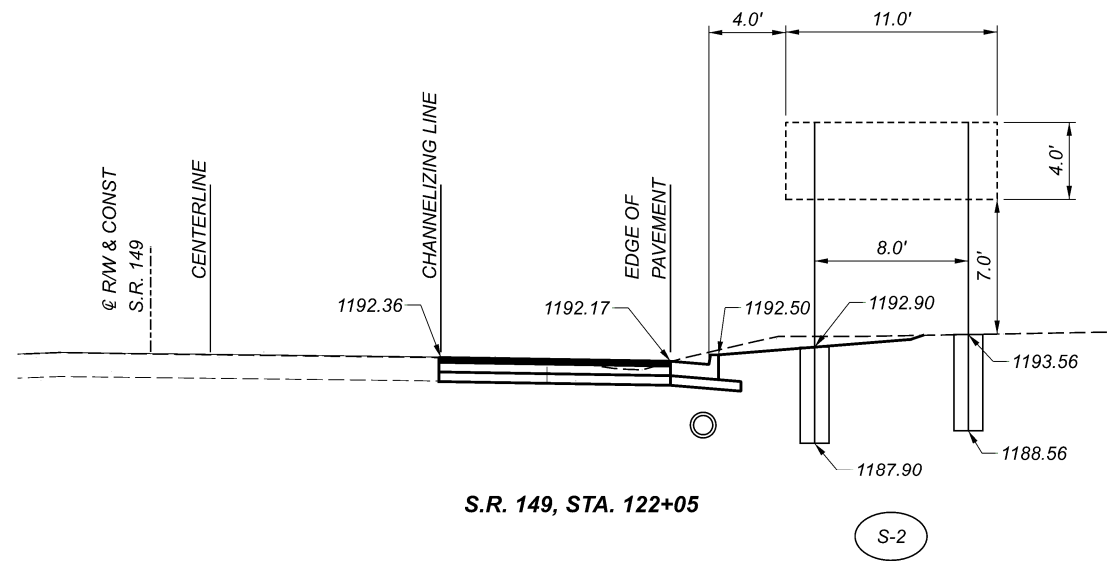


TRAFFIC CONTROL PLAN
 RAMP A - STA. 11+00 TO STA. 15+50

DESIGN AGENCY



DESIGNER	SAH
REVIEWER	DAH
PROJECT ID	11-15-21
SHEET	106789
TOTAL	88
P.62	



632 - POWER SERVICE, AS PER PLAN

ELECTRIC POWER SHALL BE OBTAINED FROM THE AEP AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

POWER SERVICE SHALL BE AS PER CMS ITEM 632 AND SCD TC-83.10 WITH THE FOLLOWING EXCEPTIONS:

1. THE CONTRACTOR SHALL MEET WITH A REPRESENTATIVE FROM THE POWER SUPPLY AGENCY TO CONFIRM HOW THE PROPOSED POWER SERVICE IS TO BE WIRED, HOOKED UP, AND ITS LOCATION.
2. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH CMS ITEM 632, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PADLOCK EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER. THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY THE MAINTAINING AGENCY.

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC). IF THERE ARE CONSTRUCTABILITY ISSUES (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER. THE DISTRICT TRAFFIC ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL DESIGNATED DISTRICT TRAFFIC PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT EFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY DISTRICT TRAFFIC PERSONNEL PRIOR TO FINAL ACCEPTANCE. ODOT FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

ITEM 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR STORED ON THE PROJECT FOR SALVAGE BY ODOT DISTRICT 11 IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

- ITEMS TO BE REMOVED AND DISPOSED OF
- MESSENGER WIRE
 - SIGNAL CABLE
 - WOOD STRAIN POLES
 - LED VEHICULAR SIGNAL HEADS

- ITEMS TO BE REMOVED AND STORED
- UPS CABINET AND INVERTER (NOT INCLUDING BATTERIES)

REMOVED ITEMS SHALL BE DELIVERED TO THE NEAREST ODOT FACILITY WHOSE ADDRESS IS LISTED BELOW:

ODOT DISTRICT 11, TRAFFIC DEPARTMENT:
JOSEPH PARISI, P.E.
(330) 308-7813
2201 REISER AVENUE SE
NEW PHILADELPHIA, OHIO 44663

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEM 632 SIGNAL SUPPORT FOUNDATION

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, QUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

UNDERDRAINS FOR PULL BOXES

REFERENCE TRAFFIC SCD HL-30.11 FOR DETAILS ABOUT DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. THE FOLLOWING ESTIMATED QUANTITY IS CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 611 - 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET 40 FT

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND THE DISTRICT TRAFFIC ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE(S) SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

ITEM 625 - ARC FLASH CALCULATIONS AND LABEL

THIS ITEM SHALL INCLUDE PROVIDING ARC FLASH HAZARD CALCULATIONS AND LABELS PER SUPPLEMENTAL SPECIFICATION 825. LABELS SHALL BE APPLIED TO THE OUTSIDE OF EACH CONTROLLER CABINET. LABELS SHALL BE PROVIDED BY THE ODOT SIGN SHOP.

1606 WEST BROAD STREET
COLUMBUS, OHIO 43223

LOCATIONS OF ARC FLASH HAZARD LABELS ARE:

- BEL-149-23.67 (STA. 124+80, 42' RT.)-SIGNAL CONTROLLER
- BEL-149-23.67 (STA. 124+75, 78' RT.)-LIGHTING CONTROLLER

PAYMENT WILL BE MADE AT THE UNIT PRICE BID FOR EACH ITEM 625 "ARC FLASH CALCULATION LABEL" FOR EACH SET OF CALCULATIONS ACCEPTED AND LABEL INSTALLED, INCLUDING ALL LABOR, MATERIALS, AND INCIDENTALS NECESSARY.

ITEM 633 CABINET, TYPE 332L, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733, AND BE LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

THE CABINET SHALL BE FURNISHED WITH AN EDI MONITOR AS ALLOWED ON THE TAP/APPROVED PRODUCTS LIST.

THE CONTRACTOR SHALL NOT REASSIGN THE CABINET DETECTOR INPUTS IN ORDER TO REDUCE THE NUMBER OF 2-CHANNEL DETECTOR UNITS SUPPLIED AND SHALL USE THE STANDARD CALTRANS INPUT FILE DESIGNATIONS FOLLOWING SHEET 70.

PAYMENT FOR ITEM 633 CABINET, TYPE 332L, AS PER PLAN WILL BE AT THE CONTRACT BID PRICE PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 809 ATC CONTROLLER, AS PER PLAN (PROGRAM AND INSTALL ONLY)

ALL REQUIREMENTS OF SS 809 SHALL BE FOLLOWED, ALONG WITH THE ADDITIONAL DESCRIPTION AS STATED BELOW. THE ATC CONTROLLER WILL BE PROVIDED BY THE DISTRICT WITHOUT PROGRAMMING. IN THE CASE OF A 332/336 CABINET TYPE, THE CONTROLLER WILL BE PROVIDED WITH THE POWER CORD.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROGRAMMING THE CONTROLLER TO THE PROPOSED CONDITIONS ACCORDING TO THE PLANS. ODOT WILL NOT BE RESPONSIBLE FOR THE PROGRAMMING.

THE CONTROLLER SHALL BE LISTED ON THE TAP LIST AND BE AN ECONOLITE COBALT AND COMPATIBLE WITH THE CABINET TYPE BEING INSTALLED.

PAYMENT SHALL BE MADE ONCE THE CONTROLLER IS PROGRAMMED, INSTALLED, TESTED, FUNCTIONING ACCORDING TO THE PLANS, AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS TO COMPLETE THE WORK.

CONTROLLER ITEM, MISC.: TIMING AND COORDINATION

THIS ITEM SHALL INCLUDE THE WORK NECESSARY TO CHANGE THE SIGNAL TIMING AND NETWORK COORDINATION IN THE LOCAL CONTROLLER AS INDICATED ON SHEETS 76 - 78.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

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106789

SHEET

P.64

TOTAL

88

ITEM 633 UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 633 AND 733, POLE ATTACHMENT HARDWARE WILL BE INCLUDED FOR POLE-MOUNTED CABINETS, AND A CABINET RISER (8-INCH MINIMUM) AND ANCHOR BOLTS WILL BE PROVIDED FOR BASE-MOUNTED CABINETS. BEFORE PERFORMING THE WORK, THE CONTRACTOR, THE DISTRICT TRAFFIC ENGINEER AND THE PROJECT ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE LOCATION OF THE UPS CABINET AND FOUNDATION.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL +WITH A HEAVY-DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSES OVER THE POWER CORD.

THE CABINET SHALL HAVE A DOOR STOP MECHANISM AND THERMOSTATICALLY CONTROLLED FAN.

THE CABINET SHALL INCLUDE A BATTERY BALANCING DEVICE THAT REGULATES THE BATTERIES AND OPTIMIZES PERFORMANCE.

AFTER FOUR (4) HOURS OF BATTERY RUNTIME, THE SYSTEM SHALL BE PROGRAMMED TO SWITCH THE INTERSECTION FROM FULL OPERATION TO CONTROLLER AUTOMATIC FLASH OPERATION THROUGH THE MONITOR. THE CONTROLLER SHALL BE PROGRAMMED SO THAT FLASH OPERATION SHALL BEGIN ONCE THE INTERSECTION RUNS MINOR STREET GREEN (TYP. PH. 4 & 8), ALL-RED CLEARANCE, AND THEN FLASH OPERATION.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2-HOUR TIMER, AND LOW BATTERY SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL OR THROUGH THE CONTROLLER WITH A C11 TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER.

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IP66, RATED FOR OUTDOOR USE AND BE TAMPER/SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FOOT MINIMUM. THE ENCLOSURE AND LED MODULE SHOULD BE PLACED ON THE SIDE OF THE UPS CABINET FACING TOWARDS THE MAINLINE ROADWAY AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

ITEM 809 ADVANCE RADAR DETECTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).

7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO MILLING/DISABLING EXISTING LOOPS.

9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION. PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

DETECTION MAINTENANCE

IF VEHICLE DETECTION BECOMES UNEXPECTEDLY DISABLED, REQUIRES MODIFICATION, OR IS SCHEDULED TO BE TEMPORARILY REMOVED DURING THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER.

IF THE LOSS OF VEHICLE DETECTION IS KNOWN PRIOR TO THE START OF CONSTRUCTION, IT SHALL BE DISCUSSED AT THE PRECONSTRUCTION MEETING. AT SUCH TIME, THE DISTRICT TRAFFIC ENGINEER SHALL ADVISE THE PROJECT ENGINEER AND CONTRACTOR ON THE APPROPRIATE ACTION TO RECTIFY ANY LOSS OF VEHICLE DETECTION. THIS MAY INCLUDE PLACING THE TRAFFIC SIGNAL ON MINIMUM OR MAXIMUM RECALL, MODIFYING THE MINIMUM GREEN TIMES, AND REMOVING THE MALFUNCTIONING DETECTION FROM SERVICE. WHERE NON-INTRUSIVE DETECTION (I.E. VIDEO, RADAR) ALREADY EXISTS, THE CONTRACTOR SHALL INSURE THAT DETECTION IS OPERATING AND MAINTAINED BY RECONFIGURING THE DETECTION UNITS ACCORDINGLY DURING ALL CONSTRUCTION PHASES. THIS IS TO AVOID THE SIGNAL FROM MAXING OUT THE EFFECTED SIGNAL PHASE AND CREATING UNNECESSARY DELAYS.

LOCATIONS WHERE NON-INTRUSIVE DETECTION IS PROPOSED AND THE EXISTING VEHICLE DETECTION IS TO BE ABANDON, THE NON-INTRUSIVE VEHICLE DETECTION SHALL BE INSTALLED, CONFIGURED AND MADE FULLY FUNCTIONAL PRIOR TO THE EXISTING DETECTION BEING DISABLED. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN AND MODIFY THE DETECTION UNTIL FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL. THIS IS TO ENSURE VEHICLE DETECTION REMAINS FULLY FUNCTIONAL THROUGHOUT CONSTRUCTION.

ITEM 633 COMMUNICATIONS, AS PER PLAN

FURNISH A CELLULAR MODEM, ONE 3-ANTENNA ASSEMBLY (PART #6001136), AND A 10' ETHERNET CABLE FOR REMOTE WIRELESS CELLULAR COMMUNICATION.

FOR NETWORK CONSISTENCY CELLULAR MODEMS SHALL BE THE SIERRA WIRELESS:

MODEM, AIRLINK MP70 ETHERNET WITH AC TO DC POWER CABLE - MODEL 1102709KIT

THIS ITEM SHALL INCLUDE THE FURNISHING A MOUNTING BRACKET FOR THE ANTENNA WITH ALL NECESSARY HARDWARE INCLUDING BUT NOT LIMITED TO SPRING NUTS, WASHERS, AND BOLTS THAT INSTALLS TO THE MOUNTING CHANNEL ON THE SIDE OF THE SIGNAL CABINET.

THE CELLULAR MODEM EQUIPMENT SHALL BE DELIVERED TO ODOT DISTRICT 11 TRAFFIC FOR PROGRAMMING AND INSTALLATION.

JOSEPH PARISI, P.E.
(330) 308-7813
2201 REISER AVENUE SE
NEW PHILADELPHIA, OHIO 44663

THE CONTRACTOR SHALL PROVIDE THE MODEM SERIAL NUMBERS AND NECESSARY ESN NUMBERS FOR ODOT TO ESTABLISH WIRELESS SERVICE.

THE DEPARTMENT WILL MEASURE "COMMUNICATIONS, AS PER PLAN" BY THE NUMBER OF COMPLETE UNITS FURNISHED, RECEIVED, AND ACCEPTED BY ODOT DISTRICT 11 TRAFFIC.

ITEM 809 STOP LINE RADAR DETECTION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX DETECTION UNIT. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.
8. THE CONTRACTOR SHALL INSTALL THE RADAR DETECTION PRIOR TO MILLING/DISABLING EXISTING LOOPS.
9. THE INSTALLATION SHALL INCLUDE ALL CONTROLLER PROGRAMMING FOR COMPLETE INSTALLATION, WHICH INCLUDES MODIFICATIONS FOR REMOVAL OF EXISTING DETECTION.

PAYMENT FOR ITEM 809 STOP-LINE RADAR DETECTION, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

DESIGN AGENCY



DESIGNER SAH

REVIEWER DAH 11-15-21

PROJECT ID 106789

SHEET TOTAL P.65 88

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.
 - A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
 - B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
 - C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
 - D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
 - E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
 - F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.
2. CONDUITS.
 - A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
 - B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
 - C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
 - D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

(CONTINUED...)

GROUNDING AND BONDING

(CONTINUED...)

3. WIRE FOR GROUNDING AND BONDING.
 - A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:
 - I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
 - II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
 - III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
 - IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
 - B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.
4. GROUND ROD.
 - A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
 - B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

<u>COND.</u>			
<u>NO.</u>	<u>COLOR</u>	<u>VEHICLE SIGNAL</u>	<u>PEDESTRIAN SIGNAL</u>
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

(CONTINUED...)

GROUNDING AND BONDING

(CONTINUED...)

6. POWER SERVICE AND DISCONNECT SWITCH.
 - A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
 - B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
 - I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
 - II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.
7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

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MATERIAL SPECIFICATIONS FOR BBS GENERATOR POWER PANEL EQUIPMENT

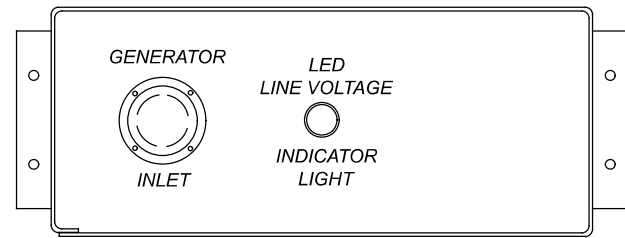
GENERATOR INLET - The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250V specification. The inlet shall be a Hubbell catalog #2715.

LINE VOLTAGE GENERATOR SWITCH - The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.

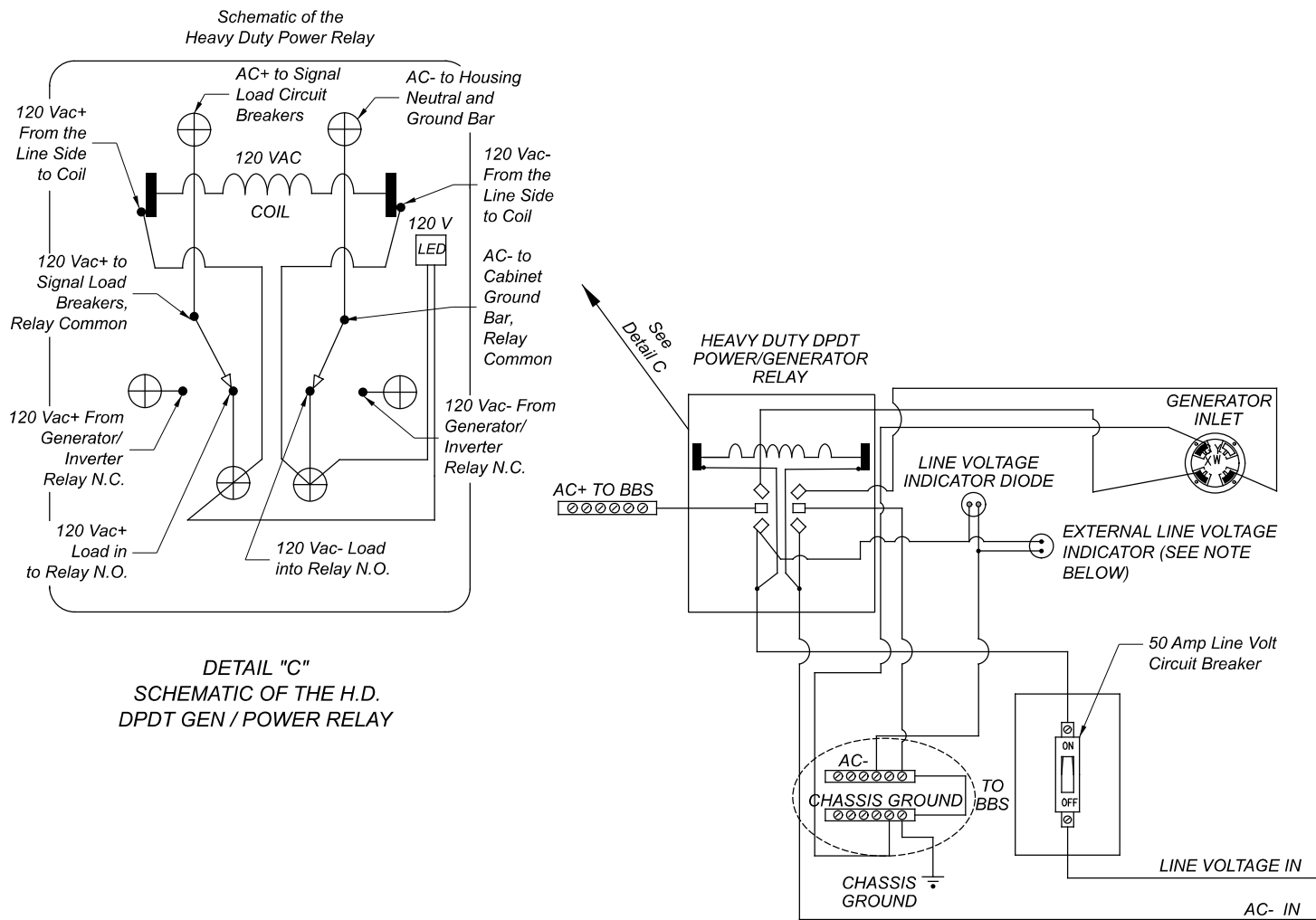
LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be 125V AC light emitting diode with a red lens.

LINE VOLTAGE CIRCUIT BREAKER - The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accommodate greater loads, if necessary. The gauge of the power cable shall be of proper size per N.E.C.

EXTERNAL LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be a 1" waterproof NEMA 4X or IP66 LED lamp with a green lens.



FRONT VIEW OF GENERATOR POWER PANEL

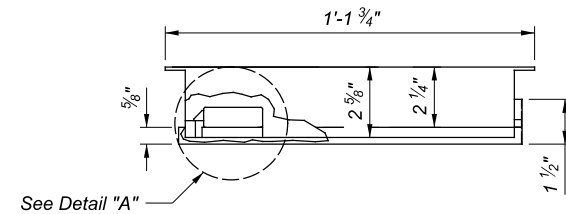


DETAIL "C"
SCHEMATIC OF THE H.D.
DPDT GEN / POWER RELAY

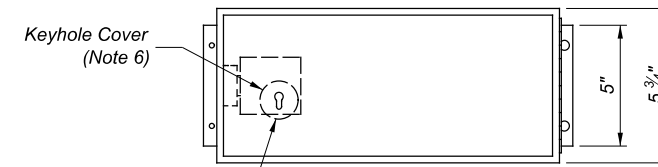
ELECTRICAL HOOKUP DETAIL FOR THE BBS GENERATOR POWER PANEL

NOTE: EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans.
EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet, and generator panel doors are closed.

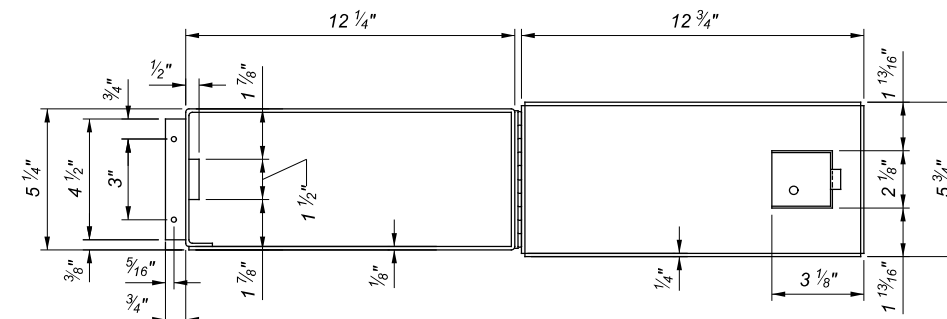
GENERATOR POWER PANEL ENCLOSURE



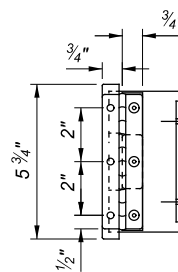
TOP VIEW



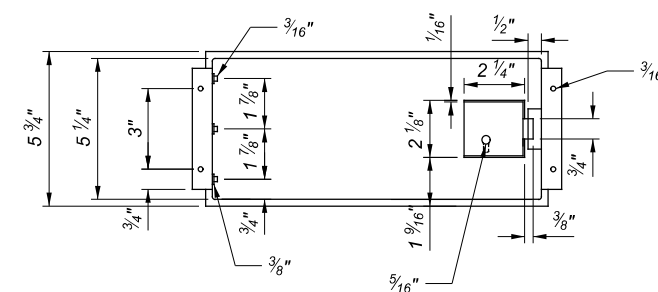
FRONT VIEW CLOSED DOOR



FRONT VIEW OPEN DOOR



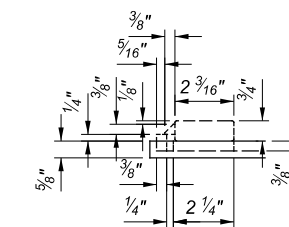
RIGHT SIDE VIEW
CLOSED DOOR



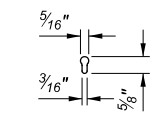
BACK VIEW CLOSED DOOR

NOTES:

- The enclosure shall be constructed of 1/8" thick aluminum.
- The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.
- The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.
- The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.
- The hinge shall be of stainless steel or equivalent corrosive-resistant material.
- Keyhole shall be covered with a movable circular aluminum or brass cover with top pivot pin.

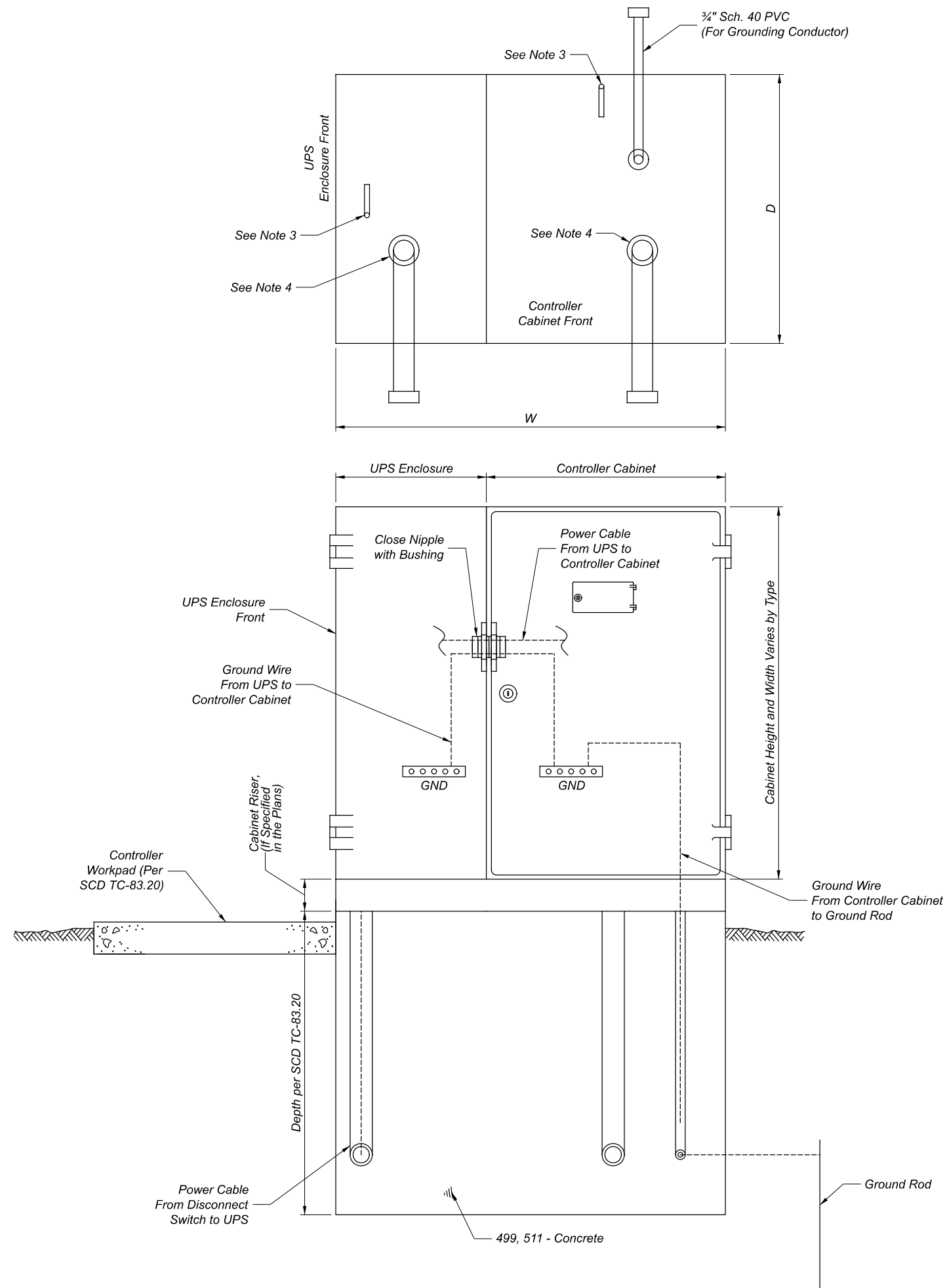


DETAIL "A"



DETAIL "B"





NOTES:

1. THE UNINTERRUPTIBLE POWER SUPPLY (UPS) ENCLOSURE SHALL BE MOUNTED FLUSH UP AGAINST THE TRAFFIC SIGNAL CABINET AND SEALED WITH SILICONE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE NECESSARY POWER CABLE BETWEEN THE UPS UNIT AND SIGNAL CABINET.
2. THE UPS SHOULD BE PLACED ON THE OPPOSITE SIDE OF THE PULL BOX ON A 332/336 CABINET (PER STANDARD CONSTRUCTION DRAWING (SCD) TC-83.20). THE UPS PLACEMENT FOR A NEMA CABINET VARIES, PLACEMENT SHOULD PROVIDE ADEQUATE ACCESS WITH RESPECT TO SLOPE, GUARDRAIL SPACING, ETC.
3. THE SIZE, NUMBER, AND LOCATION OF ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. THE SIZE, NUMBER, AND ORIENTATION OF CONDUIT ELLS SHALL BE AS SHOWN IN THE PLAN, EXCEPT THAT A 3/4" SCHEDULE 40 PVC SHALL BE INSTALLED IN EACH FOUNDATION.
5. 1/2" PREFORMED JOINT FILLER AS PER CMS 705.03 SHALL BE USED BETWEEN FOUNDATIONS AND ADJACENT PAVED AREAS.
6. SEE SCD TC-83.20 FOR FURTHER DETAILS.

TYPE	W (IN.)	D (IN.)	FOUNDATION CONCRETE (CU. YD.)
TS-1	60	24	1.23
TS-2	70	36	2.16
2070/170	50	36	1.54

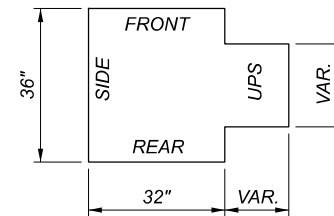
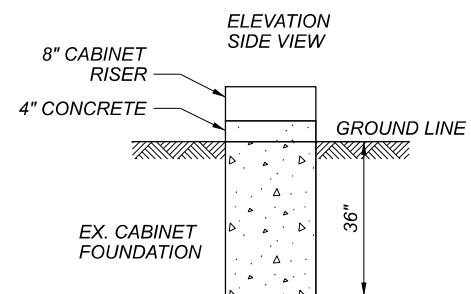
UNINTERRUPTIBLE POWER SUPPLY (UPS) AND CONTROLLER CABINET FOUNDATION

DESIGN AGENCY

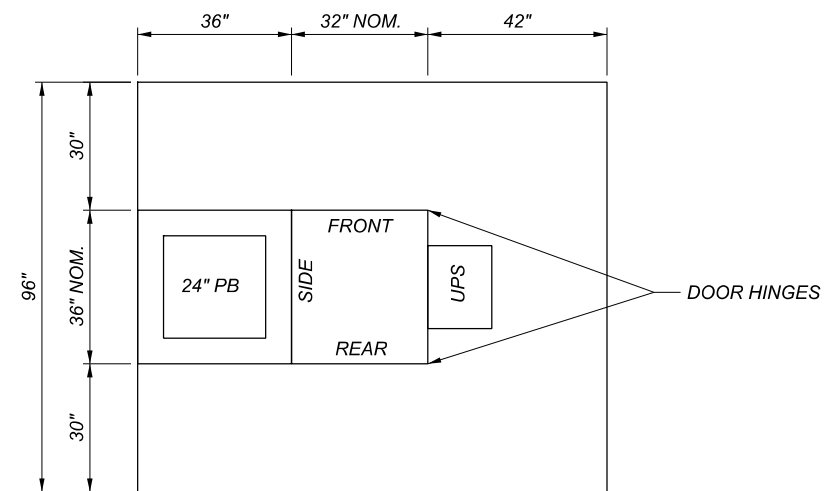
DESIGNER SAH
 REVIEWER DAH 11-15-21
 PROJECT ID 106789
 SHEET TOTAL P.68 88

MODEL 332 CABINET DETAIL (TYP.)

UPS FOUNDATION DETAIL



UPS WORK PAD DETAIL



PLAN VIEW

NOTES:

- 1) THE SIZE OF THE UPS FOUNDATION MAY VARY BASED ON THE CABINET SIZE PROVIDED.
- 2) UPS FOUNDATION ELEVATION SHOULD MATCH CABINET FOUNDATION ELEVATION.
- 3) THE UPS CABINET SHALL BE MOUNTED FLUSH UP AGAINST THE SIGNAL CABINET AND SEALED.
- 4) CONDUIT AND WIRING FROM THE SIGNAL CABINET TO THE UPS SHALL BE INSTALLED THROUGH THE CABINET RISER.



SEPAC AND ASC/3 INPUT FILE INFORMATION FOR THE 332 CABINET

UPPER INPUT FILE (FILE=I)

C U P P E R E L	PHASE	1	2	2	2	3	4	4	4	1	MANUAL CONTROL ADV.	2	6	FLASH	
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	SPARE	PED	PED	SENSE	
	SEPAC DETECTOR NO.	VEH 1	VEH 3	VEH 5	VEH 7	VEH 9	VEH 11	VEH 13	VEH 15	VEH 17		PED 2	PED 6		
	ASC/3 DETECTOR NO.	VEH 1	VEH 2	VEH 3	VEH 4	VEH 5	VEH 6	VEH 7	VEH 8	VEH 9		PED 2	PED 6		
	C1 PIN NUMBER	56	39	63	47	58	41	65	49	60		80	67	68	81
FIELD TERMINALS	1-D,E	2-D,E	3-D,E	4-D,E	5-D,E	6-D,E	7-D,E	8-D,E	9-D,E	10-D,E	11-D,E	12-D,E	13-D,E	14-D,E	
SLOT NUMBER		1	2	3	4	5	6	7	8	9	10	11	12	13	14
C L O W E R E L	PHASE	1	2	2	2	3	4	4	4	3	ADV.	4	8	STOP	
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	SPARE	ENABLE	PED	PED	TIME
	SEPAC DETECTOR NO.	VEH 1	VEH 4	VEH 6	VEH 7	VEH 9	VEH 12	VEH 14	VEH 15	VEH 18			PED 4	PED 8	
	ASC/3 DETECTOR NO.	VEH 1	VEH 10	VEH 11	VEH 4	VEH 5	VEH 14	VEH 15	VEH 8	VEH 13			PED 4	PED 8	
	C1 PIN NUMBER	56	43	76	47	58	45	78	49	62		53	69	70	82
FIELD TERMINALS	1-J,K	2-J,K	3-J,K	4-J,K	5-J,K	6-J,K	7-J,K	8-J,K	9-J,K	10-J,K	11-J,K	12-J,K	13-J,K	14-J,K	

LOWER INPUT FILE (FILE=J)

C U P P E R E L	PHASE	5	6	6	6	7	8	8	8	5	SPARE	SPARE	EV - A	EV - B	RR - 1
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	SPARE	SPARE			
	SEPAC DETECTOR NO.	VEH 19	VEH 21	VEH 23	VEH 25	VEH 29	VEH 31	VEH 33	VEH 35	VEH 37					
	ASC/3 DETECTOR NO.	VEH 17	VEH 18	VEH 19	VEH 20	VEH 21	VEH 22	VEH 23	VEH 24	VEH 25					
	C1 PIN NUMBER	55	40	64	48	57	42	66	50	59		54	71	72	51
FIELD TERMINALS	1-D,E	2-D,E	3-D,E	4-D,E	5-D,E	6-D,E	7-D,E	8-D,E	9-D,E	10-D,E	11-D,E	12-D,E	13-D,E	14-D,E	
SLOT NUMBER		1	2	3	4	5	6	7	8	9	10	11	12	13	14
C L O W E R E L	PHASE	5	6	6	6	7	8	8	8	7	SPARE	SPARE	EV - C	EV - D	RR - 2
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	SPARE	SPARE			
	SEPAC DETECTOR NO.	VEH 19	VEH 22	VEH 24	VEH 25	VEH 29	VEH 32	VEH 34	VEH 35	VEH 38					
	ASC/3 DETECTOR NO.	VEH 17	VEH 26	VEH 27	VEH 20	VEH 21	VEH 30	VEH 31	VEH 24	VEH 29					
	C1 PIN NUMBER	55	44	77	48	57	46	79	50	61		75	73	74	52
FIELD TERMINALS	1-J,K	2-J,K	3-J,K	4-J,K	5-J,K	6-J,K	7-J,K	8-J,K	9-J,K	10-J,K	11-J,K	12-J,K	13-J,K	14-J,K	

SEPAC AND ASC/3 INPUT FILE INFORMATION FOR THE 336 CABINET

C U P P E R E L	PHASE	1	2	3	4	5	6	7	8			2	6	FLASH	
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	RR - 1	EV - A	EV - B	PED	PED	SENSE
	SEPAC DETECTOR NO.	VEH 1	VEH 3	VEH 9	VEH 11	VEH 19	VEH 21	VEH 29	VEH 31				PED 2	PED 6	
	ASC/3 DETECTOR NO.	VEH 1	VEH 2	VEH 5	VEH 6	VEH 17	VEH 18	VEH 21	VEH 22				PED 2	PED 6	
	C1 PIN NUMBER	56	39	58	41	55	40	57	42	51	71	72	67	68	81
FIELD TERMINALS	1-D,E	2-D,E	3-D,E	4-D,E	5-D,E	6-D,E	7-D,E	8-D,E	9-D,E	10-D,E	11-D,E	12-D,E	13-D,E	14-D,E	
SLOT NUMBER		1	2	3	4	5	6	7	8	9	10	11	12	13	14
C L O W E R E L	PHASE	2	2	4	4	6	6	8	8	RR - 2	EV - C	EV - D	4	8	STOP
	DEFAULT FUNCTION	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	EXT-CALL	RR - 2	EV - C	EV - D	PED	PED	TIME
	SEPAC DETECTOR NO.	VEH 7	VEH 4	VEH 15	VEH 12	VEH 25	VEH 22	VEH 35	VEH 32				PED 4	PED 8	
	ASC/3 DETECTOR NO.	VEH 4	VEH 10	VEH 8	VEH 14	VEH 20	VEH 26	VEH 24	VEH 30				PED 4	PED 8	
	C1 PIN NUMBER	47	43	49	45	48	44	50	46	52	73	74	69	70	82
FIELD TERMINALS	1-J,K	2-J,K	3-J,K	4-J,K	5-J,K	6-J,K	7-J,K	8-J,K	9-J,K	10-J,K	11-J,K	12-J,K	13-J,K	14-J,K	

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SEPAC AND ASC/3 INPUT FILE INFORMATION FOR 332 AND 336 CABINETS

DESIGN AGENCY



DESIGNER SAH

REVIEWER DAH 11-15-21

PROJECT ID 106789

SHEET TOTAL P.70 88

SHEET NO.	LOCATION	SIDE	625						632											633						809							
			CONDUIT, 3", 725.04	TRENCH	CONDUIT, JACKED OR DRILLED, 3"	PULL BOX, 725.08, 18"	GROUND ROD	ARC FLASH CALCULATIONS AND LABEL	VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE	COVERING VEHICULAR SIGNAL HEAD	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	SIGNAL SUPPORT FOUNDATION	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	POWER SERVICE, AS PER PLAN	CONDUIT RISER, 2" DIAMETER	SIGN SUPPORT, TYPE TC-12.31 DESIGN 10 POLE, WITH MAST ARMS TC-81.21 DESIGN 14 AND DESIGN 12	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 12	SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 2	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	CABINET, TYPE 332L, AS PER PLAN	CABINET FOUNDATION	CONTROLLER WORK PAD	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	CONTROLLER ITEM, MISC.: TIMING AND COORDINATION	COMMUNICATIONS, AS PER PLAN	ADVANCED RADAR DETECTION, AS PER PLAN	STOP LINE RADAR DETECTION, AS PER PLAN	ATC CONTROLLER, AS PER PLAN				
			FT	FT	FT	EACH	EACH	EACH	EACH	EACH	EACH	FT	EACH	FT	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH			
S.R. 149 & EB I.R. 70 RAMP A/RAMP B																																	
72	CONTROLLER C-1/PB-1	RT					1	1							1															1			
72	PB-2	RT				1																											
72	PB-3	LT				1																											
72	POLE SP-1	RT						1					1	53		1		1										1	1				
72	POLE SP-2	RT						1					1					1									1	1					
72	POLE SP-3	LT						1					1						1														
72	CONTROLLER C-1/PB-1 TO 2A & 2B	RT	7	7	102						2																						
72	CONTROLLER C-1/PB-1 TO 2C	RT									1																						
72	CONTROLLER C-1/PB-1 TO 4A, 4B & 4C	RT	18	9							2		1																				
72	CONTROLLER C-1/PB-1 TO 6A & 6B	RT									2																						
72	CONTROLLER C-1/PB-1 TO 6C	RT	70	70	71						1																						
72	EXISTING S.R. 149 & EB RAMP INSTALLATION																																
S.R. 149 & WESTBOUND RAMP C																																	
76 & 78	EXISTING S.R. 149 & WESTBOUND RAMP C																																
S.R. 149 & T.R. 1569/SCHOOL DR.																																	
77 & 78	EXISTING S.R. 149 & T.R. 1569/SCHOOL DR																																
TOTAL CARRIED TO GENERAL SUMMARY			95	86	173	2	4	1	8	1	9	765	3	53	1	1	1	1	1	1	1	1	1	1	2	1	2	2	1				

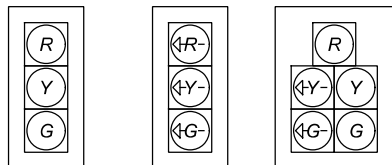
S.R. 149 - SIGNAL QUANTITIES

DESIGN AGENCY



DESIGNER
SAH
REVIEWER
DAH 11-15-21
PROJECT ID
106789
SHEET TOTAL
P.71 88

**SIGNAL HEADS, 12" LED
WITH BACK PLATES**



2A, 2B, 2C, 4C,
6A, 6B, 6C

4A

4B



R9-3-18



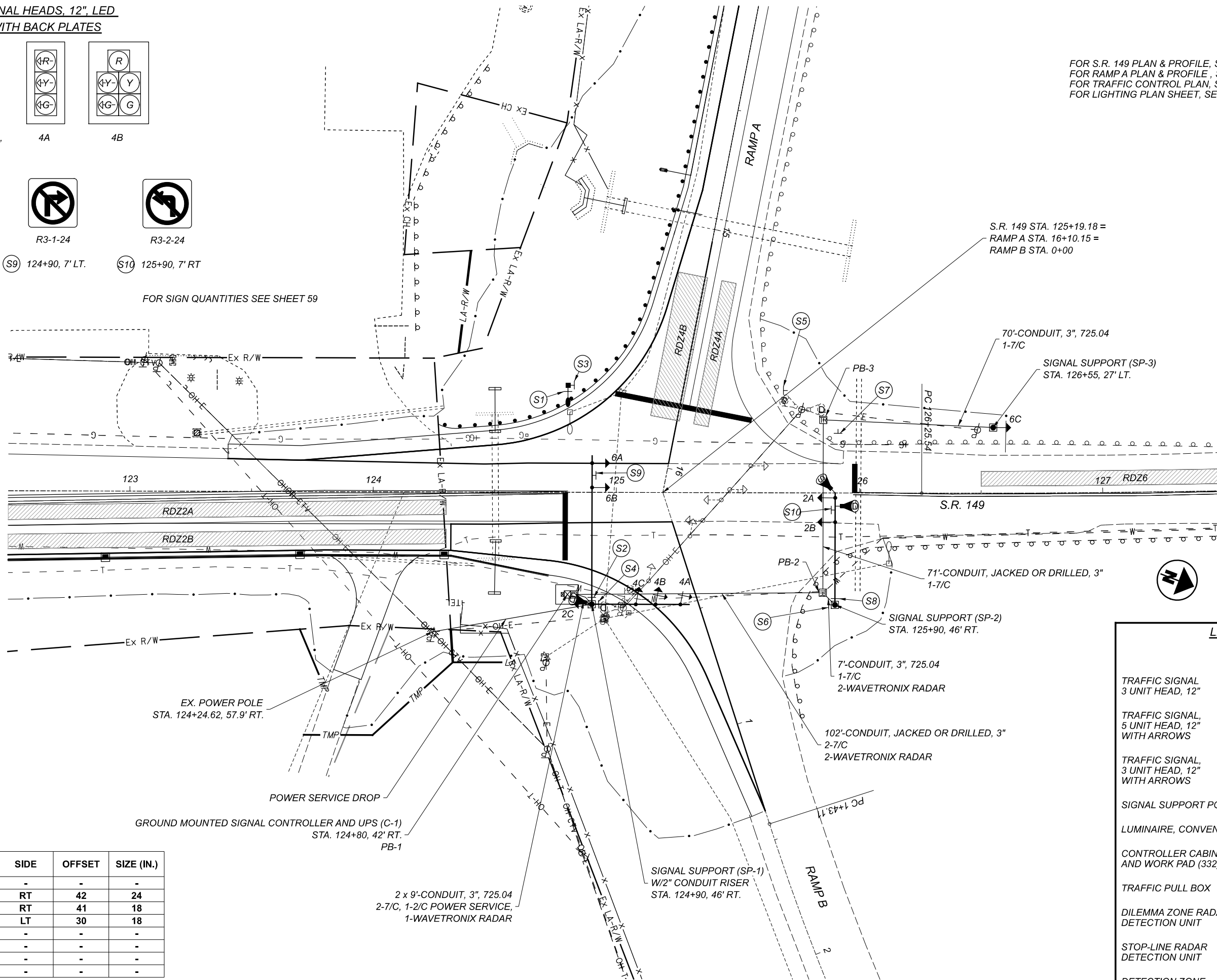
R3-1-24



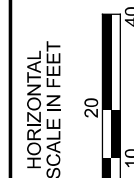
R3-2-24

- (S1) 124+80, 44' LT
- (S2) 124+80, 46' RT
- (S3) 124+80, 44' LT
- (S4) 124+80, 46' RT
- (S5) 125+70, 42' LT
- (S6) 125+90, 46' RT
- (S7) 125+90, 24' LT
- (S8) 125+90, 46' RT
- (S9) 124+90, 7' LT.
- (S10) 125+90, 7' RT

FOR SIGN QUANTITIES SEE SHEET 59



FOR S.R. 149 PLAN & PROFILE, SEE SHEET 26 - 27
FOR RAMP A PLAN & PROFILE, SEE SHEET 39
FOR TRAFFIC CONTROL PLAN, SEE SHEET 58 - 63
FOR LIGHTING PLAN SHEET, SEE SHEET 81



**SIGNAL PLAN
S.R. 149 & EASTBOUND I.R. 70 RAMPS**



LEGEND

	PROP	EXIST
TRAFFIC SIGNAL 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, 5 UNIT HEAD, 12" WITH ARROWS		
TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS		
SIGNAL SUPPORT POLE		
LUMINAIRE, CONVENTIONAL		
CONTROLLER CABINET AND WORK PAD (332)		
TRAFFIC PULL BOX		
DILEMMA ZONE RADAR DETECTION UNIT		
STOP-LINE RADAR DETECTION UNIT		
DETECTION ZONE		

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
-	-	-	-	-
PB-1	124+82.8	RT	42	24
PB-2	125+85	RT	41	18
PB-3	125+85	LT	30	18
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

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DESIGN AGENCY



DESIGNER

SAH

REVIEWER

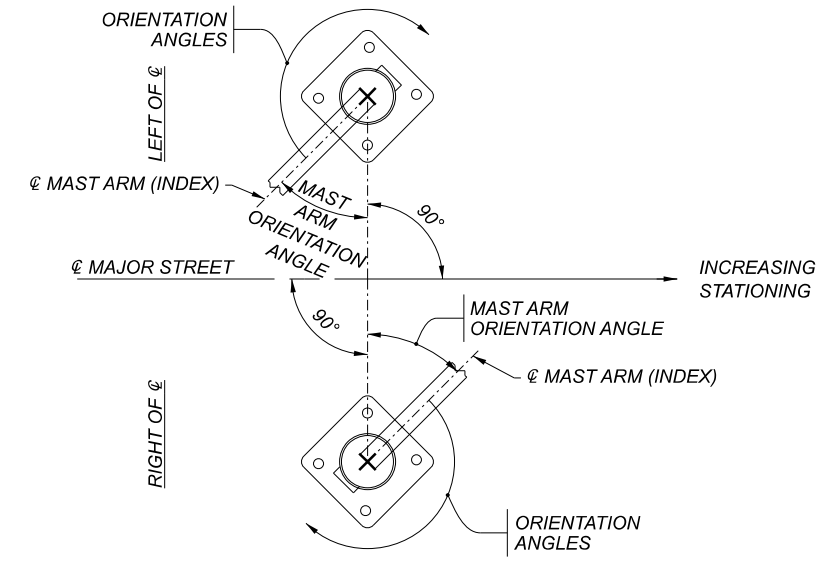
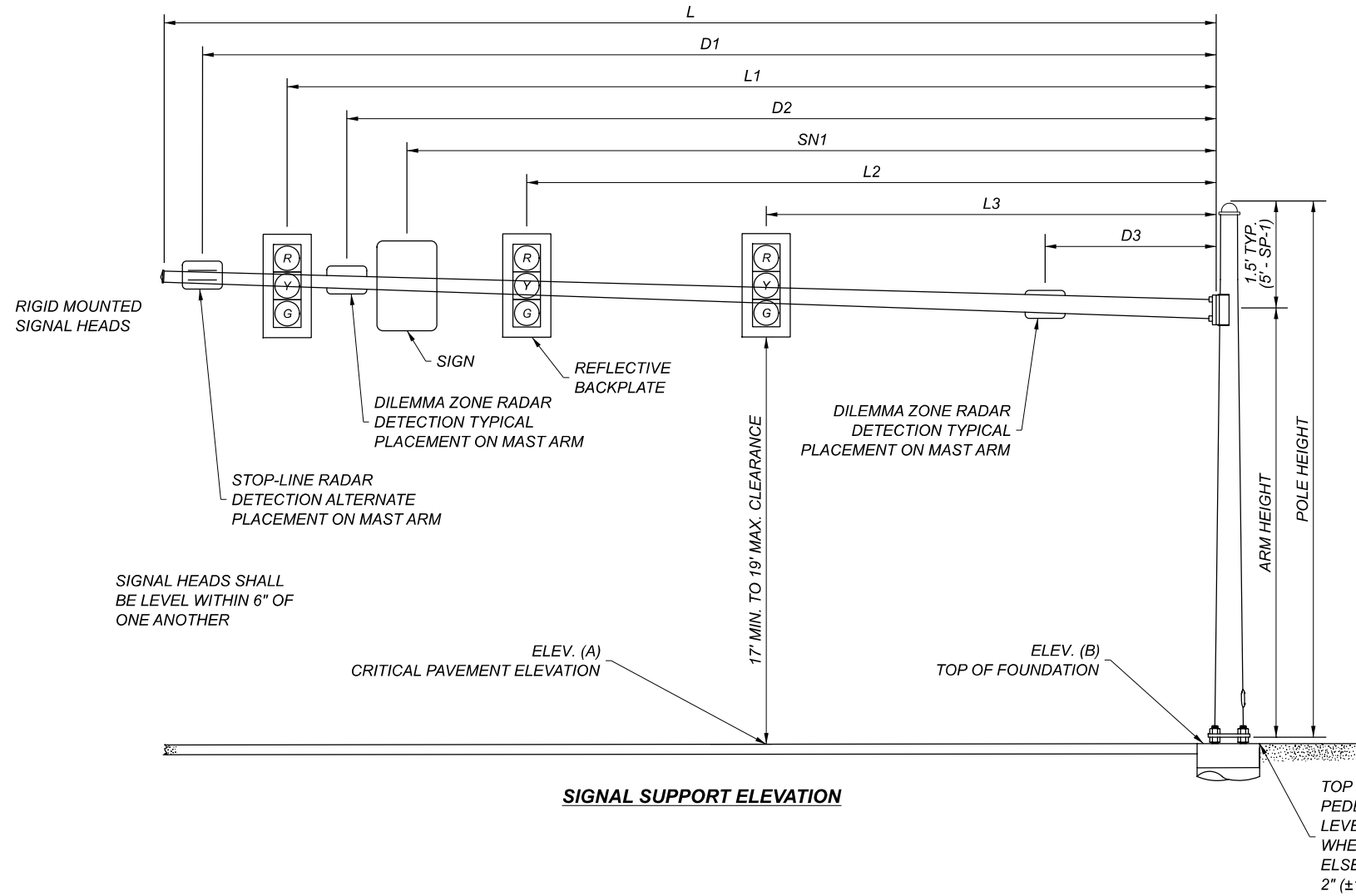
DAH 11-15-21

PROJECT ID

106789

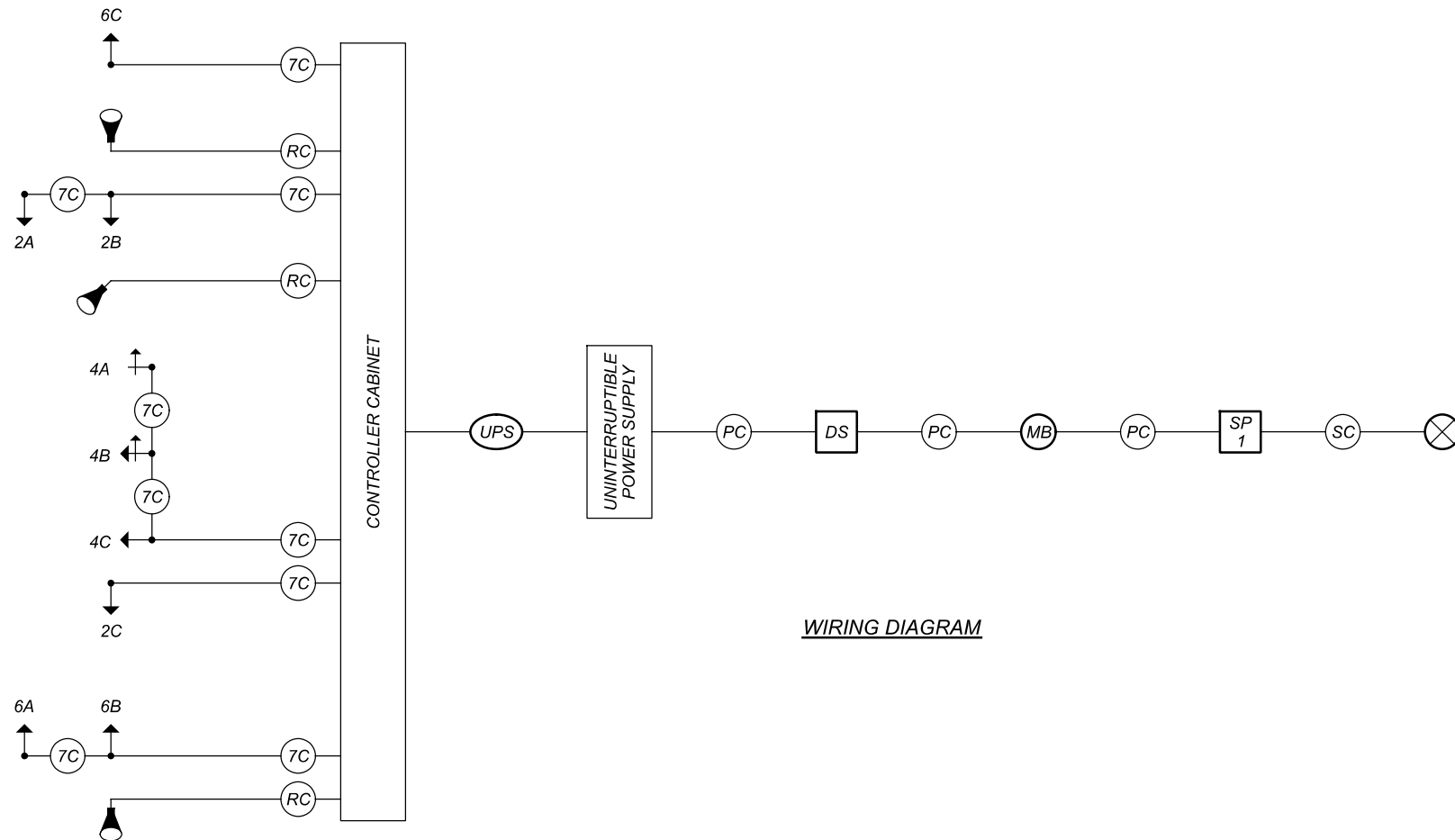
SHEET TOTAL

P.72 88



MAST ARM TABLE

SUPPORT NO.	STATION	OFFSET	POLE DESIGN TYPE	POLE DESIGN NO.	ELEVATION		TC-81.22 ARM DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	L3	D1	D2	D3	SN1	ORIENTATION ANGLES FROM MAST ARM						
					A (Pavt. Elev.)	B (Top of Found.)												MAST ARM ANGLE	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	SIGNAL HEAD CABLE ENTRANCE	HANDHOLE	CABLE ENTRANCE 12" FROM TOP
					FT	FT												DEG	DEG	DEG	DEG	DEG	DEG	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SP-1	124+90	46' RT	TC-12.31	10	1193.93 1193.53	1192.1	14 12	26.5	21.5 21.5	61 39.5	58 36.5	48 26.3	- 18.1	-	-	-	53	0 90	-	-	270	270	180	270
SP-2	125+90	46' RT	TC-81.22	12	1194.86	1192.46	12	23	21.5	47	44	34	-	42	-	-	39	0	-	-	-	-	180	-
SP-3	126+55	27' LT	TC-81.22	2	-	1192.54	-	17	-	-	-	-	-	-	-	-	-	-	-	-	90	180	-	-



WIRING DIAGRAM

NOTES:

- FOR LOCATIONS WITH LEFT TURN LANES RUN 7C FOR POTENTIAL PT/PM LT PHASE IF INITIAL DESIGN IS FOR PERMITTED ONLY.
- OVERLAPS SHALL BE WIRED TO THE APPROPRIATE LOAD SWITCHES AS PER THE FIELD HOOKUP CHART AND CONFIGURED IN THE CONTROLLER SOFTWARE PER THE SIGNAL TIMING CHART.

FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A, 2B, 2C (NB)	R	φ2 R	R	-	-	-	-
	Y	φ2 Y		-	-	-	
	G	φ2 G		-	-	-	
	-	-		-	-	-	
4A (EB LT)	<-R--	φ4 R	R	6A, 6B, 6C (SB)	R	φ6 R	R
	<-Y--	φ4 Y			Y	φ6 Y	
	<-G--	φ4 G			G	φ6 G	
	-	-		-	-	-	
4B (EB LT)	R	φ4 R	R	-	-	-	-
	<-Y--	φ4 Y		-	-	-	
	<-G--	φ4 G		-	-	-	
	Y	φ4 Y		-	-	-	
4C (EB)	R	φ4 R	R	PEDESTRIAN MOVEMENTS			
	Y	φ4 Y		-	-	-	-
	G	φ4 G		-	-	-	-
-	-	-	-	OVERLAPS			
	-	-		-	-	-	-
	-	-		-	-	-	-
	-	-		-	-	-	-
-	-	-	-	-	-	-	-
	-	-		-	-	-	
	-	-		-	-	-	

LS = LOAD SWITCH

LEGEND

- TRAFFIC SIGNAL, 3 UNIT HEAD, 12"
- TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS
- TRAFFIC SIGNAL, 5 UNIT HEAD, 12" WITH ARROWS
- DILEMMA ZONE RADAR DETECTION UNIT
- STOP LINE RADAR DETECTION UNIT
- SIGNAL CABLE, 5 CONDUCTOR, NO. XX AWG
- RADAR DETECTION CABLE
- PHOTOELECTRIC CELL
- POWER SOURCE
- SERVICE CABLE, 3 CONDUCTOR, NO. X AWG
- POWER CABLE, 2 CONDUCTOR, NO. X AWG
- SIGNAL SUPPORT POLE
- METER BASE
- UNINTERRUPTIBLE POWER SUPPLY CABLE
- DISCONNECT SWITCH

DESIGN AGENCY



DESIGNER SAH
 REVIEWER DAH 11-15-21
 PROJECT ID 106789
 SHEET TOTAL P.74 88

SIGNAL TIMING CHART

INTERSECTION: I.R. 70 EASTBOUND RAMPS & S.R. 149								
MAINTAINING AGENCY: O.D.O.T. DISTRICT 11								
START UP START IN: ALL-RED FLASH TIME FOR: FLASH, ALL RED (SEC.): 9, 6 FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: YELLOW	DUAL ENTRY: YES	PHASES: 2 & 6						
	REST IN RED:	RING 1	-	RING 2	-			
	OVERLAP		A	B	C	D		
	PHASES		-	-	-	-		
INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)	1	2	3	4	5	6	7	8
DIRECTION	-	NB	-	EB	-	SB	-	-
MINIMUM GREEN (INITIAL) (SEC.)	-	20	-	10	-	20	-	-
ADDED INITIAL *(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)	-	1	-	1	-	1	-	-
TIME BEFORE REDUCTION *(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)	-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)	-	35	-	15	-	35	-	-
MAXIMUM GREEN II (SEC.)	-	35	-	15	-	35	-	-
YELLOW CHANGE (SEC.)	-	5.1	-	4.4	-	5.1	-	-
ALL RED CLEARANCE (SEC.)	-	1.3	-	1	-	1.3	-	-
DELAYED GREEN (LPI)* (SEC.)	-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)	-	-	-	-	-	-	-	-
WALK (SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	-	OFF	-	OFF	-	OFF	-
	MINIMUM (ON/OFF)	-	ON	-	OFF	-	ON	-
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-
MEMORY (ON/OFF)	-	OFF	-	OFF	-	OFF	-	-

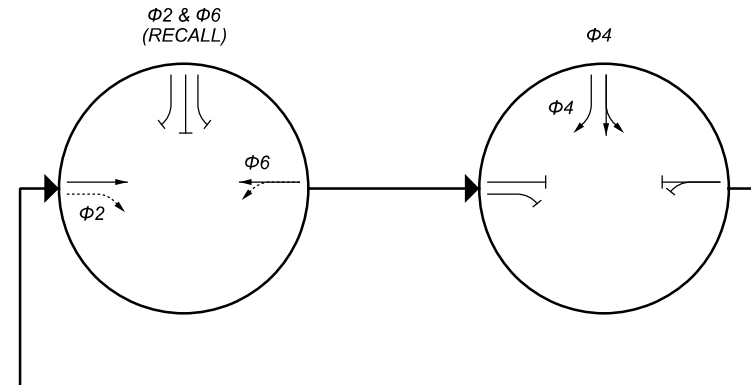
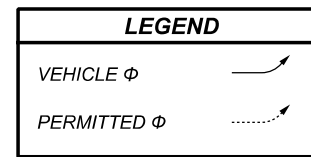
*VOLUME DENSITY CONTROLS

FOR CROSSINGS WITH PEDESTRIAN PUSHBUTTONS, LPI'S (LEADING PEDESTRIAN INTERVALS) MAY BE IMPLEMENTED (3-6 SEC.) IN ACCORDANCE WITH LPI DURATION TIME PER THE ODOT SIGNAL CALCULATIONS - CLEARANCE INTERVALS SPREADSHEET

* WHEN IMPLEMENTING FYA, A MINIMUM 3 SEC. DELAY SHALL BE PROGRAMMED PER FYA PHASE.

- ALL MOVEMENTS SHALL BE ACTUATED. THE PRIMARY THRU MOVEMENT SHOULD HAVE MIN RECALL ACTIVE TO REST IN GREEN.
- FOR PROTECTED/PERMISSIVE PHASES, IMPLEMENT CALL OMITTS TO AVOID YELLOW BALL TRAP.
- ENABLE $\phi 1$, 3 & $\phi 5$, 7 DETECTOR SWITCHING TO ALLOW $\phi 1$ & $\phi 5$ TO EXTEND $\phi 2$ & $\phi 6$ OR $\phi 3$ & $\phi 7$ TO EXTEND $\phi 4$ & $\phi 8$, RESPECTIVELY, WHEN ALLOCATED GREEN TIME FOR LEFT TURN PHASES ARE EXHAUSTED.
- COUNTDOWN PEDESTRIAN SIGNALS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.
- RADAR DETECTION UNITS FOR DILEMMA ZONE DETECTION SHALL PLACE A CONSTANT CALL TO THE CONTROLLER WHEN VEHICLES TRAVEL TIMES TO THE STOP BAR ARE BETWEEN 2.5 AND 6 SECONDS. SPEED TRIGGER SHALL BE SET FOR VEHICLE TRAVELING 35 MPH AND GREATER.
- RADAR SHALL HAVE QUEUE DETECTION CONFIGURED AND A ZONE PLACED AT 100-200 FEET FROM STOP BAR FOR SLOW MOVING VEHICLE EXTENSIONS. SPEED TRIGGER SHALL BE SET AT 1-35 MPH.
- ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.
- FOR ANY ENTRY TO FLASHING OPERATION, PROGRAMMING SHALL RUN MINOR STREET GREEN (TYP. $\phi 4$ & $\phi 8$), ALL-RED CLEARANCE, AND THEN FLASHING OPERATION.

PHASING DIAGRAM



RADAR DETECTION CHART

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	EXTENSION PROGRAMMED IN CONTROLLER (SEC.)	DELAY INHIBITED PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
RDZ2A	NB	PULSE	2	0	-	-	DILEMMA ZONE	50 TO 675
RDZ2B	NB RT	PULSE	2	0	-	-	DILEMMA ZONE	50 TO 475
RDZ4A	EB/EB LT	PRESENCE	4	0	-	-	CALL/EXTEND PHASE 4	-5 TO 55
RDZ4B	EB RT	PRESENCE	4	10	-	4	CALL/EXTEND PHASE 4	-5 TO 55
RDZ6	SB/SB LT	PULSE	6	0	-	-	DILEMMA ZONE	50 TO 475



SIGNAL TIMING CHART

INTERSECTION: I.R. 70 WESTBOUND RAMPS & S.R. 149								
MAINTAINING AGENCY: O.D.O.T. DISTRICT 11								
START UP	DUAL ENTRY:	YES	PHASES:				2 & 6	
	REST IN RED:		RING 1	-	RING 2	-		
START IN:	ALL-RED FLASH		OVERLAP	A	B	C	D	
TIME FOR: FLASH, ALL RED (SEC.):	9, 6		PHASES	-	-	-	-	
FIRST PHASE(S):	2 & 6							
COLOR DISPLAYED:	YELLOW							
INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)	1	2	3	4	5	6	7	8
DIRECTION	-	NB	-	WB	-	SB	-	-
MINIMUM GREEN (INITIAL) (SEC.)	-	20	-	10	-	20	-	-
ADDED INITIAL *(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)	-	1	-	1	-	1	-	-
TIME BEFORE REDUCTION *(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)	-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)	-	24	-	25	-	24	-	-
MAXIMUM GREEN II (SEC.)	-	24	-	25	-	24	-	-
YELLOW CHANGE (SEC.)	-	5.1	-	4.2	-	5.1	-	-
ALL RED CLEARANCE (SEC.)	-	1.7	-	1.1	-	1.7	-	-
DELAYED GREEN (LPI)* (SEC.)	-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY* (SEC.)	-	-	-	-	-	-	-	-
WALK (SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	-	OFF	-	OFF	-	OFF	-
	MINIMUM (ON/OFF)	-	ON	-	OFF	-	ON	-
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-
MEMORY (ON/OFF)	-	OFF	-	OFF	-	OFF	-	-

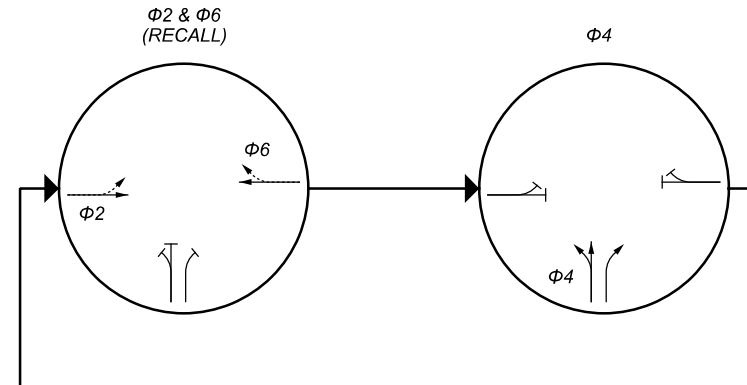
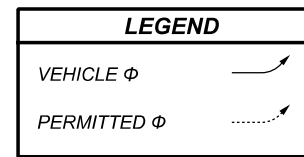
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PHASING DIAGRAM



SIGNAL TIMING CHART

INTERSECTION: S.R. 149 & TR 1569/SCHOOL DR.									
MAINTAINING AGENCY: O.D.O.T. DISTRICT 11									
START UP	DUAL ENTRY:	YES	PHASES:				2 & 6, 4 & 8		
	REST IN RED:		RING 1	-	RING 2	-			
START IN:	ALL-RED FLASH		OVERLAP	A	B	C	D		
TIME FOR: FLASH, ALL RED (SEC.):	9, 6		PHASES	-	-	-	-		
FIRST PHASE(S):	2 & 6								
COLOR DISPLAYED:	YELLOW								
INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO.								
INTERSECTION MOVEMENT (PHASE)	1	2	3	4	5	6	7	8	
DIRECTION	-	NB	-	EB	-	SB	-	WB	
MINIMUM GREEN (INITIAL) (SEC.)	-	27	-	24	-	27	-	24	
ADDED INITIAL *(SEC./ACTUATION)	-	-	-	-	-	-	-	-	
MAXIMUM INITIAL (SEC.)	-	-	-	-	-	-	-	-	
PASSAGE TIME (PRESET GAP) (SEC.)	-	1	-	1	-	1	-	1	
TIME BEFORE REDUCTION *(SEC.)	-	-	-	-	-	-	-	-	
MINIMUM GAP *(SEC.)	-	-	-	-	-	-	-	-	
TIME TO REDUCE *(SEC.)	-	-	-	-	-	-	-	-	
MAXIMUM GREEN I (SEC.)	-	30	-	25	-	30	-	25	
MAXIMUM GREEN II (SEC.)	-	30	-	25	-	30	-	25	
YELLOW CHANGE (SEC.)	-	5.1	-	4.8	-	5.1	-	4.8	
ALL RED CLEARANCE (SEC.)	-	2.8	-	1.6	-	2.8	-	1.6	
DELAYED GREEN (LPI)* (SEC.)	-	-	-	-	-	-	-	-	
FLASHING YELLOW ARROW DELAY* (SEC.)	-	-	-	-	-	-	-	-	
WALK (SEC.)	-	-	-	-	-	-	-	-	
PEDESTRIAN CLEARANCE (SEC.)	-	-	-	-	-	-	-	-	
RECALL	MAXIMUM (ON/OFF)	-	OFF	-	OFF	-	OFF	-	OFF
	MINIMUM (ON/OFF)	-	ON	-	OFF	-	ON	-	OFF
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-	-
MEMORY (ON/OFF)	-	OFF	-	OFF	-	OFF	-	OFF	

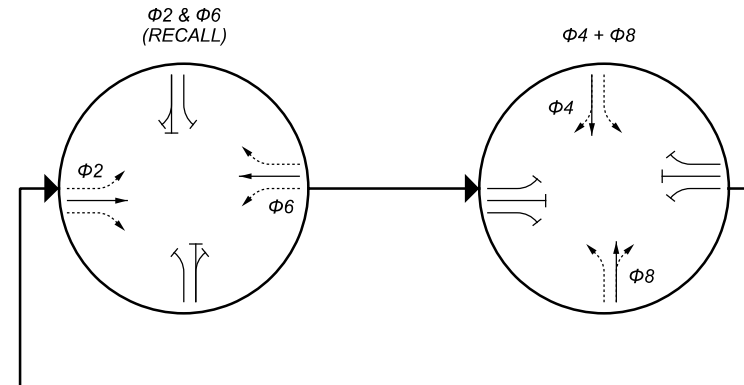
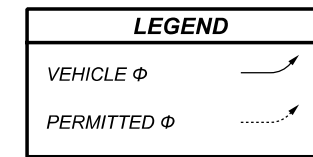
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PHASING DIAGRAM



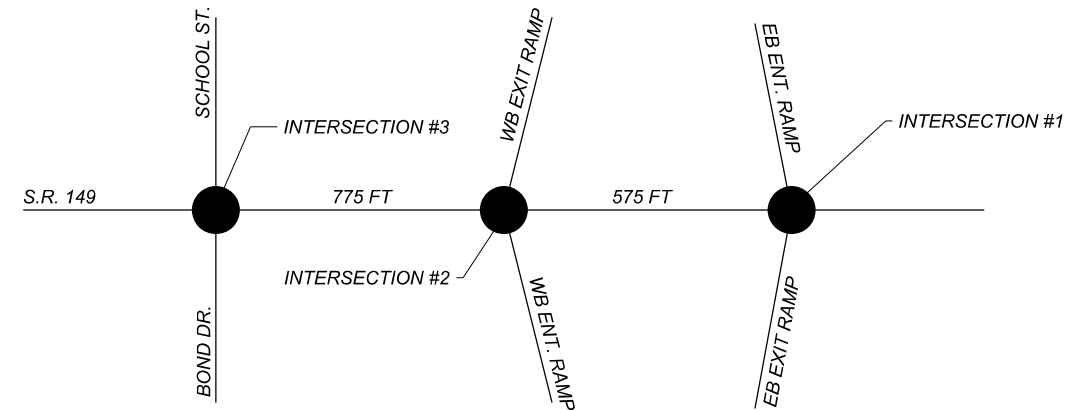
COORDINATION TIME CHART

"INTERSECTION 1" - EASTBOUND I.R. 70 RAMPS & S.R. 149										
PHASE	1	2	3	4	5	6	7	8	OFFSET 1 (SEC)	OFFSET 2 (SEC)
DIRECTION	-	NB	-	EB	-	SB	-	-		
PLAN NO. OR C/S/O	SPLITS (G+Y+AR) IN SECONDS									
-	-	-	-	-	-	-	-	-	-	-
1	-	50	-	30	-	50	-	-	28	-
2	-	49	-	21	-	49	-	-	38	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

"INTERSECTION 2" - EASTBOUND I.R. 70 RAMPS & S.R. 149 (MASTER)										
PHASE	1	2	3	4	5	6	7	8	OFFSET 1 (SEC)	OFFSET 2 (SEC)
DIRECTION	-	-	-	-	-	-	-	-		
PLAN NO. OR C/S/O	SPLITS (G+Y+AR) IN SECONDS									
-	-	-	-	-	-	-	-	-	-	-
1	-	54	-	-	-	54	-	26	0	-
2	-	41	-	-	-	41	-	29	0	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

"INTERSECTION 3" - S.R. 149 & T.R. 1569/SCHOOL DR.										
PHASE	1	2	3	4	5	6	7	8	OFFSET 1 (SEC)	OFFSET 2 (SEC)
DIRECTION	-	-	-	-	-	-	-	-		
PLAN NO. OR C/S/O	SPLITS (G+Y+AR) IN SECONDS									
-	-	-	-	-	-	-	-	-	-	-
1	-	46	-	34	-	46	-	34	40	-
2	-	38	-	32	-	38	-	32	35	-
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

CORRIDOR LAYOUT



COORDINATION TIMING PLANS

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO. OR CYCLE/SPLIT/OFFSET	CYCLE LENGTH (SEC)
-	-	-	-	-
SAT - SUN	FREE	0000 - 2400	FREE	FREE
-	-	-	-	-
MON - FRI	FREE	0000 - 700	FREE	FREE
MON - FRI	AM PEAK	0700 - 930	1	80
MON - FRI	FREE	0930 - 1430	FREE	FREE
MON - FRI	PM PEAK	1430 - 1800	2	70
MON - FRI	FREE	1800 - 2400	FREE	FREE
-	-	-	-	-

NOTES:

- OFFSET ARE MEASURED FROM REFERENCE PHASE(S) NUMBERED "END OF GREEN/BEGINNING OF YELLOW."
- MASTER INTERSECTION OFFSET REFERENCE IS ALWAYS EQUAL TO ZERO.

DESIGN AGENCY



DESIGNER
SAH
 REVIEWER
DAH 11-15-21
 PROJECT ID
106789
 SHEET TOTAL
P.78 88

625, POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE FOLLOWING IS ADDED.

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

AEP OHIO POWER COMPANY
P. O. BOX 99
47687 NATIONAL ROAD
ST. CLAIRSVILLE, OHIO 43950
(740) 699-7845 WORK
(740) 695-7838 FAX
ATTN: JEFF A. TURNER

THE POWER SUPPLY SHALL BE METERED.

THE ENGINEER SHALL ENSURE THAT EACH POWER SERVICE ELECTRICAL ENERGY ACCOUNT IS IN THE NAME OF AND THAT THE BILLING ADDRESS IS TO THE MAINTAINING AGENCY NOTED IN THE PLANS. THIS SHALL BE DONE NOT ONLY FOR EACH NEW POWER SERVICE ESTABLISHED BY THIS PROJECT BUT ALSO FOR EACH EXISTING POWER SERVICE, SINCE THERE MAY BE A REASSIGNMENT OF THE RESPONSIBILITY FOR AN EXISTING SERVICE AS A RESULT OF THE WORK PERFORMED BY THIS PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ARRANGING AND PROVIDING THE POWER IN THE MANNER SHOWN IN THE PLAN AND RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED BY THE UTILITY COMPANIES. THE ELECTRIC POWER SHALL BE OBTAINED FROM THE OHIO POWER COMPANY AT THE LOCATION INDICATED ON THE PLAN. POWER SUPPLIED SHALL BE 240/480 VOLTS 3 WIRE, SINGLE PHASE AC. 480 VOLTS AC SHALL BE SUPPLIED FROM THE DISCONNECT SWITCH TO THE HIGHWAY LIGHTING.

THE COST OF OBTAINING THE POWER, PERMITS AND INSPECTION SHALL BE INCLUDED IN THE BID PRICE FOR "POWER SERVICE, AS PER PLAN".

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "POWER SERVICE, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

HIGH VOLTAGE TEST WAIVED

THE HIGH VOLTAGE TEST SHALL NOT BE PERFORMED ON THE CIRCUITS CONSTRUCTED BY THIS PROJECT, SINCE THE TEST COULD DAMAGE THE PORTION OF THE COMPLETED CIRCUIT WHICH HAS BEEN IN SERVICE PRIOR TO THIS PROJECT.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNAN 660A, AND SHALL BE KEYED IN ACCORDANCE WITH C&MS 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

UNDERDRAINS FOR PULL BOXES

REFERENCE TRAFFIC SCD HL-30.11 FOR DETAILS ABOUT DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED 20 FEET. THE FOLLOWING ESTIMATED QUANTITY IS CARRIED TO THE GENERAL SUMMARY FOR THIS PURPOSE:

ITEM 611 - 6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET - 140 FT.

ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-11-M, LED, 8750-9129 LUMENS, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS SHALL BE AS FOLLOWS:

LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS WITH AN IES II-M-SC DISTRIBUTION AND 8750-9129 LUMEN OUTPUT SHALL BE ONE OF THE FOLLOWING:

1. AMERICAN ELECTRIC LIGHTING ATBM C 480 R2
2. COOPER-EATON NAV-AF-02-E-8-T2R-8030-800
3. LEOTEK EC3-10M2-HV-WW-2-GY-700
4. OR EQUAL, AS APPROVED BY THE ENGINEER

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH CMS ITEM 625, "LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-11-M, LED, 8750-9129 LUMENS, AS PER PLAN" FOR EACH LUMINAIRE WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

SPECIAL, MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND WHICH ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF THE EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION, A WRITTEN RECORD OF THE CONDITION OF EXISTING LIGHTING SHALL BE MADE BY ODOT'S REPRESENTATIVE. THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT IN WORKING ORDER, INDIVIDUAL POLES WHICH ARE NOT STANDING, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR.

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION. FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS.

REPLACEMENT OF KNOCKED DOWNED UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A UNIT BASIS.

BETTERMENTS SHALL BE COVERED IN ITEMS OF WORK PERTAINING TO THE CONSTRUCTION OF PERMANENT IMPROVEMENT.

WHEN THE SEQUENCE OF CONSTRUCTION ACTIVITIES REQUIRES, OR SHOULD THE CONTRACTOR DESIRE, THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING OF THIS PORTION OF THE ROADWAY.

PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR SETS OF THE TEMPORARY LIGHTING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.

(CONTINUED...)

SPECIAL, MAINTAIN EXISTING LIGHTING

(CONTINUED...)

THIS PLAN SHALL SHOW LOCATIONS OF POLES, LENGTHS OF BRACKET ARMS, STYLES OF LUMINAIRES, MOUNTING HEIGHTS, WIRING METHODS AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES WITH AN AVERAGE TO MINIMUM UNIFORMITY NOT TO EXCEED 3:1. MOUNTING HEIGHT OF TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 30 FEET, AND THE MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE "B" FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THESE CRITERIA, THEN UNDERGROUND WIRING SHALL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING.

ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WHEN NO LONGER NEEDED, THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

THE MAINTAINING AGENCY WILL PAY FOR ELECTRICAL ENERGY CONSUMED BY EXISTING POWER SERVICES AND BY PROPOSED PERMANENT POWER SERVICES AFTER ACCEPTANCE OF THE LIGHTING WORK. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY POWER SERVICES.

THE LUMP SUM PRICE BID FOR ITEM SPECIAL "MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789








SHEET

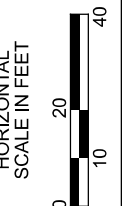
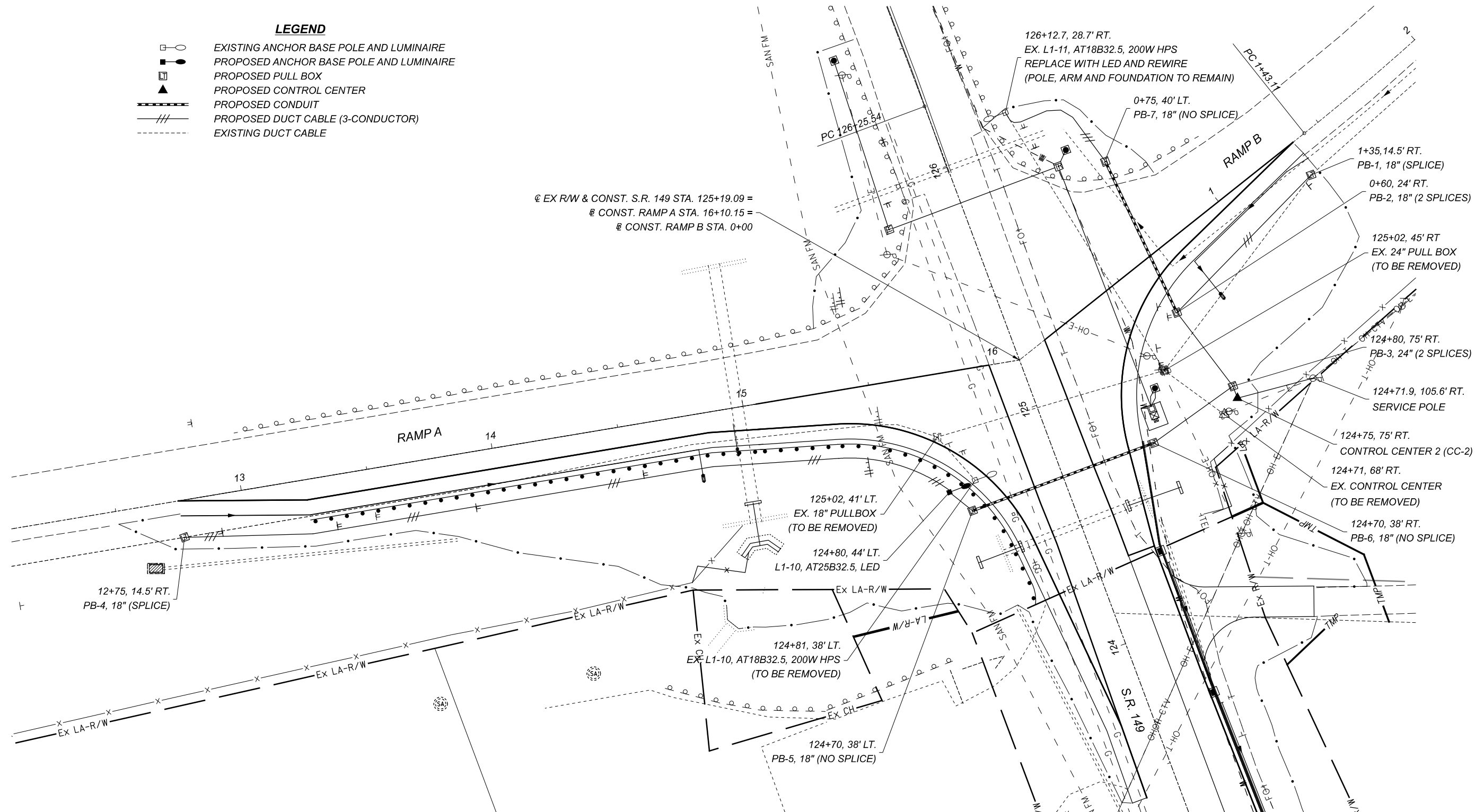
P.79

TOTAL

88

SHEET NO.	REFERENCE NO.	625																						
		CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PULL APART	CONNECTION, UNFUSED PERMANENT	LIGHT POLE, CONVENTIONAL AT25B32.5	LIGHT POLE FOUNDATION, 24" X 8' DEEP	NO. 4 AWG 2400 VOLT DISTRIBUTION CABLES	NO. 10 AWG POLE AND BRACKET CABLE	1-1/2" DUCT CABLE WITH THREE NO. 4 AWG 2400 VOLT CABLES	CONDUIT, JACKED OR DRILLED, 3"	LUMINAIRE, CONVENTIONAL, SOLID STATE (LED), IES-11-M, LED, 8750-9129 LUMENS, AS PER PLAN	TRENCH	PULL BOX, 725.08, 18"	PULL BOX, 725.08, 24"	PULL BOX REMOVED	GROUND ROD	POWER SERVICE, AS PER PLAN	ARCH FLASH CALCULATIONS AND LABEL (SEE SHEET 64)	LIGHT POLE REMOVED	LIGHT POLE FOUNDATION REMOVED	LUMINAIRE REMOVED FOR STORAGE	POWER SERVICE REMOVED	DISCONNECT CIRCUIT	
		EACH	EACH	EACH	EACH	EACH	FEET	FEET	FEET	FEET	EACH	FEET	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
81	PB-1			2									1										1	
81	PB-1 TO PB-2											86												
81	PB-2			2									1											
81	L1-11 ~ EX. AT18B32.5	1	1					182			1					1					1			
81	L1-11 TO PB-7											62												
81	PB-7			2									1											
81	PB-7 TO PB-2						228									66								
81	PB-2 TO PB-3											46												
81	PB-3			2										1										
81	PB-4			2										1									1	
81	PB-4 TO L1-10											315												
81	L1-10 ~ AT25B32.5	1	1		1	1		203			1													
81	L1-10 TO PB-5											22												
81	PB-5			2										1										
81	PB-5 TO PB-6						258									76								
81	PB-6			2										1										
81	PB-6 TO PB-3											48												
81	PB-3 TO CC-2											15												
81	CC-2																	1	1					
81	124+71, 68' RT																						1	
81	125+82, 45' RT														1									
81	125+04, 41' LT													1										
81	EX. L1-10 124+81																		1	1	1			
TOTAL CARRIED TO GENERAL SUMMARY		2	2	14	1	1	486	385	594	142	2	524	6	1	2	2	1	1	1	1	2	1	2	

- LEGEND**
-  EXISTING ANCHOR BASE POLE AND LUMINAIRE
 -  PROPOSED ANCHOR BASE POLE AND LUMINAIRE
 -  PROPOSED PULL BOX
 -  PROPOSED CONTROL CENTER
 -  PROPOSED CONDUIT
 -  PROPOSED DUCT CABLE (3-CONDUCTOR)
 -  EXISTING DUCT CABLE



LIGHTING PLAN
I.R. 70 & S.R. 149

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

106789

SHEET TOTAL

P.81 88

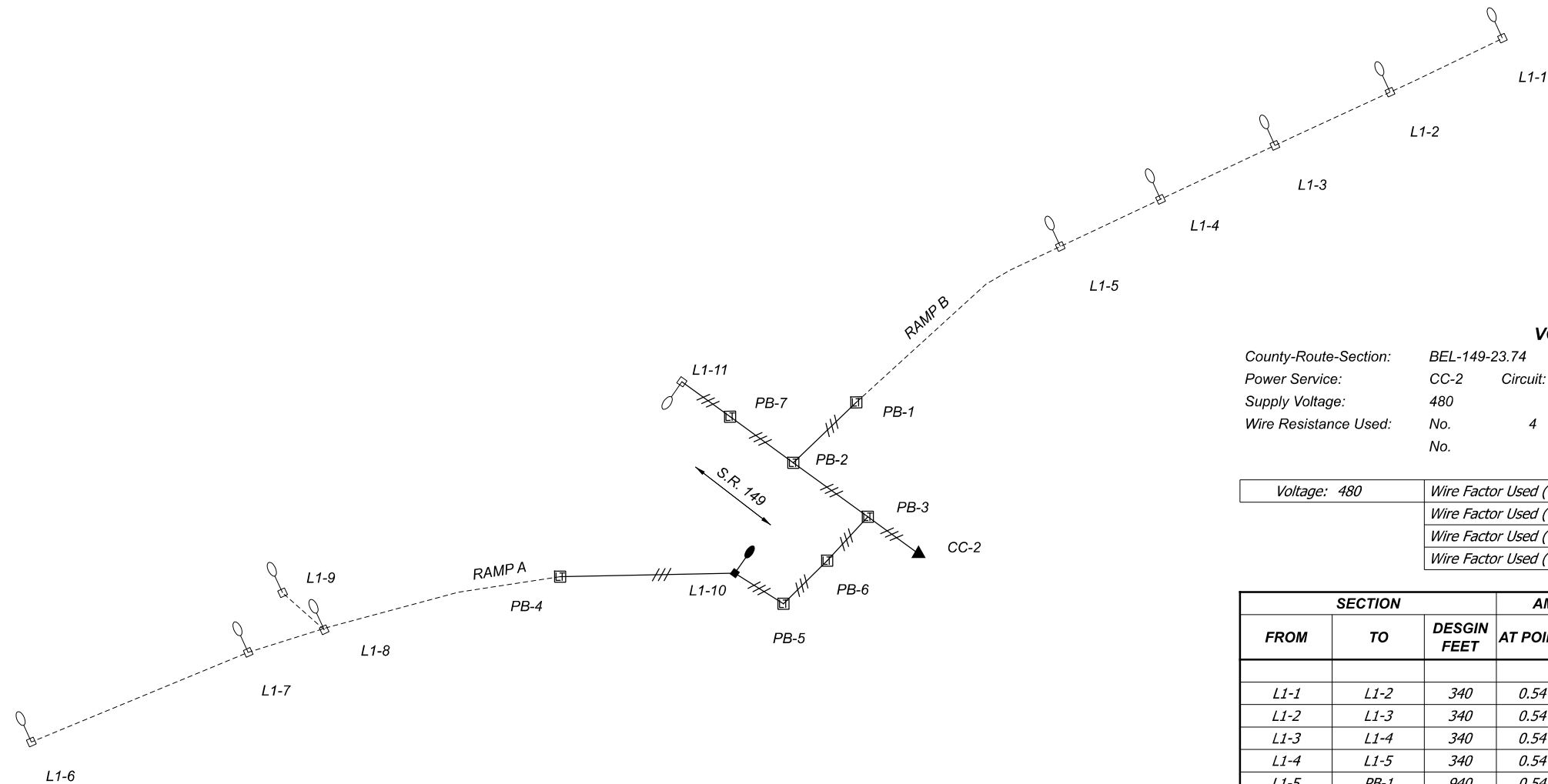
FOR S.R. 149 PLAN AND PROFILE, SEE SHEET 26 - 27
 FOR RAMP A PLAN AND PROFILE, SEE SHEET 39
 FOR SIGNAL PLAN SHEET, SEE SHEET 72

CONTROL CENTER DATA

CONTROL CENTER	LINE VOLTS	CONNECTED LOAD (KVA)	SERVICE ENTRANCE CONDUCTOR SIZE - AWG	ENCLOSURE RATINGS (AMPS)	CIRCUIT NO.	CIRCUIT LOAD AMPS	CIRCUIT FUSE SIZE AMPS	CIRCUIT CABLE SIZE AWG	MAINTAINING AGENCY
CC-2 S.R. 149 STA. 124+80, RT.	480V	2.9	4 AWG	60	1	5.94	60	4 AWG	ODOT

LEGEND

- EXISTING CIRCUIT
- /// PROPOSED CIRCUIT
- EXISTING LIGHT POLE
- PROPOSED LIGHT POLE
- PROPOSED PULL BOX
- ▲ PROPOSED CONTROL CENTER



VOLTAGE DROP CALCULATIONS

County-Route-Section: BEL-149-23.74 No. of Wires for Calculation Purposes: 3
 Power Service: CC-2 Circuit: 1
 Supply Voltage: 480
 Wire Resistance Used: No. 4 AWG. 0.310
 No. AWG.

Voltage: 480	Wire Factor Used (Two - No. 10 AWG Wires):	2.40 ohms/mft/1000	Circuit: 'X'
	Wire Factor Used (Two - No. 8 AWG Wires):	1.56 ohms/mft/1000	
	Wire Factor Used (Two - No. 6 AWG Wires):	0.98 ohms/mft/1000	
	Wire Factor Used (Two - No. 4 AWG Wires):	0.62 ohms/mft/1000	

SECTION	FROM	TO	DESIGN FEET	AMPERES		AMPERE- FEET	AWG	VOLTAGE DROP			
				AT POINT	ACCUM.			IN SECTION	ACCUM.	% DROP	AT POINT
	L1-1	L1-2	340	0.54	0.54	184	4	0.11	2.93	0.61	L1-1
	L1-2	L1-3	340	0.54	1.08	367	4	0.23	2.82	0.59	L1-2
	L1-3	L1-4	340	0.54	1.62	551	4	0.34	2.59	0.54	L1-3
	L1-4	L1-5	340	0.54	2.16	734	4	0.46	2.25	0.47	L1-4
	L1-5	PB-1	940	0.54	2.70	2,538	4	1.57	1.79	0.37	L1-5
	PB-1	PB-2	76	0.00	2.70	205	4	0.13	0.22	0.05	PB-1
	L1-11	PB-7	52	0.54	0.54	28	4	0.02	0.13	0.03	L1-11
	PB-7	PB-2	66	0.00	0.54	36	4	0.02	0.11	0.02	PB-7
	PB-2	PB-3	36	0.00	3.24	117	4	0.07	0.09	0.02	PB-2
	L1-6	L1-7	650	0.54	0.54	351	4	0.22	1.89	0.39	L1-6
	L1-7	L1-8	205	0.54	1.08	221	4	0.14	1.67	0.35	L1-7
	L1-9	L1-8	35	0.54	0.54	19	4	0.01	1.55	0.32	L1-9
	L1-8	PB-4	670	0.54	2.16	1,447	4	0.90	1.54	0.32	L1-8
	PB-4	L1-10	306	0.00	2.16	661	4	0.41	0.64	0.13	PB-4
	L1-10	PB-5	12	0.54	2.70	32	4	0.02	0.23	0.05	L1-10
	PB-5	PB-6	76	0.00	2.70	205	4	0.13	0.21	0.04	PB-5
	PB-6	PB-3	38	0.00	2.70	103	4	0.06	0.08	0.02	PB-6
	PB-3	CC-2	5	0.00	5.94	30	4	0.02	0.02	0.00	PB-3

BEL-149-23.64

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LIGHTING CIRCUIT DIAGRAM

DESIGN AGENCY



DESIGNER

SAH

REVIEWER

DAH 11-15-21

PROJECT ID

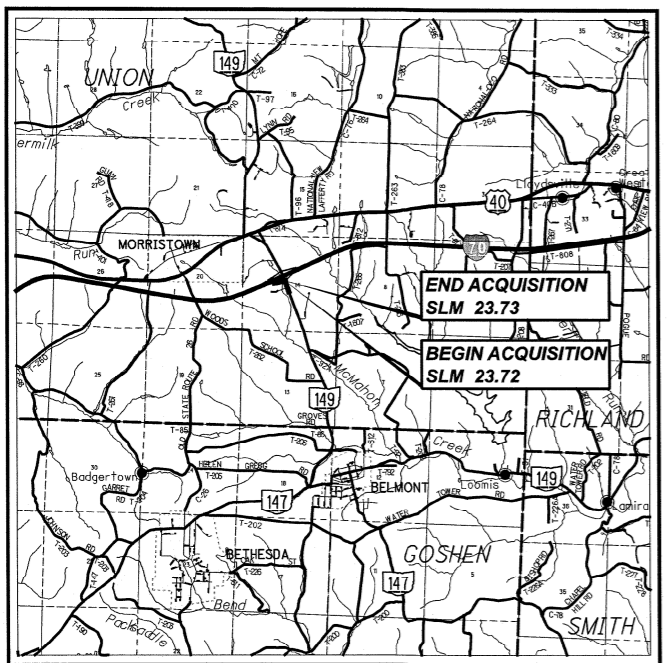
106789

SHEET TOTAL

P.82 88

BEL-149-23.64

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LOCATION MAP

LATITUDE: 40°03'35" N LONGITUDE: 81°03'10" W



NOTES: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

AEP OHIO POWER COMPANY ATTN: JEFF TURNER
P. O. BOX 99
47687 NATIONAL ROAD
ST. CLAIRSVILLE, OHIO 43950
740-699-7845

AT&T OHIO, INC. ATTN: BARRETT J. TAMOSIVICH
160 NORTH 6TH STREET
ZANESVILLE, OHIO 43701
740-454-3552

MARKWEST LIBERTY MIDSTREAM, LLC. ATTN: JEFFREY W. BREEN
4600 J. BARRY CT.
SUITE 500
CANONSBURG, PA 15317
724-873-3632

COLUMBIA GAS OF OHIO, INC. ATTN: TIMOTHY SEECH
300 LURAY DRIVE
WINTERSVILLE, OHIO 43953
740-266-4282

WINDSTREAM ATTN: JOHN MCDOWELL
32699 OLD NATIONAL ROAD
BARNESVILLE, OHIO 43713
OFFICE: 1-339-650-8302

COMCAST ATTN: GENE HELMES
908 NATIONAL RD.
BRIDGEPORT, OH 43912
740-314-5397

BELMONT COUNTY SANITARY SEWER DISTRICT ATTN: BRIAN STREET
P.O. BOX 457
ST CLAIRSVILLE, OHIO 43950
740 695-3144

CONVENTIONAL SYMBOLS

County Line	-----	Edge of Shoulder (Ex)	-----
Township Line	-----	Edge of Shoulder (Pr)	-----
Section Line	-----	Ditch / Creek (Ex)	-----
Corporation Line	----- or -----	Ditch / Creek (Pr)	-----
Fence Line (Ex)	x x (Pr) x x	Tree Line (Ex)	-----
Center Line	-----	Ownership Hook Symbol	Example
Right of Way (Ex)	----- Ex R/W	Property Line Symbol	Example
Right of Way (Pr)	----- R/W	Break Line Symbol	Example
Standard Highway Ease.(Ex)	----- Ex SH	Tree (Pr) Tree (Ex) Shrub (Ex)	
Standard Highway Ease.(Pr)	----- SH	Tree (Remove) Shrub (Remove)	
Temporary Right of Way	----- TMP	Evergreen (Ex) Stump	
Channel Ease. (Pr)	----- CH	Evergreen (Remove) Stump (Remove)	
Utility Ease. (Ex)	----- Ex U	Wetland (Pr) Grass (Pr) Aerial Target	
Railroad	----- or -----	Post (Ex) Mailbox (Ex) Mailbox (Pr)	
Guardrail (Ex)	----- (Pr)	Light (Ex) Telephone Marker (Ex) TEL	
Construction Limits	-----	Fire Hydrant (Ex) Water Meter (Ex)	
Edge of Pavement (Ex)	-----	Water Valve (Ex) Utility Valve Unknown (Ex)	
Edge of Pavement (Pr)	-----	Telephone Pole (Ex) Power Pole (Ex)	
		Light Pole (Ex)	

RIGHT OF WAY LEGEND SHEET BEL-149-23.64

BELMONT COUNTY
UNION TOWNSHIP
SEC. 14, T. 8, R. 5
OLD SEVEN RANGES

INDEX OF SHEETS:

LEGEND SHEET	1
PROPERTY MAP	2
SURVEY MONUMENTATION	3
SUMMARY OF ADDITIONAL R/W	4
R/W DETAIL	5-6

STRUCTURE KEY

	RESIDENTIAL
	COMMERCIAL
	OUT-BUILDING

TYPES OF TITLE LEGEND:

CH = CHANNEL EASEMENT
LA = LIMITED ACCESS EASEMENT
SH = STANDARD HIGHWAY EASEMENT
T = TEMPORARY EASEMENT
WLR = FEE SIMPLE WITH LIMITATION OF ACCESS AND SPECIAL RESERVATION

I, Jon R. Penix, P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation in September 2019. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinate System, South Zone on NAD 83 (CORS 2011) datum. The Project Coordinates (US Survey feet) are relative to State Plane Grid Coordinates (meters or US Survey feet) by a Project Adjustment Factor multiplier of 1.00004621. As a part of this project I have reestablished the centerline of existing Right of Way for property takes contained herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "A Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Jon R. Penix
Jon R. Penix, Professional Surveyor No. 8328, Date: 07-22-2020

I, Eric R. Zaugg, P. S., have re-established the locations of the existing property lines, established the proposed property lines, calculated the Gross Take, Present Roadway Occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire these parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersections, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Eric R. Zaugg
Eric R. Zaugg, Professional Surveyor No. 8309, Date: JULY 21, 2020

FEDERAL PROJECT NUMBER

E190(225)

STATE PROJECT NUMBER

510781

PROJECT DESCRIPTION

IMPROVEMENT TO ±0.10 MILES OF S.R. 149 AND ±0.05 MILES OF EASTBOUND I.R. 70 EXIT RAMP AT THE INTERSECTION OF S.R. 149 AND I.R. 70 EASTBOUND ON/OFF RAMP AT I.R. 70 EXIT 208. THIS PROJECT INCLUDES NEW TRAFFIC SIGNAL HARDWARE, ANALYSIS OF THE SIGNAL TIMING AND PHASING THROUGH THE S.R. 149 CORRIDOR FROM I.R. 70 TO BOND DRIVE, AND ADDING RIGHT TURN LANES ON NORTHBOUND SR 149 AND THE EASTBOUND I.R. 70 EXIT RAMP.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

PLANS PREPARED BY:

FIRM NAME : ODOT D-11 PLANNING & ENGINEERING
R/W DESIGNER: T. JORDAN BARKER
R/W REVIEWER: ERIC ZAUGG
FIELD REVIEWER: ERIC ZAUGG
PRELIMINARY FIELD REVIEW DATE: 04/09/2020
TRACINGS FIELD REVIEW DATE: 07/01/2020
OWNERSHIP UPDATED BY: ERIC ZAUGG
DATE COMPLETED: 07/15/2020
PLAN COMPLETION DATE: 07/15/2020

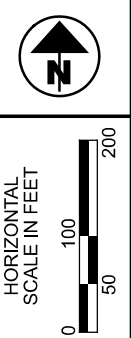
SURVEYORS SEAL

SURVEYORS SEAL

RIGHT OF WAY
LEGEND SHEET

DESIGN AGENCY	
DESIGNER	TJB
REVIEWER	ERZ
PROJECT ID	106789
SUBSET	TOTAL
1	6
SHEET	TOTAL
83	88

BELMONT COUNTY
UNION TOWNSHIP
SEC. 14, T. 8, R. 5
OLD SEVEN RANGES



PROPERTY MAP

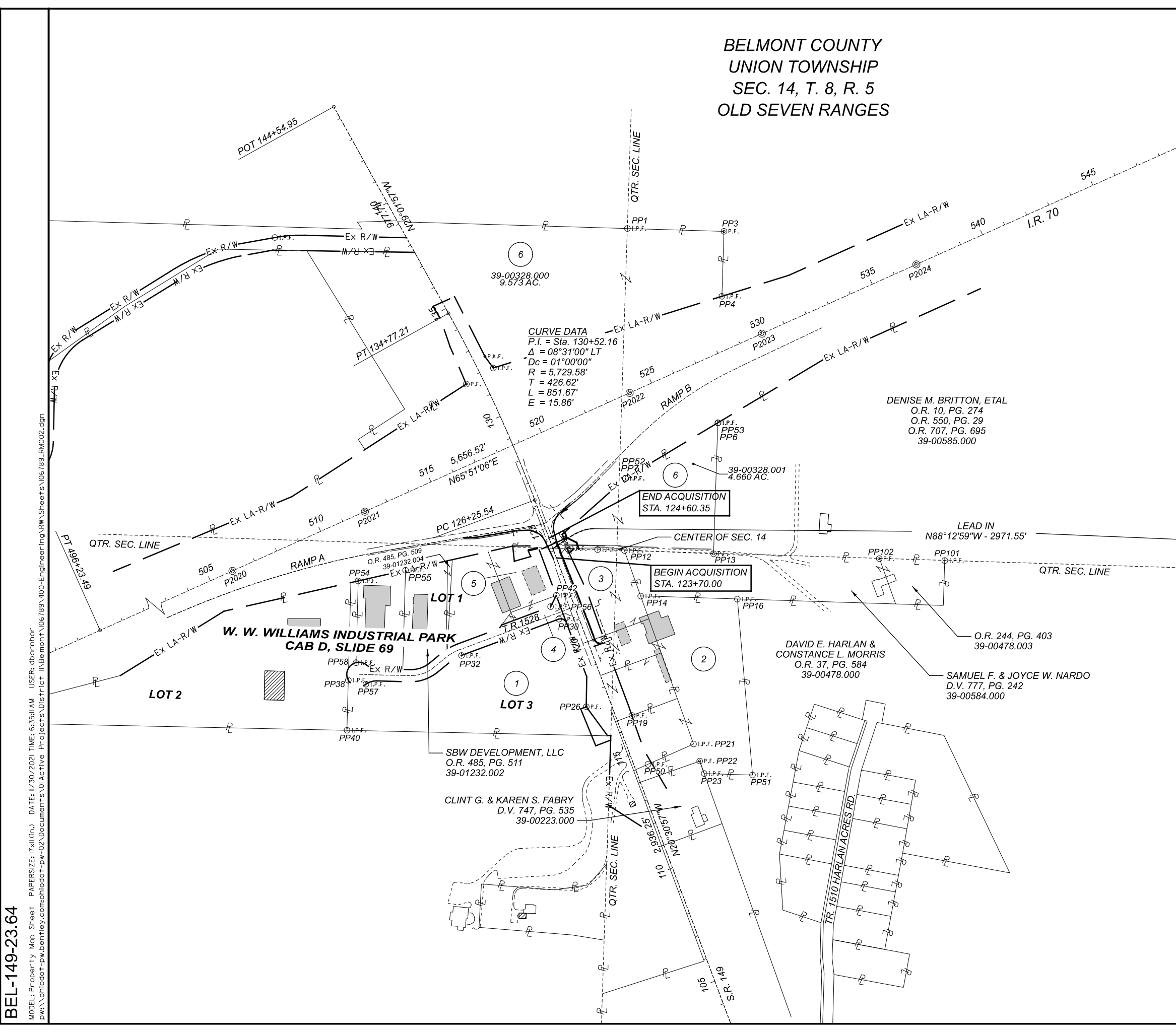
OWNERSHIP NAME AND NUMBER

- 1 MGD PROPERTY HOLDINGS LLC
Parcel #: 39-01234.000
- 2 GEORGE F. JR. & SANDRA K. WEES
Parcel #: 39-00277.000
Parcel #: 39-00276.000
Parcel #: 39-00278.000
- 3 DELORES A. BLAKE, TRUSTEE
Parcel #: 39-00332.000
Parcel #: 39-00333.000
- 4 UNION TOWNSHIP
- 5 GEORGE T. & DELIA D. BALLOG & KRISTEN M. WALLACE
Parcel #: 39-00739.000
Parcel #: 39-01463.000
Parcel #: 39-01232.003
Parcel #: 39-01464.000
- 6 GOSHEN MILL ENTERPRISES, LTD
Parcel #: 39-00328.000 (9.573 AC.)
Parcel #: 39-00328.001 (4.660 AC.)

MONUMENT LEGEND

- ⊙ EXISTING CONCRETE MONUMENT
- I.P.F. IRON PIN FOUND
- I.P.F. IRON PIN FOUND W/ ID CAP
- I.P.S. IRON PIN SET W/ ID CAP
- ⊙ I.P.F. IRON PIPE FOUND
- P.K.F. P.K. NAIL FOUND
- △ STONE FOUND

REV. BY	DATE	DESCRIPTION	SHEET	TOTAL
D11	10/13/21	UPDATE PARCEL 6 RECORD	2	6
D11	7/19/21	REVISED OWNER PARCEL 6	2	6
DATE COMPLETED 7/15/2020			84	88



BEL-149-23.64

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DESIGN AGENCY
DESIGNER: TJB
REVIEWER: ERZ 06-04-20
PROJECT ID: 106789
SUBSET: 2 TOTAL: 6
SHEET: 84 TOTAL: 88

PROJECT CONTROL MONUMENTS

POINT NO.	DESCRIPTION	CL EX. R/W & CONST. - S.R. 149			PROJECT GROUND COORDINATES (FT.) (SEE SURVEY CERTIFICATION)		PROJECT GRID COORDINATES (FT.) (SEE SURVEY CERTIFICATION)		ELEVATION (FT.)
		STATION	OFFSET	SIDE	NORTHING	EASTING	NORTHING	EASTING	
C944	ODOT CAPPED IRON PIN	124+21.70	36.63	LT	753169.360	2373806.228	753134.557	2373696.539	1192.234
CP01	ODOT CAPPED IRON PIN	118+95.50	32.98	LT	752677.811	2373994.069	752643.032	2373884.372	1186.148
P2020	CONCRETE MONUMENT	(I.R. 70) 506+00.00	CL	-	753079.661	2372518.934	753044.863	2372409.305	1219.691
P2021	CONCRETE MONUMENT	(I.R. 70) 512+00.23	0.05	RT	753325.171	2373066.659	753290.361	2372957.005	1223.875
P2022	CONCRETE MONUMENT	(I.R. 70) 524+00.22	0.09	LT	753816.207	2374161.577	753781.375	2374051.872	1209.910
P2023	CONCRETE MONUMENT	(I.R. 70) 530+00.08	CL	-	754061.534	2374708.982	754026.690	2374599.252	1193.747
P2024	CONCRETE MONUMENT	(I.R. 70) 536+99.69	0.08	LT	754347.815	2375347.337	754312.958	2375237.577	1173.023

BOUNDARY CONTROL MONUMENTS


POINT NO.	DESCRIPTION	CL EX. R/W & CONST. - S.R. 149			PROJECT GROUND COORDINATES (FT.) (SEE SURVEY CERTIFICATION)		PROJECT GRID COORDINATES (FT.) (SEE SURVEY CERTIFICATION)	
		STATION	OFFSET	SIDE	NORTHING	EASTING	NORTHING	EASTING
PP1	5/8" REBAR W/ CAP MARKED BASELINE 6923/8536	134+31.70	817.3	RT	754496.754	2374152.204	754461.890	2374042.499
PP3	1/2" IRON PIPE	132+64.22	1165.52	RT	754484.942	2374551.805	754450.079	2374442.082
PP4	5/8" REBAR W/ CAP MARKED BASELINE 6923/8536	130+64.65	1040.2	RT	754216.153	2374543.062	754181.302	2374433.339
PP6	5/8" REBAR W/ CAP MARKED BASELINE 6923/8536	126+55.08	821.07	RT	753692.459	2374526.173	753657.632	2374416.451
PP7	5/8" REBAR W/ CAP MARKED BASELINE 6923/8536	125+78.35	383.13	RT	753463.185	2374144.465	753428.369	2374034.761
PP9	5/8" REBAR BENT IN SE DIRECTION	123+89.36	56.6	RT	753171.743	2373904.886	753136.940	2373795.193
PP10	CAPPED IRON PIN MARKED W. A. STEWART	123+42.31	171.8	RT	753168.050	2374029.267	753133.248	2373919.568
PP12	5/8" REBAR BENT IN SOUTHERLY DIRECTION	123+00.39	274.84	RT	753164.706	2374139.939	753129.904	2374030.235
PP13	1 1/4" ID PIPE	121+58.19	614.79	RT	753150.864	2374508.682	753116.062	2374398.961
PP14	5/8" REBAR	120+99.52	271.29	RT	752975.529	2374207.531	752940.736	2374097.824
PP16	3/4" REBAR	119+47.93	641.04	RT	752963.137	2374606.956	752928.344	2374497.230
PP19	1/2" ID PIPE BENT IN NORTHERLY DIRECTION	116+49.65	64.48	RT	752481.709	2374171.502	752446.938	2374061.797
PP21	1/2" REBAR BENT IN EASTERLY DIRECTION	114+49.99	261.42	RT	752363.737	2374425.933	752328.972	2374316.216
PP22	1 1/2" ID PIPE	113+75.08	260.39	RT	752293.220	2374451.218	752258.458	2374341.500
PP23	3/4" REBAR	113+19.98	259.71	RT	752241.373	2374469.886	752206.613	2374360.167
PP26	3/4" ID PIPE	117+49.77	99.99	LT	752517.844	2373982.380	752483.072	2373872.683
PP30	3/4" REBAR	121+29.22	79.49	LT	752880.408	2373868.599	752845.619	2373758.908
PP32	5/8" REBAR W/ CAP MARKED BARR 7829	121+29.31	508.78	LT	752730.043	2373466.494	752695.261	2373356.821
PP38	5/8" REBAR BENT IN WESTERLY DIRECTION	121+97.84	983.33	LT	752627.914	2372998.032	752593.137	2372888.381
PP40	IRON PIN FOUND	120+05.38	1061.14	LT	752420.387	2372992.607	752385.619	2372882.956
PP42	5/8" REBAR W/ CAP MARKED HAMILTON & ASSOC.	122+25.17	54.22	LT	752979.126	2373858.631	752944.332	2373748.940
PP50	5/8" REBAR BENT IN SE DIRECTION	114+37.20	55.64	RT	752279.642	2374237.683	752244.881	2374127.975
PP51	3/4" REBAR	112+44.32	444.81	RT	752235.384	2374669.768	752200.625	2374560.040
PP52	3/4" REBAR	125+78.54	382.61	RT	753463.179	2374143.918	753428.363	2374034.214
PP53	IRON PIN FOUND	126+55.00	822.18	RT	753692.774	2374527.251	753657.947	2374417.529
PP54	1/2" REBAR W/ CAP MARKED HAMILTON & ASSOC.	125+68.06	801.1	LT	753038.514	2373038.958	753003.718	2372929.305
PP55	1/2" REBAR W/ CAP MARKED HAMILTON & ASSOC.	125+40.86	602.18	LT	753082.757	2373234.787	753047.959	2373125.125
PP56	5/8" REBAR W/ CAP MARKED HAMILTON & ASSOC.	121+89.48	93.15	LT	752932.061	2373834.683	752897.270	2373724.993
PP57	5/8" REBAR W/ CAP MARKED BARR 7829	121+56.39	921.03	LT	752610.929	2373070.907	752576.152	2372961.252
PP58	5/8" REBAR W/ CAP MARKED HAMILTON & ASSOC.	122+54.47	928.08	LT	752700.311	2373029.932	752665.530	2372920.279
PP100	4" x 12" STONE W/ X MARKING THE EAST QUARTER SECTION CORNER	112+85.23	2749.32	RT	753081.345	2376813.776	753046.547	2376703.949
PP101	IRON PIN FOUND	117+96.73	1500.89	RT	753122.876	2375465.266	753088.076	2375355.501
PP102	3/4" ID PIPE	118+99.20	1249.51	RT	753130.744	2375193.916	753095.943	2375084.163
S4404	CAPPED IRON PIN	124+32.15	56.75	RT	753211.869	2373890.027	753211.869	2373890.027
S4405	CAPPED IRON PIN	124+52.51	57.72	RT	753231.279	2373883.800	753231.279	2373883.800

SURVEY MONUMENTATION

BEL-149-23.64

MODEL: Sheet PAPER: 17x11 (in.) DATE: 11/30/2021 TIME: 7:40:52 AM USER: dbarnhar p:\v\hobol-pw-bentley.com\shahid-pw-02\Documents\01 Active Projects\Belmont\106789\400-Engineering\RW\Sheets\106789_RC001.dgn

DESIGN AGENCY



DESIGNER
TJB

REVIEWER
ERZ 06-04-20

PROJECT ID
106789

SUBSET	TOTAL
3	6

SHEET	TOTAL
85	88

TOTAL NUMBER OF :
 3 OWNERSHIPS 0 TOTAL TAKES
 4 PARCELS 0 OWNERSHIPS W/ STRUCTURES INVOLVED

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE
 NET TAKE = GROSS TAKE - PRO IN TAKE

GRANTEE:
 ALL RIGHT OF WAY ACQUIRED IN THE NAME OF
 THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION
 UNLESS OTHERWISE SHOWN.

ALL AREAS IN ACRES

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD		AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE		TYPE FUND	REMARKS	AS ACQUIRED	
			BOOK	PAGE								LEFT	RIGHT			BOOK	PAGE
1	MGD PROPERTY HOLDINGS LLC.	4	O.R. 623	230	39-01234.000	7.247	0.000								NO TAKE		
2	GEORGE F. JR & SANDRA K. WEES	4	O.R. 300	724	39-00277.000 39-00278.000 39-00276.000	0.926 5.405 1.307									NO TAKE NO TAKE NO TAKE		
3-T	DELORES A. BLAKE TRUSTEE	4,5	O.R. 659	10	39-00332.000 39-00333.000	2.226 1.246								NO	TO CONSTRUCT DRIVE SEEDING AND GRADING NO TAKE		
4	UNION TOWNSHIP	4															
5-WLR	GEORGE T. & DELIA D.BALLOG AND KRISTEN M. WALLACE	4,5	D.V. 626	391	39-00739.000	1.144	0.000	0.014	0.000	0.014	NO	1.130		TO CONSTRUCT AND MAINTAIN DITCH CONSTRUCT & MAINTAIN SLOPE SEEDING AND GRADING	OR 895	4928	
			D.V. 801	996	39-01463.000	0.148	0.000										
			D.V. 804	820	39-01232.003	1.655	0.000										
			D.V. 805	799	39-01464.000	0.022	0.000										
6-WLR	GOSHEN MILL ENTERPRISES, LTD	5	OR 893	4171	39-00328.000	9.573	0.000	0.000	0.000	0.000	NO	9.573		NO TAKE			
			OR 893	4182													
			OR 891	4294	39-00328.001	4.660	1.650	0.007	0.000	0.007	NO	3.003		TO CONSTRUCT DRIVE REMOVE AND REPLACE LA FENCE CONSTRUCT & MAINTAIN SLOPE SEEDING AND GRADING	OR 896	3536	
			OR 891	4292													
	TOTAL											12.576					
6-T					39-00328.001		0.000	0.041	0.000	0.041					SEEDING AND GRADING		

STATE 20% - FEDERAL 80%

SUMMARY OF ADDITIONAL RIGHT OF WAY

BEL-149-23.64

MODEL: Untitled Sheet PAPER SIZE: 17x11 (in.) DATE: 11/30/2021 TIME: 7:49:45 AM USER: dbarnhar pwc:\hobol-pw-bentley.com\shahid-pw-02\Documents\01 Active Projects\Distrid 11\Belmont\106789\400-Engineering\RW\Sheets\106789_RS001.dgn

TYPES OF TITLE LEGEND:
 WLR = FEE SIMPLE WITH LIMITATION OF ACCESS AND SPECIAL RESERVATION
 SH = STANDARD HIGHWAY EASEMENT
 LA = LIMITED ACCESS EASEMENT
 T = TEMPORARY EASEMENT
 CH = CHANNEL EASEMENT


NOTE: ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION.
 NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

* DENOTES RIGHT OF WAY ENCROACHMENT

(c) = CALCULATED AREA

REV. BY	DATE	DESCRIPTION
D11	10/28/21	AS ACQUIRED ADDED
D11	10/13/21	UPDATE PARECL 6 RECORD
D11	7/19/21	REVISED OWNER AND RECORD PARCEL 6
DATE COMPLETED 7/15/2020		

DESIGN AGENCY



DESIGNER
TJB

REVIEWER
ERZ 06-04-20

PROJECT ID
106789

SUBSET	TOTAL
4	6
SHEET	TOTAL
86	88

PARCELS 15 17 18 19

WERE ACQUIRED BY A PERPETUAL EASEMENT AS PART OF RW PLAN BEL-149- (0.70-2.83) DATED 1959

THE PERPETUAL EASEMENT 17 THAT IS BOUNDED BY THE W. W. WILLIAMS INDUSTRIAL PARK IS NOTED TO SHOW A OWNERSHIP GAP. THE EASEMENT AREA BELONGS TO THE UNKNOWN HEIRS OF WAYNE L. HAYS & MARTHA J. HAYS, BY DEED RECORDED IN VOL. 507, PG. 501 IN BELMONT COUNTY RECORDERS OFFICE.

* DENOTES RIGHT OF WAY ENCROACHMENT

BELMONT COUNTY
UNION TOWNSHIP
SEC. 14, T. 8, R. 5
OLD SEVEN RANGES

W. W. WILLIAMS INDUSTRIAL PARK
LOT 3
CAB. D, SLIDE 69

COMMERCIAL VACANT LAND
1
MGD PROPERTY HOLDINGS LLC.
NO ADDRESS
LOT NO. 3 OF W.W.WILLIAMS INDUSTRIAL PARK
P.B. 15, P.G. 7
39-01234.000

BEGIN WORK
STA. 119+50.00

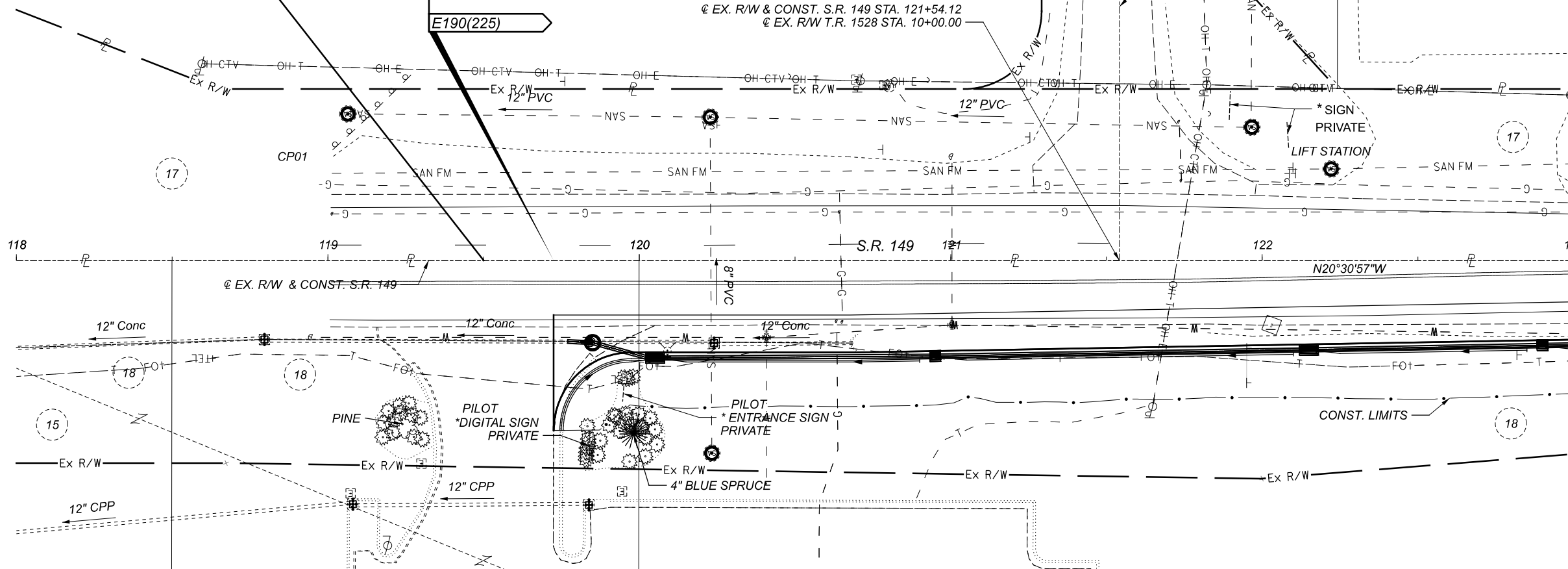
BEGIN PROJECT
STA. 119+72.50
SLM 23.64

E190(225)

@ EX. RW & CONST. S.R. 149 STA. 121+54.12
@ EX. RW T.R. 1528 STA. 10+00.00

COMMERCIAL
5
GEORGE T. & DELIA D. BALLOG & KRISTEN M. WALLACE
66440 BELMONT - MORRISTOWN RD.
BELMONT, OH 43718
D.V. 626, PG. 391
D.V. 777, PG. 594
39-00739.000

MARATHON GAS STATION
CANOPY



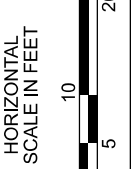
39-00333.000

COMMERCIAL
2
GEORGE F. JR & SANDRA K. WEES
66377 BELMONT - MORRISTOWN RD.
BELMONT, OH 43718
O.R. 300, PG. 724
39-00277.000

PILOT GAS STATION
CANOPY

COMMERCIAL
3
DELORES A. BLAKE TRUSTEE
NO ADDRESS
O.R. 659, PG. 10
39-00332.000

MATCH LINE STA. 123+00 (SEE SHEET 5)



DETAIL SHEET
STA 118+00 TO STA 123+00

REV. BY	DATE	DESCRIPTION
D11	1/28/21	UPDATED PRIVATE SIGN LABELS PARCEL 3
DATE COMPLETED 7/15/2020		

DESIGN AGENCY	
DESIGNER	TJB
REVIEWER	ERZ
PROJECT ID	106789
SUBSET	5
TOTAL	6
SHEET	87
TOTAL	88

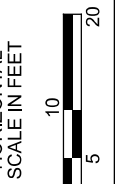
COMMERCIAL

5
 GEORGE T. & DELIA D. BALLOG AND
 KRISTEN M. WALLACE
 66440 BELMONT - MORRISTOWN RD.
 BELMONT, OH 43718
 D.V. 626, PG. 391
 D.V. 777, PG. 594
 39-00739.000

MARATHON GAS STATION
 CANOPY

STATE OF OHIO
 CHANNEL EASEMENT
 ACQUIRED AS PART OF R/W PLAN
 BEL-40-7.79 DATED 1962

* DENOTES RIGHT OF WAY ENCROACHMENT



BELMONT COUNTY
 UNION TOWNSHIP
 SEC. 14, T. 8, R. 5
 OLD SEVEN RANGES

STATE OF OHIO
 (12-WL)
 FEE SIMPLE WITH LIMATION OF ACCESS
 ACQUIRED AS PART OF R/W PLAN
 BEL-40-7.79 DATED 1962

MATCH LINE STA. 123+00 (SEE SHEET 4)

BEGIN RW ACQUISITION
 STA. 123+70.00

END RW ACQUISITION
 STA. 124+60.35

END PROJECT
 STA. 125+19.09
 SLM 23.74

END WORK
 138+39.09

P.I. = Sta. 130+52.16
 $\Delta = 08^{\circ}31'00''$ LT
 $D_c = 01^{\circ}00'00''$
 $R = 5,729.58'$
 $T = 426.62'$
 $L = 851.67'$
 $E = 15.86'$

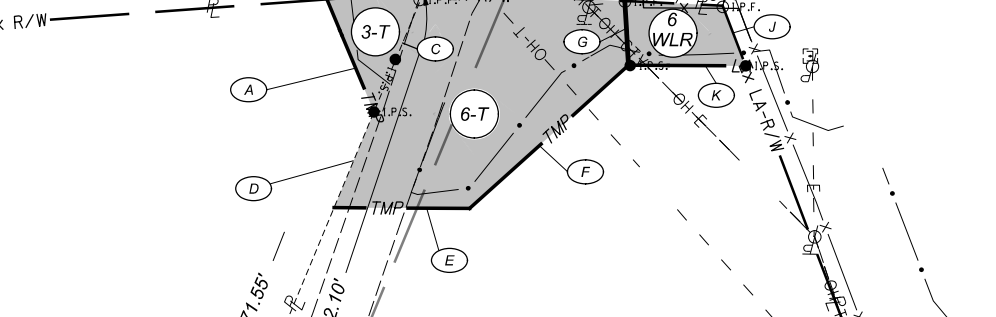
STA 124+25.00 OFF 55.00' LT
 STA 124+32.09 OFF 56.61' RT
 STA 124+60.35 S.R. 149
 STA 517+50.00 I.R. 70
 OFF 100.55' LT S.R. 149
 OFF 402.16' RT I.R. 70
 STA 124+45.10 S.R. 149
 STA 517+90.29 I.R. 70
 OFF 59.21' LT S.R. 149
 OFF 420.00' RT I.R. 70
 STA 124+52.51 S.R. 149
 STA 519+07.21 I.R. 70
 OFF 57.48' RT S.R. 149
 OFF 420.00' RT I.R. 70

EX. R/W & CONST. S.R. 149 STA. 125+19.09 =
 CONST. RAMP A STA. 16+0.15 =
 CONST. RAMP B STA. 0+00

STATE OF OHIO
 (14-WL)
 FEE SIMPLE WITH LIMATION OF ACCESS
 ACQUIRED AS PART OF R/W PLAN
 BEL-40-7.79 DATED 1962

END WORK
 STA. 1+50.00

P.I. = Sta. 2+00.01
 $\Delta = 06^{\circ}49'13''$ LT
 $D_c = 06^{\circ}00'00''$
 $R = 954.93'$
 $T = 56.90'$
 $L = 113.67'$
 $E = 1.69'$



	BEARING	DISTANCE
A	S 46°26'19" W	25.44' (3-T)
B	N 25°01'29" W	20.27' (3-T)
C	S 88°12'59" E	27.02' (3-T)
D	N 88°12'59" W	48.64' (6-T)
E	S 20°30'57" E	28.25' (6-T)
F	S 62°50'15" E	44.56' (6-T)
G	N 65°50'52" E	13.42' (6-T) & (6-WLR)
H	N 18°19'01" W	41.91' (6-T)
I	N 18°04'50" W	20.43' (6-WLR)
J	N 48°20'26" E	13.43' (6-WLR)
K	S 20°30'57" E	20.46' (6-WLR)
L	N 20°30'57" W	15.73' (LEAD-IN)
M	S 76°14'50" W	42.46' (5-WLR)
N	N 24°08'54" W	20.39' (5-WLR)
O	N 89°44'06" E	44.06' (5-WLR)
P	S 32°20'29" E	10.32' (5-WLR)

REV. BY	DATE	DESCRIPTION
D11	10/13/21	UPDATE PARCEL 6 RECORD
D11	7/19/21	REVISED OWNER PARCEL 6
D11	1/28/21	UPDATED PRIVATE SIGN LABELS PARCEL 5
D11	1/20/21	LABEL SIGNS PARCEL 5

DETAIL SHEET
 STA 123+00 TO STA 128+00

DESIGN AGENCY



DESIGNER
 TJB

REVIEWER
 ERZ 06-04-20

PROJECT ID
 106789

SUBSET TOTAL
 6 6

SHEET TOTAL
 88 88

DATE COMPLETED 7/15/2020

COMMERCIAL

3
 DELORES A. BLAKE (TRUSTEE)
 NO ADDRESS
 O.R. 659, PG. 10
 39-00332.000

COMMERCIAL VACANT LAND

6
 GOSHEN MILL ENTERPRISES, LTD
 NO ADDRESS
 O.R. 893, PG. 4171
 O.R. 893, PG. 4182
 O.R. 891, PG. 4294
 O.R. 891, PG. 4292
 39-00328.001

STONE FOUND
 4" x 12" with X

