Minn. Proj. No.

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, CONCRETE AND BITUMINOUS SURFACING & BRIDGE No. 55J65, 55J76, 55J77, 55J78, 55J79, 55J80 & 90780(EXTENSION)

LOCATED ON C.S.A.H. 10 BETWEEN DOVER AND THE JUNCTION OF CSAH 2 (WEST) (GEOGRAPHIC DESCRIPTION)

FROM 188.40 FEET NORTH AND 2.37 FEET WEST OF THE S.E. CORNER OF SEC. 16, T 106 N, R 11 W TO 5.69 FEET NORTH AND 1245.60 FEET EAST OF THE S. 1/4 CORNER OF SEC. 8, T 107 N, R 11 W (LEGAL DESCRIPTION)

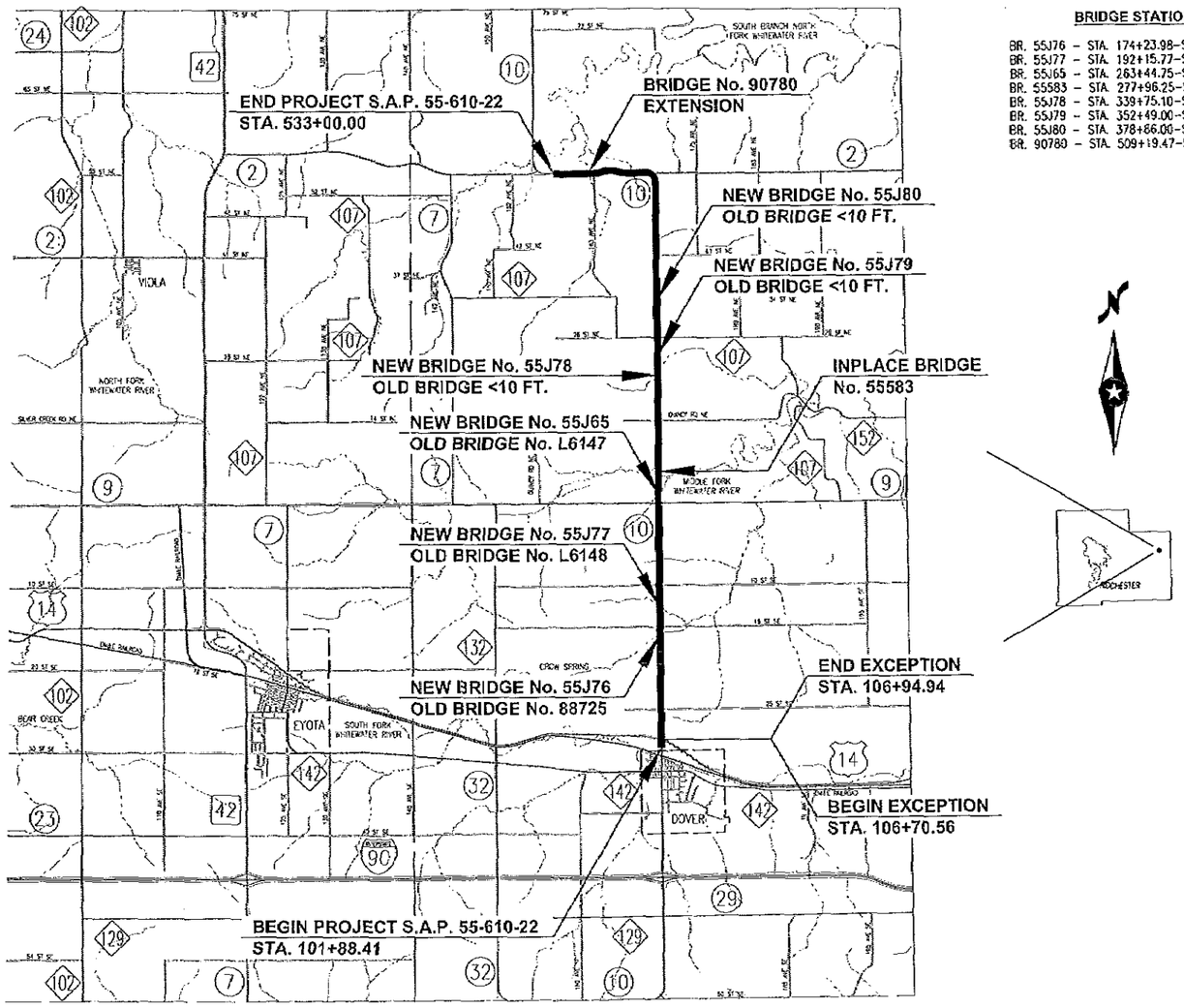
ENGINEERING

FEB 09 2012

AS-BUILT

S.A.P. NO. 55-610-22

GROSS LENGTH	43111.59	FEET	8.165	MILES
BRIDGES LENGTH	95.69	FEET	0.018	MILES
EXCEPTIONS LENGTH	24.39	FEET	0.005	MILES
NET LENGTH	43087.20	FEET	8.160	MILES



BRIDGE STATIONS

BR. 55J76 – STA. 174+23.98–STA. 174+46.02
BR. 55J77 – STA. 192+15.77–STA. 192+34.23
BR. 55J65 – STA. 263+44.75–STA. 263+59.25
BR. 55583 – STA. 277+96.25–STA. 278+91.94
BR. 55J78 – STA. 339+75.10–STA. 339+94.90
BR. 55J79 – STA. 352+49.00–STA. 352+61.00
BR. 55J80 – STA. 378+66.00–STA. 378+96.00
BR. 90780 – STA. 509+19.47–STA. 509+40.21

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

PLAN SYMBOLS

ROAD AND ROADWAY FEATURES

PROJECTED ROAD
PAVED ROAD
GRAVEL OR STONE ROAD
FIELD ROAD
PROJECT ROAD UNDER CONSTRUCTION
ROADS IN UNINCORPORATED COMMUNITIES
EXTENSIONS OF LOCAL ROADS (NOT FARM) WITHIN MUNICIPALITIES AND PRIVATE ROADS
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED THUS 4.2

ROAD SYSTEM DESIGNATIONS

INTERSTATE TRUNK HIGHWAY 35
U.S. NUMBERED TRUNK HIGHWAY 52
STATE NUMBERED TRUNK HIGHWAY 30
COUNTY STATE AID HIGHWAY 5
COUNTY ROAD 12
COUNTY STATE AID HIGHWAY COUNTY 5
FEDERAL AID INTERSTATE SYSTEM FAI
NATIONAL FOREST HIGHWAY NFA
NATIONAL FOREST DEVELOPMENT NFD
STATE FOREST ROAD SFR
STATE PARK ROAD SPR

RAILROADS

RAILROAD (ANY NUMBER OF TRACKS) USED BY A SINGLE OPERATING COMPANY OR BY TRAINS OF ANOTHER CARRIER UNDER ROADWAY RIGHTS
RAILROADS IN JURISDICTION (TWO OR MORE TRACKS OF SEPARATELY OPERATED COMPANIES ON ADJACENT RIGHTS OF WAY)
RAILROAD STATION
GRADE CROSSING
UNDERPASS (HIGHWAY BELOW)
OVERPASS (HIGHWAY ABOVE)

AIRWAYS

RUNWAY
VISUAL FIELD
COMMERCIAL OR MUNICIPAL FIELD
LANDING AREA OR STRIP
AIRWAY LIGHT BEACON, GENERAL

STRUCTURES

(Arrow Symbols Over 25' span)
HIGHWAY BRIDGE
THREE BRIDGES CLOSELY SPACED
CULVERT
TRUSS
Other Structures
PEDESTRIAN BRIDGE
ONE WAY ROAD
ONE WAY ROAD
LEVEE OR DIKE WITH ROAD
LEVEE OR DIKE WITHOUT ROAD
WATER STRUCTURES (LT 10 20' SPAN)
CULVERTS, FORD OR DIP
FORD = ROAD ESTABLISHED

BOUNDARIES

NATIONAL OR STATE
COUNTY
CIVIL TOWNSHIP
CONGRESSIONAL TOWNSHIP (U.S. LAND)
CORPORATE LINE
SECTION LINE
CONGESTED AREA
NATIONAL OR STATE PARK
NATIONAL OR STATE FOREST
GAME REFUGE
AIRPORT
PUBLIC MANAGEMENT AREA (STATE) OR RIVERWAY AREA (FEDERAL)

DRAINAGE

NARROW STREAM
WIDE STREAM
MARSH OR SWAMP LAND
DRAINAGE DITCH
LAKE OR POND

CONSERVATION

FOREST RANGER STATION
GUARD OR RANGER STATION (NOT PERMANENTLY OCCUPIED)
FISH HATCHERY
FIRE PROTECTION
OBSERVATION OR LOOKOUT TOWER
STATE PARK SP = STATE, CP = COUNTY, MP = MUNICIPAL, RP = REGIONAL
PUBLIC ACCESS POINT

RECREATION

GOLF COURSE OR COUNTRY CLUB
GUN CLUB
ATHLETIC FIELD
AMUSEMENT PARK
PICNIC GROUND
PLAYGROUND, BALLFIELD ETC.
BATHING BEACH OR SWIMMING POOL
SKIING SITE
CAMP SITE
CAMP OR LODGE

FARM AND DWELLING UNITS

FARM UNIT
DWELLING OTHER THAN FARM
BARRACKS OR DORMITORIES FOR STUDENTS, WORKERS, MIGRANTS ETC.
SEASONAL DWELLING
ACRES OF GROUPS OF ENCLOSURES CLOSELY SPACED
NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF FARM UNIT

INDUSTRIAL

FACTORY OR INDUSTRIAL PLANT
SAWMILL
STORAGE TANKS, OIL OR GAS
OPEN EXCAVATION
BEET DUMP
STOCKYARD, FEEDLOT
QUARRY
MILK DEPOT, CREAMERY OR CHEESE FACTORY
WAREHOUSE

COMMERCIAL

STORE OR SMALL BUSINESS ESTABLISHMENT
HOTEL
MOTEL
TOURIST COURT
DRIVE-IN THEATRE
NURSERY
GREENHOUSE

PUBLIC SERVICE FACILITIES

POST OFFICE
FIRE STATION
MUSEUM
PUBLIC LIBRARY
SCHOOL
RADIO STATION
SEWAGE DISPOSAL PLANT
HOSPITAL
TOWN HALL

CITY CENTERS

COUNTY SEAT
CITY CENTER
INCORPORATED CITY (GENERALIZED)
UNINCORPORATED COMMUNITY

MISCELLANEOUS MAP FEATURES

CHURCH, OTHER RELIGIOUS INSTITUTIONS
CEMETERY
FAIRGROUND, RACE COURSE, SPEEDWAY
GRAVEL PIT
SANITARY LANDFILL
AUTO JUNKYARD
HIGHWAY GARAGE
DEPARTMENT OF TRANSPORTATION DISTRICT OFFICE
VALVE HOUSE
NATURAL GAS, PETROLEUM PRODUCTS OR CRUDE OIL OR WATER
GAS AND OIL PUMPING STATION
NATURAL GAS, PETROLEUM PRODUCTS OR CRUDE OIL OR WATER
PIPELINE, NATURAL GAS
PIPELINE, PETROLEUM PRODUCTS
PIPELINE, CRUDE OIL
PIPELINE, WATER
TRANSMISSION LINE (115KV OR OVER)
POWER PLANT
TRANSFORMER STATION
CENSUS AND COMPTOMETER INTERSECTOR
HISTORIC SITE, STATE OR NATIONAL
OPEN TO PUBLIC

SCALES

PLAN: 100 FEET
PROFILE: 100 FEET HORIZ.; 10 FEET VERT.
CROSS SECTIONS: 20 FEET HORIZ. and VERT.
INDEX MAP: 1 3/4 MILE

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

SHEET No.	DESCRIPTION
1	TITLE SHEET
2–3	ESTIMATED QUANTITIES AND STANDARD PLATES
4–5	TYPICAL SECTIONS
6–18	QUANTITY TABULATIONS
19	ENTRANCE AND TURN LANE DETAILS
20–21	EDGE DRAIN DETAILS AND TABULATION
22–54	C.S.A.H. 10 PLAN AND PROFILES
55–63	SIDE ROAD PLAN AND PROFILES
64–80	SURFACING PLANS
81–83	SURFACING DETAILS
84–85	BRIDGE APPROACH PANEL DETAILS
86–88	SUPERELEVATION DIAGRAM AND DETAILS
89	POND "A" PLAN
90	POND "B" PLAN
91	POND "C" PLAN
92	POND "D" PLAN
93–117	EROSION CONTROL PLANS
118–125	EROSION CONTROL DETAILS
126–221	C.S.A.H. 10 CROSS SECTIONS
222–237	SIDE ROAD CROSS SECTIONS
238–245	BRIDGE 55J76 PLAN AND DETAILS
246–251	BRIDGE 55J77 PLAN AND DETAILS
252–257	BRIDGE 55J65 PLAN AND DETAILS
258–262	8x4 CONCRETE BOX PLAN AND DETAILS
263–268	BRIDGE 55J78 PLAN AND DETAILS
269–276	BRIDGE 55J79 PLAN AND DETAILS
277–283	BRIDGE 55J80 PLAN AND DETAILS
284–288	6x5 CONCRETE BOX PLAN AND DETAILS
289–294	BRIDGE 90780 PLAN AND DETAILS
295–299	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 299 SHEETS

DESIGN DESIGNATION: S.A.P. 55-610-22

ADT (Current Year)	= 1,159 (2010)
ADT (Future Year)	= 1,854 (2030)
HCADT (Heavy Commercial)	= 5.9%
Functional Classification	= Major Collector
10 Ton Design	
Soil Characteristic, R-value	= 16
Soil Factor	= 130%
No. of Traffic Lanes	= 2 at 12 Ft.
Shoulder Width	= 6 Ft.

Design Speed 55 MPH Based on Stopping Sight Distance
Stopping Sight Distance based on 3.5 Ft. Height of Eye and 2.0 Ft. Height of Object
Design Speed not achieved at: N/A

DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 4/5/10 REG. NUMBER 19917
PRINTED NAME: KAYE M. BIENIEK
SIGNED NAME: Kaye M Bieniek
COUNTY DESIGN ENGINEER

DESIGNED BY: J. GOODMAN

DATE 4/6/10 REG. NUMBER 10397
Michael D Thurston
APPROVED: OLMSTED COUNTY ENGINEER

Frank Carl DATE: 04/07/10
For DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY

Frank Carl DATE: 04/07/10
For STATE AID ENGINEER: APPROVED FOR STATE-AID & FEDERAL-AID FUNDING

FILE NAME: P30C0101.DWG DATE: 04-05-10

S.A.P. 55-610-22	Sheet No. 1 of 299 Sheets

STATEMENT OF ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	ITEM NOTES	UNITS	S.A.P. 55-610-22 PARTICIPATING	S.A.P. 55-610-22 NON PARTICIPATING	TOTAL ESTIMATED QUANTITIES
2021.501	MOBILIZATION		LUMP SUM	1		1
2031.501	FIELD OFFICE, TYPE D		EACH	1		1
2101.501	CLEARING		ACRE	2.77		(P) 2.77
2101.502	CLEARING		TREE	214		214
2101.506	GRUBBING		ACRE	2.77		(P) 2.77
2101.507	GRUBBING		TREE	214		214
2104.501	REMOVE CONCRETE CULVERT		LIN. FT.	613		613
2104.501	REMOVE METAL CULVERT		LIN. FT.	2535		2535
2104.501	REMOVE FENCE	(1)	LIN. FT.	41949		41949
2104.501	REMOVE FOOTING	(2)	LIN. FT.	80		80
2104.501	REMOVE CONCRETE BOX CULVERT		LIN. FT.	162		162
2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	(3)	SQ. YD.	27		27
2104.505	REMOVE CONCRETE PAVEMENT		SQ. YD.	254		254
2104.505	REMOVE BITUMINOUS PAVEMENT	(4)	SQ. YD.	120104		120104
2104.507	REMOVE AGGREGATE	(5)	CU. YD.	359		359
2104.509	REMOVE CISTERN	(6)	EACH	1		1
2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)		LIN. FT.	60		60
2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)		LIN. FT.	575		575
2106.507	UNCLASSIFIED EXCAVATION	(7)	CU. YD.	257420		(P) 257420
2106.507	COMMON EMBANKMENT (CV)		CU. YD.	161515		(P) 161515
2123.503	MOTOR GRADER	(1)(8)	HOUR	24		24
2123.507	1.0 CU. YD. SHOVEL	(1)(8)	HOUR	24		24
2123.508	15 CU. YD. SCRAPER	(1)(8)	HOUR	24		24
2123.509	DOZER	(1)(8)	HOUR	24		24
2123.611	INSTRUMENTED COMPACTOR		LUMP SUM	1		1
2130.501	WATER	(1)(9)	M-GALLONS	250		250
2211.501	AGGREGATE BASE, CLASS 2	(10)	TON	6158		6158
2211.501	AGGREGATE BASE, CLASS 5 MOD.	(11)	TON	81902		(P) 81902
2301.531	EXPANSION JOINT DESIGN EBS		LIN. FT.	48		48
2301.538	DOWEL BAR (EPOXY COATED)	(12)	EACH	62064		62064
2301.551	BRIDGE APPROACH PANEL		EACH	2		2
2301.602	DRILL & GROUT DOWEL BAR (EPOXY COATED)		EACH	56		56
2301.602	DRILL & GROUT REINF. BAR (EPOXY COATED)		EACH	58		58
2301.604	CONCRETE PAVEMENT 8"		SQ. YD.	112964		(P) 112964
2301.604	CONCRETE SHOULDER 6"		SQ. YD.	131		(P) 131
2301.608	SUPPLEMENTAL PAVEMENT REINFORCEMENT		POUND	9640		9640
2360.501	TYPE SP 9.5 WEARING COURSE MIX (3C)	(13)	TON	5462		5462
2360.501	TYPE SP 12.5 WEARING COURSE MIX (3C)	(14)	TON	8691		8691
2412.511	6x5 PRECAST CONCRETE BOX CULVERT		LIN. FT.	88		88
2412.511	8x4 PRECAST CONCRETE BOX CULVERT		LIN. FT.	92		92
2412.511	8x5 PRECAST CONCRETE BOX CULVERT		LIN. FT.	168		168
2412.511	10x4 PRECAST CONCRETE BOX CULVERT		LIN. FT.	84		84
2412.511	10x6 PRECAST CONCRETE BOX CULVERT		LIN. FT.	168		168
2412.511	10x10 PRECAST CONCRETE BOX CULVERT		LIN. FT.	58		58
2412.511	12x6 PRECAST CONCRETE BOX CULVERT		LIN. FT.	83		83
2412.511	14x4 PRECAST CONCRETE BOX CULVERT		LIN. FT.	188		188
2412.512	6x5 PC CONC. BOX CULVERT END SECTION		EACH	2		2
2412.512	8x4 PC CONC. BOX CULVERT END SECTION		EACH	2		2
2412.512	8x5 PC CONC. BOX CULVERT END SECTION		EACH	4		4
2412.512	10x4 PC CONC. BOX CULVERT END SECTION		EACH	2		2
2412.512	10x6 PC CONC. BOX CULVERT END SECTION		EACH	4		4
2412.512	10x10 PC CONC. BOX CULVERT END SECTION		EACH	4		4
2412.512	12x6 PC CONC. BOX CULVERT END SECTION		EACH	2		2
2412.512	14x4 PC CONC. BOX CULVERT END SECTION		EACH	4		4
2442.501	REMOVE EXISTING BRIDGE	(15)	LUMP SUM	3		3
2451.507	GRANULAR BEDDING (CV)	(16)	CU. YD.	623		(P) 623

283326(P)
227326(P)

USED Reclaim Bituminous Per SA #1

112914 (P)
12.1 (P)

(1) SPECIFICATION 1903 SHALL NOT APPLY FOR THESE ITEMS.

(2) CONSISTS OF CONCRETE GARAGE FOOTING AT STA. 108+50 – 50' RT..

(3) CONSISTS OF CONCRETE DRIVEWAY AT STA. 207+97 – 40' TO 65' RT..

(4) APPROXIMATE DEPTHS OF INPLACE BITUMINOUS ARE 9" FROM STA. 101+88 TO STA. 258+33, 7" FROM STA. 258+33 TO STA. 293+33, 9" FROM STA. 293+33 TO STA. 482+50, 7" FROM STA. 482+50 TO STA. 513+50 AND 9" FROM STA. 513+50 TO STA. 532+00.

(5) CONSISTS OF APPROXIMATE 8" DEPTH FROM STA. 275+50 TO STA. 277+96 AND 8" DEPTH FROM STA. 278+92 TO STA. 280+50.

(6) CONSISTS OF 8' x 9' CONCRETE CISTERN AT STA. 322+86 – 46' LT..

(7) INCLUDES 39505 CU. YDS. OF TOPSOIL EXCAVATION.

(8) TO BE USED FOR FIELD TILE RESTORATION AND MISCELLANEOUS SHAPING IN THE FIELD, AS DIRECTED BY THE ENGINEER.

(9) INCLUDED FOR DUST CONTROL WITHIN THE PROJECT LIMITS ONLY, AS DIRECTED BY THE ENGINEER.

(10) INCLUDES 3165 TONS FOR SIDE ROADS AND 2961 TONS FOR DRIVEWAYS AND FIELD ENTRANCES.

(11) INCLUDES 1689 TONS FOR SIDE ROADS AND 670 TONS FOR C.S.A.H. 2 (EAST).

(12) DOWEL BARS SHALL BE 1-1/4 INCH DIAMETER.

(13) INCLUDES 316 TONS FOR SIDE ROADS AND 235 TONS FOR DRIVEWAYS.

(14) INCLUDES 962 TONS FOR SIDE ROADS AND 328 TONS FOR DRIVEWAYS.

(15) CONSISTS OF BRIDGE No. 88725 AT STA. 174+35.00 – C/L, BRIDGE No. L6148 AT STA. 192+25.00 AND BRIDGE No. L6147 AT STA. 263+52.00.

(16) GRANULAR BEDDING TO BE USED AT BOX CULVERTS. ALL OTHER CENTERLINE PIPE CULVERTS SHALL BE PLACED ON CLASS "B" BEDDING WHICH SHALL BE INCIDENTAL TO THE PIPE CULVERT ITEM.

AS-BUILT

FEB 0 9 2012

ENGINEERING

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
1070L	REINFORCED PANEL OVER CULVERTS
1103J	TYPICAL DOWEL BAR ASSEMBLY
1141D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
1150Q	CONSTRUCTION OF HEADER JOINTS
3006G	GASKET JOINT FOR R.C. PIPE
3040F	CORRUGATED METAL PIPE CULVERT
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR R.C. PIPE
3014J	REINFORCED CONCRETE PIPE ARCH
3040F	CORRUGATED METAL PIPE CULVERT
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123J	METAL APRON FOR C.S. PIPE
3124B	METAL APRON CONNECTION
3131C	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
3133C	RIPRAP AT RCP OUTLETS
3134C	RIPRAP AT CMP OUTLETS
3145F	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND
4005L	MANHOLE OR CATCH BASIN (DESIGN F)
4006L	MANHOLE OR CATCH BASIN (DESIGN G OR H)
4011E	PRECAST CONCRETE BASE
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4110F	COVER CASTING FOR MANHOLE
4129G	CATCH BASIN FRAME CASTING
4151B	GRATE CASTING FOR CATCH BASIN
4160D	CURB BOX CASTING FOR CATCH BASIN
7035W	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7100H	CONCRETE CURB AND GUTTER
7111J	INSTALLATION OF CATCH BASIN CASTINGS
8000I	STANDARD BARRICADES
9000D	APPROACHES AND ENTRANCES
9102D	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)

BASIS OF QUANTITY

AGGREGATE BASE, CLASS 2 – 140 LBS./CU. FT. COMPACTED
AGGREGATE BASE, CLASS 5 MOD. – 140 LBS./CU. FT. COMPACTED
BITUMINOUS MIXTURE – 110 LBS./SQ. YD./1 INCH DEPTH
SEED MIXTURE 110 – 100 LBS./ACRE
SEED MIXTURE 250 – 70 LBS./ACRE
SEED MIXTURE 325 – 84 LBS./ACRE
SEED MIXTURE 328 – 88 LBS./ACRE
MULCH MATERIAL TYPE 1 – 2 TONS/ACRE EXCEPT EROSION BLANKET AND SOD AREAS
DISK ANCHORING – ALL SEEDING AREAS EXCEPT 1:2 SLOPES AND SOD AREAS
COMMERCIAL FERTILIZER – 200 LBS./ACRE

UTILITY LOCATIONS

GOPHER STATE ONE CALL 1-800-252-1166

CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ALL INPLACE UTILITIES MAY NOT BE SHOWN ON THIS PLAN.

CERTIFIED BY Kyle M Reisnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: ESTIMATED QUANTITIES

Sheet No. 2 of 299 Sheets

FILE NAME: P:\00C001.DWG DATE: 03-25-10

STATEMENT OF ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	ITEM NOTES	UNITS	S.A.P. 55-610-22		TOTAL ESTIMATED QUANTITIES
				PARTICIPATING	NON PARTICIPATING	
2501.511	12" CS PIPE CULVERT		LIN. FT.	198		198
2501.511	15" CS PIPE CULVERT		LIN. FT.	37		37
2501.511	18" CS PIPE CULVERT		LIN. FT.	2118		2118
2501.511	24" CS PIPE CULVERT		LIN. FT.	700		700
2501.511	24" RC PIPE CULVERT		LIN. FT.	164		164
2501.511	42" RC PIPE CULVERT		LIN. FT.	90		90
2501.515	12" CS PIPE APRON		EACH	10		10
2501.515	15" CS PIPE APRON		EACH	2		2
2501.515	18" CS PIPE APRON		EACH	94		94
2501.515	24" CS PIPE APRON		EACH	28		28
2501.515	18" RC PIPE APRON		EACH	2		2
2501.515	24" RC PIPE APRON		EACH	6		6
2501.515	42" RC PIPE APRON		EACH	2		2
2501.521	42" SPAN CS PIPE-ARCH CULVERT		LIN. FT.	43		43
2501.521	36" SPAN RC PIPE-ARCH CULVERT CL. IIA		LIN. FT.	262		262
2501.521	44" SPAN RC PIPE-ARCH CULVERT CL. IIA		LIN. FT.	172		172
2501.525	42" SPAN CS PIPE-ARCH APRON		EACH	2		2
2501.525	36" SPAN RC PIPE-ARCH APRON		EACH	6		6
2501.525	44" SPAN RC PIPE-ARCH APRON		EACH	4		4
2502.501	4" PRECAST CONCRETE HEADWALL		EACH	152		152
2502.521	4" T.P. PIPE DRAIN		LIN. FT.	2259		2259
2502.541	4" PERF. P.E. PIPE DRAIN		LIN. FT.	81095		81095
2503.511	18" RC PIPE SEWER CL. IV		LIN. FT.	93		93
2503.511	24" RC PIPE SEWER CL. III		LIN. FT.	188		188
2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN F		EACH	1		1
2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN G		EACH	1		1
2511.501	RANDOM RIPRAP, CLASS III	(1)	CU. YD.	596		596
2520.501	LEAN MIX BACKFILL		CU. YD.	46		(P) 46
2531.501	CONCRETE CURB & GUTTER DESIGN B424		LIN. FT.	475		475
2531.507	6" CONCRETE DRIVEWAY PAVEMENT		SQ. YD.	24		24
2563.601	TRAFFIC CONTROL		LUMP SUM	1		1
2573.502	SILT FENCE, TYPE MACHINE SLICED	(1) (2)	LIN. FT.	26196		26196
2573.512	TEMPORARY DITCH CHECK, TYPE 1	(1)	LIN. FT.	2550		2550
2573.512	TEMPORARY DITCH CHECK, TYPE 2	(1)	LIN. FT.	1744		1744
2573.513	TEMPORARY DITCH CHECK, TYPE 7	(1)	CU. YD.	100		100
2573.540	FILTER LOG, TYPE STRAW BIOROLL	(1)	LIN. FT.	3696		3696
2573.550	EROSION CONTROL SUPERVISOR		LUMP SUM	1		1

STATEMENT OF ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	ITEM NOTES	UNITS	S.A.P. 55-610-22		TOTAL ESTIMATED QUANTITIES
				PARTICIPATING	NON PARTICIPATING	
2575.501	SEEDING		ACRE	92.0		92.0
2575.502	SEED, MIXTURE 110		POUND	8461		8461
2575.502	SEED, MIXTURE 250		POUND	5800		5800
2575.502	SEED, MIXTURE 325		POUND	55		55
2575.502	SEED, MIXTURE 328		POUND	98		98
2575.505	SODDING TYPE LAWN	(1)	SQ. YD.	35023		35023
2575.511	MULCH MATERIAL, TYPE 1		TON	129.0		129.0
2575.519	DISK ANCHORING		ACRE	64.5		64.5
2575.523	EROSION CONTROL BLANKET, CATEGORY 2	(1)	SQ. YD.	18099		18099
2575.523	EROSION CONTROL BLANKET, CATEGORY 3	(1)	SQ. YD.	48940		48940
2575.523	EROSION CONTROL BLANKET, CATEGORY 4	(1)	SQ. YD.	23757		23757
2575.523	EROSION CONTROL BLANKET, CATEGORY 5	(1)	SQ. YD.	6764		6764
2575.523	EROSION CONTROL BLANKET, CATEGORY 6	(1)	SQ. YD.	1822		1822
2575.532	FERTILIZER, TYPE 1		POUND	18370		18370
2575.570	RAPID STABILIZATION METHOD 1		ACRE	10		10
2580.603	INTERIM PAVEMENT MARKING		LIN. FT.	34592		34592
2582.502	4" SOLID LINE WHITE - EPOXY		LIN. FT.	86672		86672
2582.502	4" SOLID LINE YELLOW - EPOXY		LIN. FT.	19863		19863
2582.502	4" BROKEN LINE YELLOW - EPOXY		LIN. FT.	7939		7939
2582.502	4" DOUBLE SOLID LINE YELLOW - EPOXY		LIN. FT.	3395		3395

(1) SPECIFICATION 1903 SHALL NOT APPLY FOR THESE ITEMS.

(2) ITEM INCLUDES MAINTENANCE DURING THE LENGTH OF THE CONTRACT AND REMOVAL ONCE TURF HAS BEEN ESTABLISHED.

ENGINEERING
FEB 09 2012
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BASIS OF QUANTITY

AGGREGATE BASE, CLASS 2 - 140 LBS./CU. FT. COMPACTED
AGGREGATE BASE, CLASS 5 MOD. - 140 LBS./CU. FT. COMPACTED
BITUMINOUS MIXTURE - 110 LBS./SQ. YD./1 INCH DEPTH
SEED MIXTURE 110 - 100 LBS./ACRE
SEED MIXTURE 250 - 70 LBS./ACRE
SEED MIXTURE 325 - 84 LBS./ACRE
SEED MIXTURE 328 - 68 LBS./ACRE
MULCH MATERIAL TYPE 1 - 2 TONS/ACRE EXCEPT EROSION BLANKET AND SOD AREAS
DISK ANCHORING - ALL SEEDING AREAS EXCEPT 1:2 SLOPES AND SOD AREAS
COMMERCIAL FERTILIZER - 200 LBS./ACRE

CERTIFIED BY Kayc M Reimuth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

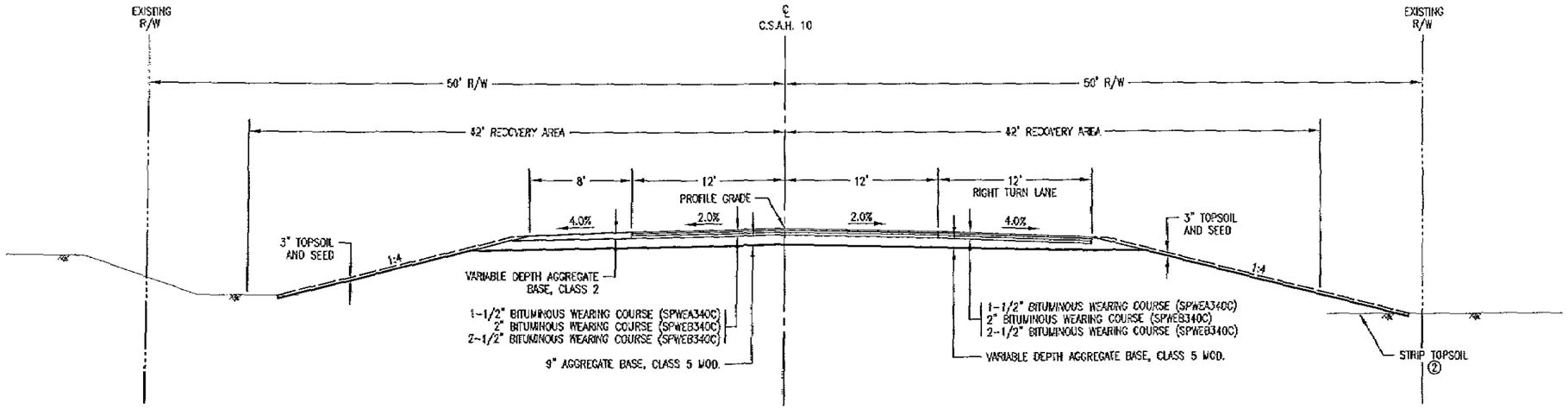
S.A.P. 55-610-22

TITLE:
ESTIMATED QUANTITIES

Sheet No. 3 of 299 Sheets

FILE NAME: P3066002.DWG DATE: 03-25-10

ALL UTILITY POLES AND OTHER UNYIELDING OBJECTS SHALL BE REMOVED AND RELOCATED OUTSIDE OF THE RECOVERY AREA.



TYPICAL SECTION
STA. 101+88.41 TO STA. 106+70.56

AS-BUILT

FEB 0 9 2012

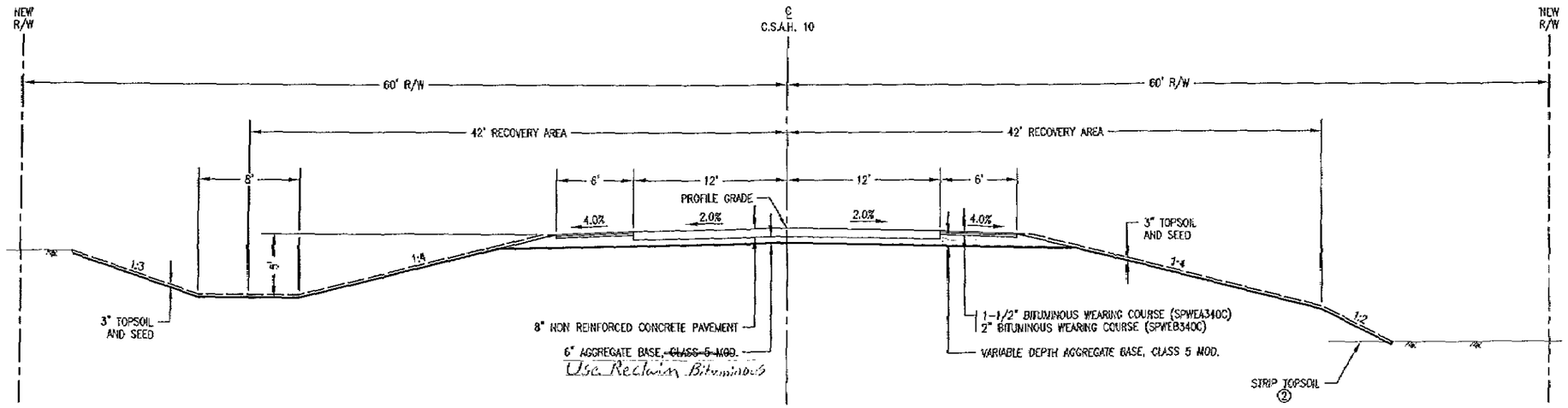
ENGINEERING

NOTES:

① SEE SUPERELEVATION DIAGRAM AND CROSS SECTIONS FOR ADDITIONAL CROSS SLOPE INFORMATION.

② SALVAGE THE EXISTING TOPSOIL AND USE AS SLOPE DRESSING TO THE EXTENT AVAILABLE. TOPSOIL EXCAVATION SHALL BE INCLUDED IN UNCLASSIFIED EXCAVATION FOR PAYMENT AND NO ADDITIONAL COMPENSATION WILL BE MADE FOR STOCKPILING AND RESPREADING OF THE TOPSOIL.

③ SEE PLAN AND PROFILE SHEETS AND CROSS SECTIONS FOR TEMPORARY EASEMENT INFORMATION.



TYPICAL SECTION
STA. 106+94.94 TO STA. 531+50.00
Begin Lane Taper

FILE NAME: P:\DIST\01.DWG DATE: 04-05-10

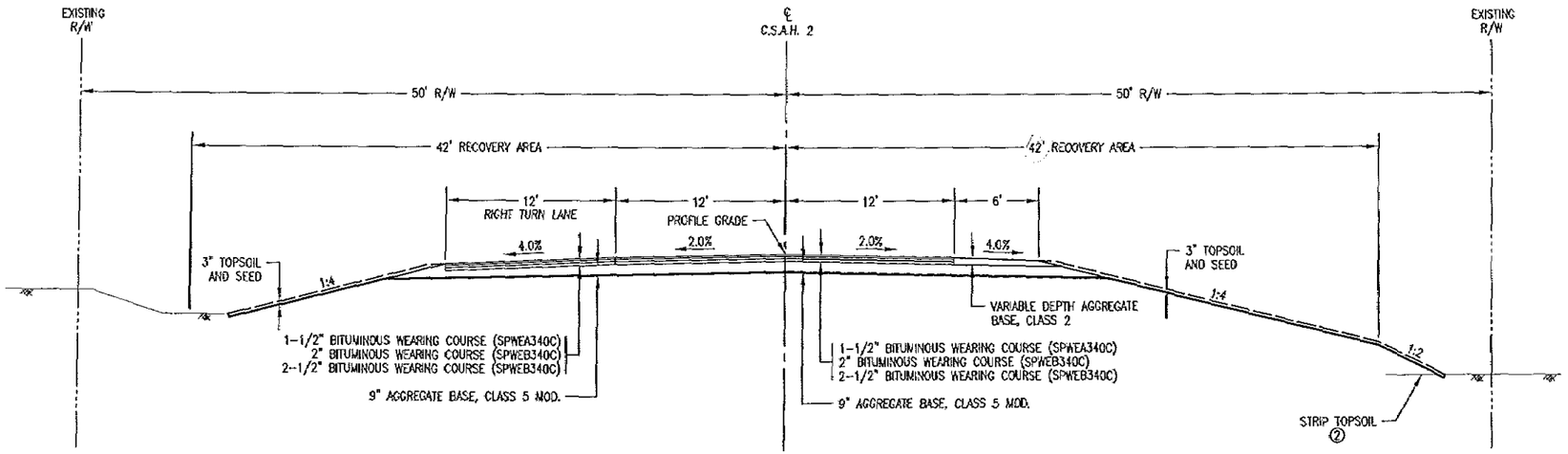
CERTIFIED BY Kevin Poirier REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: TYPICAL SECTIONS

Sheet No. 4 of 299 Sheets

ALL UTILITY POLES AND OTHER UNYIELDING OBJECTS SHALL BE REMOVED AND RELOCATED OUTSIDE OF THE RECOVERY AREA.



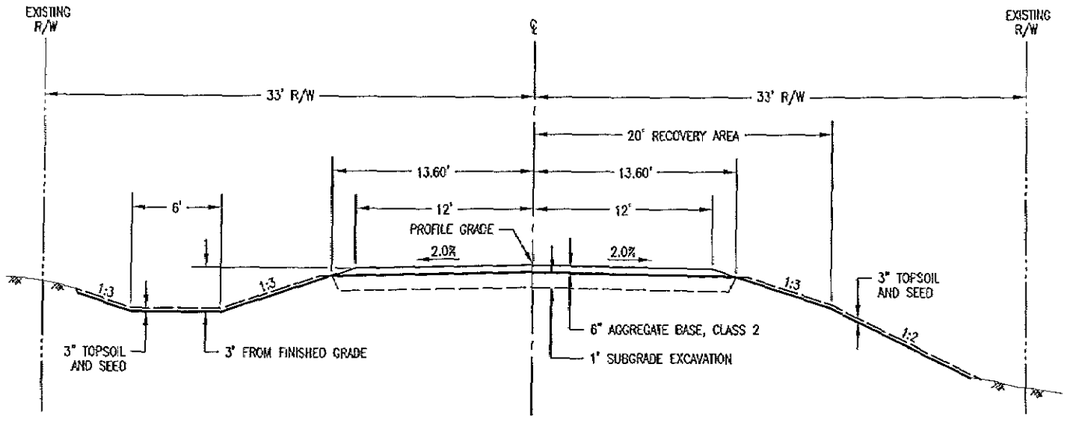
TYPICAL SECTION
C.S.A.H. 2 (EAST)

NOTES:

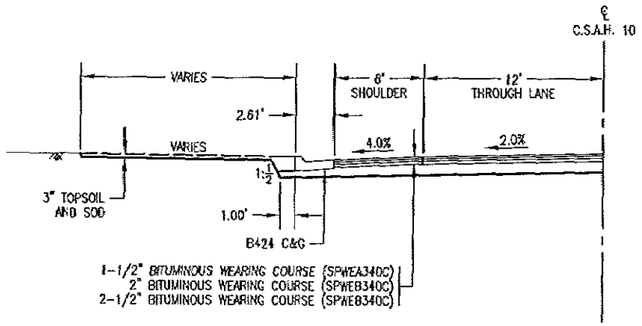
① SEE SUPERELEVATION DIAGRAM AND CROSS SECTIONS FOR ADDITIONAL CROSS SLOPE INFORMATION.

② SALVAGE THE EXISTING TOPSOIL AND USE AS SLOPE DRESSING TO THE EXTENT AVAILABLE. TOPSOIL EXCAVATION SHALL BE INCLUDED IN UNCLASSIFIED EXCAVATION FOR PAYMENT AND NO ADDITIONAL COMPENSATION WILL BE MADE FOR STOCKPILING AND RESPREADING OF THE TOPSOIL.

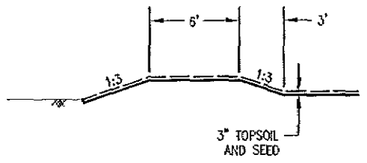
AS-BUILT
FEB 09 2012
ENGINEERING



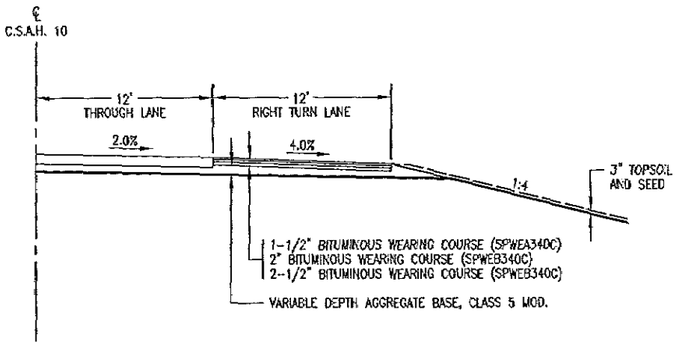
TYPICAL SECTION
25TH STREET S.E., 15TH STREET S.E., 10TH STREET S.E., QUINCY ROAD N.E., COUNTY ROAD No. 107, 41ST STREET N.E. AND 163RD AVENUE N.E.



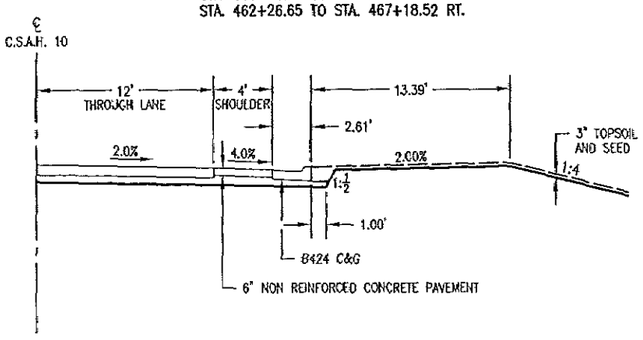
BITUMINOUS SHOULDER WITH CURB AND GUTTER SECTION
STA. 104+34.61 TO STA. 106+10.94 LT.



DITCH BERM SECTION
STA. 115+35 TO STA. 119+15 LT.
STA. 168+90 TO STA. 173+60 RT.
STA. 204+25 TO STA. 205+37 LT.
STA. 217+28 TO STA. 220+10 RT.
STA. 316+40 TO STA. 350+55 RT.
STA. 316+85 TO STA. 320+70 LT.



RIGHT TURN LANE SECTION
STA. 106+94.94 TO STA. 112+25.71 LT.
STA. 253+41.24 TO STA. 258+21.24 RT.
STA. 258+45.48 TO STA. 263+25.48 LT.
STA. 358+83.49 TO STA. 363+75.67 RT.
STA. 363+75.67 TO STA. 368+67.79 LT.
STA. 462+26.65 TO STA. 467+18.52 RT.



CONCRETE SHOULDER WITH CURB AND GUTTER SECTION
STA. 107+50.00 TO STA. ~~110+42.45~~ RT.
110+22 Rt.

TITLE: TYPICAL SECTIONS

CERTIFIED BY Kayel M Pieniek REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 5 of 299 Sheets

TILE_NAME: P3007V02.DWG DATE: 03-04-10

SURFACE DRAINAGE REMOVAL

STATION	LOCATION	INPLACE STRUCTURE	METAL CULVERT ①	CONCRETE CULVERT ①	CONCRETE BOX CULVERT ①②
			LIN. FT.	LIN. FT.	LIN. FT.
C.S.A.H. 10					
103+95.00	RT.	12" CMP	20		
105+05.97	LT.	15" CMP	28		
106+04.00	LT.	15" CMP	28		
107+33.00	C/L	24" CMP	163		
107+34.00	RT.	12" RCP		21	
108+05.00	LT.	18" CMP	30		
109+43.00	RT.	18" CMP	29		
118+21.00	LT.	18" CMP	24		
127+43.00	RT.	18" CMP	32		
128+05.33	LT.	18" CMP	30		
141+63.95	LT.	18" CMP	31		
143+89.76	RT.	18" CMP	30		
146+00.00	C/L	30" RCP		102	
158+05.00	LT.	15" CMP	53		
165+90.84	LT.	24" CMP	28		
165+90.84	RT.	24" CMP	30		
187+45.00	LT.	18" CMP	36		
196+02.00	LT.	18" CMP	36		
207+97.15	RT.	18" CMP	33		
219+34.00	RT.	30" CMP	20		
220+32.00	LT.	24" CMP	36		
222+13.00	LT.	24" CMP	32		
222+13.00	C/L	4x6 CONCRETE BOX			68
222+51.00	RT.	36" CMP	20		
225+34.89	LT.	18" CMP	35		
231+80.00	RT.	18" CMP	30		
239+00.00	C/L	30" RCP		61	
239+66.81	RT.	18" CMP	30		
245+15.93	LT.	18" CMP	45		
245+15.93	RT.	18" CMP	30		
267+49.00	RT.	24" CMP	28		
273+56.75	RT.	18" CMP	32		
273+63.56	LT.	18" CMP	28		
287+51.71	C/L	2 - 48" RCP		130	
297+56.48	RT.	24" CMP	39		
314+68.00	RT.	18" CMP	28		
323+65.00	RT.	18" CMP	31		
324+54.00	LT.	24" CMP	24		
327+96.00	LT.	18" CMP	32		
330+65.00	RT.	18" CMP	28		
339+85.00	C/L	2 - 60" RCP		126	
347+00.00	RT.	18" CMP	31		
348+87.10	RT.	18" CMP	31		
352+55.00	C/L	2 - 72" RCP		120	
367+27.00	RT.	18" CMP	30		
378+91.00	C/L	72" RCP		53	
383+65.00	LT.	36" CMP	29		
400+85.00	C/L	24" CMP	78		
410+23.87	RT.	18" CMP	36		
415+57.72	C/L	24" CMP	100		
425+42.00	C/L	30" CMP	79		
433+23.77	C/L	36" CMP	79		
443+49.00	LT.	18" CMP	30		
452+10.00	C/L	36" CMP	49		
470+60.00	LT.	18" CMP	37		
481+10.00	C/L	4x6 CONCRETE BOX			50
485+55.42	LT.	18" CMP	30		
499+70.00	RT.	18" CMP	34		

SURFACE DRAINAGE REMOVAL

STATION	LOCATION	INPLACE STRUCTURE	METAL CULVERT ①	CONCRETE CULVERT ①	CONCRETE BOX CULVERT ①②
			LIN. FT.	LIN. FT.	LIN. FT.
503+15.50	RT.	18" CMP	55		
503+66.00	LT.	18" CMP	38		
503+84.00	RT.	18" CMP	55		
504+83.00	RT.	18" CMP	37		
509+29.84	LT.	2 - 10x10 CONCRETE BOX			22
509+29.84	RT.	2 - 10x10 CONCRETE BOX			22
516+38.46	RT.	18" CMP	30		
518+31.39	RT.	18" CMP	48		
519+17.37	LT.	18" CMP	49		
521+55.19	RT.	18" CMP	30		
25TH STREET S.E.					
9+71.50	C/L	18" CMP	33		
15TH STREET S.E.					
19+66.50	C/L	18" CMP	33		
20+32.15	C/L	18" CMP	32		
10TH STREET S.E.					
30+32.80	C/L	18" CMP	33		
QUINCY ROAD N.E.					
49+71.55	C/L	24" CMP	39		
41ST STREET N.E.					
70+63.00	C/L	30" CMP	78		
163RD AVENUE N.E.					
89+53.50	C/L	18" CMP	63		
TOTALS			2535	613	162

① REMOVAL LENGTH INCLUDES APRONS WHEN PRESENT.

② REMOVAL OF HEADWALLS AND WINGWALLS SHALL BE CONSIDERED INCIDENTAL TO THE REMOVAL OF THE BOX CULVERT.

AS-BUILT

FEB 09 2012

ENGINEERING

FILE NAME: P2060701.DWG DATE: 03-04-10

CERTIFIED BY Kaye M Prisnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 6 of 299 Sheets

TREE REMOVAL

STATION	LOCATION	CLEARING		GRUBBING	
		ACRE (1)	TREE (2)	ACRE (1)	TREE (2)
C.S.A.H. 10					
107+60	RT.		1		1
108+54–108+75	RT.		3		3
111+93	RT.		1		1
127+34–127+76	LT.		2		2
128+45	RT.		1		1
129+71	RT.		1		1
130+19–130+22	RT.		3		3
130+76	RT.		1		1
131+87–132+94	RT.		4		4
138+62	RT.		1		1
142+16–142+68	LT.		2		2
143+05–143+49	RT.		2		2
143+78–144+67	LT.		4		4
144+93	RT.		1		1
145+00–148+50	LT.	0.23		0.23	
145+82–146+82	RT.		7		7
149+20–155+80	LT.	0.57		0.57	
179+89–181+54	LT.		5		5
206+00–207+81	RT.		19		19
208+25–209+82	RT.		16		16
237+68–239+24	RT.		6		6
264+92–265+80	RT.		5		5
266+86–267+62	RT.		5		5
271+31–271+80	RT.		3		3
272+83–273+32	RT.		3		3
273+76–274+35	RT.		4		4
297+07–297+39	RT.		2		2
297+89–299+09	RT.		12		12
300+32–301+11	RT.		3		3
322+07–323+17	LT.		4		4
324+02–324+08	LT.		4		4
337+41	RT.		3		3
349+13–350+46	RT.		10		10
372+38	RT.		1		1
393+88	RT.		1		1
397+86	RT.		1		1
397+93	LT.		1		1
399+57	RT.		1		1
400+95	RT.		1		1
404+68–404+82	RT.		2		2
405+72	RT.		1		1
409+18–410+16	RT.		6		6
410+37–414+06	RT.	0.48		0.48	
414+43–414+71	RT.		2		2
417+35–417+93	RT.		4		4
418+82–419+33	RT.		2		2
419+34–421+00	LT.		8		8
422+25–422+40	RT.		2		2
423+65–423+89	RT.		2		2
426+45	RT.		1		1
432+87	RT.		1		1
437+30–438+10	RT.		2		2
442+00	RT.		1		1
442+80–443+67	LT.	0.04		0.04	
471+23	LT.		1		1
485+74–485+85	LT.		2		2
488+47–502+61	LT.	0.41		0.41	

TREE REMOVAL

STATION	LOCATION	CLEARING		GRUBBING	
		ACRE (1)	TREE (2)	ACRE (1)	TREE (2)
489+48	RT.		1		1
491+92–497+62	RT.	0.25		0.25	
507+28–508+20	LT.	0.05		0.05	
508+05–510+50	RT.	0.17		0.17	
508+62–511+21	LT.	0.16		0.16	
512+95	RT.		1		1
514+25–519+00	LT.	0.41		0.41	
515+35–517+11	RT.		4		4
518+50–519+67	RT.		11		11
25TH STREET S.E.					
10+98–11+93	RT.		2		2
15TH STREET S.E.					
18+27–19+31	LT.		5		5
41ST STREET N.E.					
70+59–71+59	LT.		4		4
70+78	RT.		1		1
72+81–73+78	LT.		4		4
TOTALS		2.77	214	2.77	214

(1) CLEARING AND GRUBBING BY THE ACRE HAS BEEN COMPUTED TO A POINT 10 FEET OUTSIDE THE CONSTRUCTION LIMITS.

(2) MULTIPLE TRUNKS GROWING FROM ONE ROOT SHALL BE CONSIDERED ONE TREE FOR PAYMENT.

AS-BUILT

FEB 0 9 2012

ENGINEERING

FILE NAME: P3069702.DWG DATE: 03-04-10

CERTIFIED BY Kayc M Brunick LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 7 of 299 Sheets

FENCE REMOVAL

STATION	LOCATION	LIN. FT.	REMARKS
C.S.A.H. 10			
107+43–109+00	RT.	408	
109+00–109+62	RT.	100	
109+62–126+00	RT.	1637	
118+39–126+02	LT.	826	
130+12–130+21	RT.	17	
131+00–138+11	RT.	569	
138+37–142+42	RT.	405	
141+78–145+03	LT.	369	
144+60–152+66	RT.	866	
187+18	LT.	29	
220+61–223+77	LT.	349	
225+81–231+97	LT.	646	
231+98–237+64	RT.	601	
240+26–241+01	RT.	95	
241+01–241+51	RT.	53	
242+00–242+50	RT.	65	
242+50–245+10	RT.	260	
245+33–257+72	RT.	556	
259+02–263+21	RT.	463	
263+21–267+41	RT.	424	
267+57–268+97	RT.	182	
284+68	RT.	30	
284+69–297+39	LT.	1308	
287+97–293+62	RT.	574	
293+62–297+30	RT.	368	
297+39–301+44	LT.	405	
304+83–310+52	LT.	603	
311+23–320+13	LT.	889	
320+13–321+63	LT.	164	
325+61–337+37	LT.	1188	
337+37–338+14	RT.	106	
341+20–353+64	LT.	1261	
353+64–356+58	LT.	325	
364+10–383+39	LT.	1929	
364+12–365+93	RT.	205	
365+93–368+74	RT.	310	
368+74–390+12	RT.	2138	
383+76–384+45	LT.	69	
384+45–390+14	LT.	568	
390+12–405+10	RT.	1598	
390+14–404+81	LT.	1467	
405+10–408+82	RT.	425	
407+39–416+12	LT.	873	
410+37–413+57	RT.	320	
416+73–429+55	RT.	1282	
420+62–429+53	LT.	892	
429+53–434+98	LT.	557	
429+55–437+28	RT.	803	
437+28–440+03	RT.	329	
437+53–448+61	LT.	1149	
440+27–442+75	RT.	255	
442+75–453+75	RT.	1100	
448+61–467+21	LT.	1887	
453+88–463+85	RT.	1039	
470+84–479+09	LT. & RT.	979	
479+20–492+91	LT. & RT.	1490	
479+39–485+01	LT.	582	

FENCE REMOVAL

STATION	LOCATION	LIN. FT.	REMARKS
500+00–503+03	RT.	301	
506+25–509+04	LT.	279	
509+00–509+19	RT.	41	
509+42–513+68	LT.	564	
509+53–511+53	RT.	207	
511+53–513+93	RT.	247	
25TH STREET S.E.			
10+48–12+00	RT.	152	
10+49–10+80	LT.	31	
15TH STREET S.E.			
16+30–16+74	LT.	55	
QUINCY ROAD N.E.			
47+00–49+50	LT.	250	
47+00–49+50	RT.	251	
COUNTY ROAD 107			
56+00–59+33	LT.	283	
60+61–63+27	LT.	269	
41ST STREET N.E.			
70+44–74+34	LT.	420	
163RD AVENUE N.E.			
87+75–89+47	LT.	172	
TOTALS		41949	

AS-BUILT

FEB 0 9 2012

ENGINEERING

FILE NAME: P3050103.DWG DATE: 02-04-10

CERTIFIED BY Kay M Bennett REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 8 of 299 Sheets

SURFACE DRAINAGE

STATION	LOCATION ①		ELEVATION ①②		SLOPE	REINFORCED CONCRETE											CORRUGATED STEEL					APRON
						R.C.P.		RCP–ARCH		PRECAST BOX CULVERT							C.S.P.				CSP–ARCH	
						24"	42"	36" SPAN	44" SPAN	6x5	8x4	8x5	10x4	10x6	10x10	12x6	14x4	12"	15"	18"	24"	42" SPAN	
	INLET	OUTLET	INLET	OUTLET	%	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	(2 EACH)
C.S.A.H. 10																						
103+50.00–FIELD ENT.	54.00' RT.		1139.16		0.30														37			15" G.S.
107+23.47–107+43.94	41.28' LT.	40.44' RT.	1141.29	1140.59	0.83	72																24" R.C.P.
107+28.77–107+60.52	93.61' RT.	93.88' RT.	1142.92	1140.51	6.69													36				12" G.S.
108+85.73–DRIVEWAY	245.00' RT.		1141.85		5.45															55		18" G.S.
113+19.36–FIELD ENT.	42.00' LT.		1155.24		3.28															48		18" G.S.
128+05.33–DRIVEWAY	38.00' LT.		1202.46		1.86															42		18" G.S.
128+15.06–DRIVEWAY	42.00' RT.		1201.64		1.88															50		18" G.S.
130+01.50–DRIVEWAY	42.00' RT.		1204.37		1.10															50		18" G.S.
138+35.00–FIELD ENT.	42.00' LT.		1199.75		2.20															40		18" G.S.
139+00.00–FIELD ENT.	42.00' RT.		1198.23		2.48															40		18" G.S.
141+63.98–DRIVEWAY	40.00' LT.		1190.86		3.52															49		18" G.S.
143+89.76–DRIVEWAY	36.00' RT.		1182.93		4.41															36		18" G.S.
148+00.00–148+00.00	50.83' LT.	64.83' RT.	1158.62	1149.72	7.69			100														36" SPAN RCP–A
158+05.00–DRIVEWAY	42.00' LT.		1115.89		3.57															45		18" G.S.
165+80.84–FIELD ENT.	40.00' LT.		1095.54		0.50																46	24" G.S.
165+80.84–FIELD ENT.	40.00' RT.		1095.54		0.50																50	24" G.S.
174+21.40–174+36.65	54.27' LT.	54.27' RT.	1089.40	1088.58	0.75									84								10x6 P.C. END SECTION
174+33.35–174+48.60	54.27' LT.	54.27' RT.	1089.40	1088.58	0.75									84								10x6 P.C. END SECTION
185+50.00–FIELD ENT.	42.00' RT.		1103.56		0.53															36		18" G.S.
187+45.00–FIELD ENT.	42.00' LT.		1102.48		0.56															38		18" G.S.
192+06.33–192+33.49	50.67' LT.	50.67' RT.	1099.80	1098.40	1.33							84										8x5 P.C. END SECTION
192+16.51–192+43.67	50.67' LT.	50.67' RT.	1099.80	1098.40	1.33							84										8x5 P.C. END SECTION
211+50.00–FIELD ENT.	42.00' LT.		1156.51		0.90															52		18" G.S.
219+34.00–FIELD ENT.	42.00' RT.		1134.44		3.27																30	24" G.S.
220+32.00–FIELD ENT.	42.00' LT.		1131.62		2.48																35	24" G.S.
222+13.00–222+13.00	48.02' LT.	58.27' RT.	1123.87	1120.79	2.90		90															42" R.C.P.
222+75.84–222+86.01	275.37' RT.	305.66' RT.	1116.33	1114.65	5.25													32				12" G.S.
225+34.89–DRIVEWAY	42.00' LT.		1128.51		1.63															49		18" G.S.
231+80.00–FIELD ENT.	42.00' LT.		1143.44		0.74															50		18" G.S.
231+80.00–FIELD ENT.	42.00' RT.		1143.44		0.74															47		18" G.S.
239+00.00–239+00.00	40.46' RT.	51.43' LT.	1135.93	1131.38	4.95			76														36" SPAN RCP–A
245+15.93–FIELD ENT.	42.00' LT.		1129.55		1.66															52		18" G.S.
245+15.93–FIELD ENT.	42.00' RT.		1129.55		1.66															49		18" G.S.
263+38.88–263+65.12	48.97' LT.	48.97' RT.	1081.91	1081.12	0.78												83					14x4 P.C. END SECTION
273+56.75–DRIVEWAY	39.00' RT.		1088.95		2.79															48		18" G.S.
273+63.50–FIELD ENT.	42.00' LT.		1087.98		2.12															44		18" G.S.
283+70.50–FIELD ENT.	42.00' RT.		1084.97		0.72															39		18" G.S.
287+76.85–288+33.15	48.76' LT.	48.76' RT.	1087.47	1086.62	0.58						92											8x4 P.C. END SECTION
290+00.00–FIELD ENT.	42.00' RT.		1091.30		1.80																42	24" G.S.
297+56.48–DRIVEWAY	38.00' RT.		1108.76		2.46																48	24" G.S.
301+58.16–DRIVEWAY	42.00' LT.		1112.90		1.63																44	24" G.S.
304+50.00–FIELD ENT.	42.00' RT.		1114.75		0.52																34	24" G.S.
314+68.00–FIELD ENT.	42.00' RT.		1120.04		0.52															38		18" G.S.
321+85.00–DRIVEWAY	38.50' LT.		1124.62		1.52															37		18" G.S.
327+56.00–FIELD ENT.	42.00' LT.		1124.87		0.81															42		18" G.S.
330+65.00–FIELD ENT.	42.00' RT.		1121.13		1.98															45		18" G.S.
339+36.33–340+33.67	48.67' LT.	48.67' RT.	1087.10	1086.70	0.29												105					14x4 P.C. END SECTION

① R.C.P. AND RCP–ARCH CULVERT LOCATIONS AND ELEVATIONS ARE GIVEN TO THE END OF THE APRON.
C.S.P. AND CSP–ARCH CULVERT LOCATIONS AND ELEVATIONS ARE GIVEN TO THE END OF THE BARREL.

② ELEVATIONS SHOWN FOR ENTRANCE CULVERTS ARE FLOWLINE ELEVATIONS AT THE C/L OF THE ENTRANCE.

AS-BUILT

FEB 0 9 2012

ENGINEERING

FILE NAME: P3060704.DWG DATE: 03-25-10

TITLE: QUANTITY TABULATIONS

CERTIFIED BY Kayce M Kennedy REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 9 of 299 Sheets

SURFACE DRAINAGE

STATION	LOCATION ①		ELEVATION ①②		SLOPE	REINFORCED CONCRETE												CORRUGATED STEEL					APRON
						R.C.P.		RCP–ARCH		PRECAST BOX CULVERT								C.S.P.				CSP–ARCH	
						24"	42"	36" SPAN	44" SPAN	6x5	8x4	8x5	10x4	10x6	10x10	12x6	14x4	12"	15"	18"	24"	42" SPAN	
	INLET	OUTLET	INLET	OUTLET	%	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	(2 EACH)
347+00.00–FIELD ENT.	42.00' LT.		1086.77		0.32															46			18" G.S.
347+00.00–FIELD ENT.	40.00' RT.		1087.27		0.32															36			18" G.S.
348+87.10–DRIVEWAY	40.00' RT.		1086.67		0.32															50			18" G.S.
352+55.00–352+55.00	53.50' LT.	53.50' RT.	1082.55	1082.05	0.47											83							12x6 P.C. END SECTION
378+91.00–378+91.00	50.00' LT.	50.00' RT.	1096.00	1094.20	1.80								84										10x4 P.C. END SECTION
383+65.00–FIELD ENT.	42.00' LT.		1106.97		2.76																	43	42" SPAN GS–ARCH
383+65.00–FIELD ENT.	42.00' RT.		1106.97		2.76															38			18" G.S.
400+85.00–400+85.00	39.72' LT.	63.88' RT.	1184.27	1172.67	11.20	92																	24" R.C.P.
410+23.87–DRIVEWAY	42.00' RT.		1198.24		2.53															58			18" G.S.
416+75.26–417+01.47	36.37' LT.	61.46' RT.	1177.32	1165.25	11.92			86															36" SPAN RCP–A
417+90.18–418+22.50	102.86' RT.	116.25' RT.	1160.39	1159.06	3.80													35					12" G.S.
425+42.00–425+42.00	47.48' LT.	60.27' RT.	1146.29	1139.02	6.75				92														44" SPAN RCP–A
429+57.37–FIELD ENT.	46.00' RT.		1135.23		3.54															38			18" G.S.
452+10.00–452+10.00	47.99' RT.	47.99' LT.	1107.39	1105.55	1.92				80														44" SPAN RCP–A
453+60.00–FIELD ENT.	42.00' RT.		1108.81		1.17															39			18" G.S.
469+81.00–DRIVEWAY	42.00' LT.		1110.24		1.44															44			18" G.S.
479+18.13–FIELD ENT.	52.00' LT.		1094.82		5.64													59					12" G.S.
480+95.49–481+23.53	50.51' LT.	54.14' RT.	1088.74	1086.75	1.83					88													6x5 P.C. END SECTION
485+55.42–DRIVEWAY	52.00' LT.		1099.83		3.30															61			18" G.S.
499+70.00–FIELD ENT.	42.00' RT.		1118.16		3.88															41			18" G.S.
503+66.00–DRIVEWAY	42.00' LT.		1099.18		6.29															44			18" G.S.
503+84.00–DRIVEWAY	40.00' RT.		1097.04		6.09															42			18" G.S.
504+83.00–DRIVEWAY	42.00' RT.		1090.90		6.61															48			18" G.S.
509+15.62–509+32.59	93.03' LT.	97.75' RT.	1048.00	1045.56	1.28										29								10x10 P.C. END SECTION
509+27.41–509+44.38	94.07' LT.	96.70' RT.	1048.00	1045.56	1.28										29								10x10 P.C. END SECTION
516+38.46–DRIVEWAY	38.00' RT.		1084.55		2.24															46			18" G.S.
518+31.39–DRIVEWAY	38.00' RT.		1088.31		1.64															45			18" G.S.
519+17.37–FIELD ENT.	42.00' LT.		1088.61		1.41															45			18" G.S.
25TH STREET S.E.																							
9+58.00–9+58.00	24.07' LT.	29.91' RT.	1198.44	1196.95	2.76															54			18" G.S.
15TH STREET S.E.																							
17+35.00–DRIVEWAY	22.50' LT.		1103.47		1.28													36					12" G.S.
19+58.00–19+58.00	22.39' LT.	27.59' RT.	1102.54	1101.09	2.90															50			18" G.S.
20+42.00–20+42.00	25.07' LT.	26.93' RT.	1101.60	1101.35	0.87															52			18" G.S.
10TH STREET S.E.																							
30+42.00–30+42.00	22.98' LT.	28.00' RT.	1152.39	1151.10	2.53															51			18" G.S.
QUINCY ROAD N.E.																							
49+58.00–49+58.00	24.59' LT.	25.41' RT.	1118.19	1117.93	0.52																50		24" G.S.
50+42.00–50+42.00	24.45' LT.	25.55' RT.	1118.19	1117.93	0.52																50		24" G.S.
COUNTY ROAD 107																							
59+52.00–59+52.00	23.99' LT.	26.00' RT.	1123.02	1122.50	1.04																50		24" G.S.
60+48.00–60+48.00	24.24' LT.	27.75' RT.	1123.28	1122.37	1.75																52		24" G.S.
63+25.00–DRIVEWAY	24.00' LT.		1133.50		2.83															38			18" G.S.
41ST STREET N.E.																							
70+63.00–70+63.00	46.09' RT.	56.76' LT.	1171.11	1165.62	5.34																103		24" G.S.
74+22.00–FIELD ENT.	24.00' LT.		1198.80		2.76															31			18" G.S.
163RD AVENUE N.E.																							
89+44.00–89+44.00	27.96' RT.	37.94' LT.	1083.79	1080.24	5.39																66		24" G.S.
TOTALS (SHEET 9 AND 10)						164	90	262	172	88	92	168	84	168	58	83	188	198	37	2118	700	43	③

① R.C.P. AND RCP–ARCH CULVERT LOCATIONS AND ELEVATIONS ARE GIVEN TO THE END OF THE APRON.
C.S.P. AND CSP–ARCH CULVERT LOCATIONS AND ELEVATIONS ARE GIVEN TO THE END OF THE BARREL.

② ELEVATIONS SHOWN FOR ENTRANCE CULVERTS ARE FLOWLINE ELEVATIONS AT THE C/L OF THE ENTRANCE.

③ CONSISTS OF: 4 – 24" R.C.P. APRONS
2 – 42" R.C.P. APRONS
6 – 36" SPAN RCP–A APRONS
4 – 44" SPAN RCP–A APRONS
2 – 6x5 P.C. END SECTIONS (15° SKEW INLET AND OUTLET)
2 – 8x4 P.C. END SECTIONS (30° SKEW INLET AND OUTLET)
4 – 8x5 P.C. END SECTIONS (15° SKEW INLET AND OUTLET)
2 – 10x4 P.C. END SECTIONS (0° SKEW INLET AND OUTLET)
4 – 10x6 P.C. END SECTIONS (15° SKEW INLET AND OUTLET)
4 – 10x10 P.C. END SECTIONS (0° SKEW INLET AND OUTLET)
2 – 12x6 P.C. END SECTIONS (0° SKEW INLET AND OUTLET)
2 – 14x4 P.C. END SECTIONS (15° SKEW INLET AND OUTLET)
2 – 14x4 P.C. END SECTIONS (45° SKEW INLET AND OUTLET)
10 – 12" G.S. APRONS
2 – 15" G.S. APRONS
94 – 18" G.S. APRONS
28 – 24" G.S. APRONS
2 – 42" SPAN GS–ARCH APRONS

AS-BUILT
FEB 09 2012
ENGINEERING

FILE NAME: P3050705.DWG DATE: 03-25-10

CERTIFIED BY Kyle M Reinink REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 10 of 299 Sheets

AGGREGATE			
STATION	LOCATION	BASE	
		CL. 2	CL. 5 MOD.
		TON	TON
C.S.A.H. 10			
101+88.41--106+70.56	LT. & RT.		1073
103+09.07--104+34.61	LT.	32	
103+50.00--FIELD ENT.	RT.	30	
105+05.97--DRIVEWAY	LT.	10	
105+94.94--126+35.10	LT. & RT.		3685
108+85.73--DRIVEWAY	RT.	112	
113+19.36--FIELD ENT.	LT.	35	
126+35.10--152+66.66	LT. & RT.		4846
128+05.33--DRIVEWAY	LT.	46	
128+15.06--DRIVEWAY	RT.	55	
130+01.50--DRIVEWAY	RT.	57	
138+35.00--FIELD ENT.	LT.	25	
139+00.00--FIELD ENT.	RT.	25	
141+63.96--DRIVEWAY	LT.	55	
143+89.76--DRIVEWAY	RT.	49	
148+68.50--FIELD ENT.	LT.	26	
152+66.66--179+15.12	LT. & RT.		4878
158+05.00--DRIVEWAY	LT.	79	
165+90.84--FIELD ENT.	LT.	35	
165+90.84--FIELD ENT.	RT.	35	
179+15.12--205+60.98	LT. & RT.		4830
185+50.00--FIELD ENT.	RT.	25	
187+45.00--FIELD ENT.	LT.	25	
192+50.00--FIELD ENT.	RT.	30	
205+60.98--231+98.54	LT. & RT.		4857
211+50.00--FIELD ENT.	LT.	26	
219+34.00--FIELD ENT.	RT.	30	
220+32.00--FIELD ENT.	LT.	25	
225+34.89--DRIVEWAY	LT.	42	
231+80.00--FIELD ENT.	LT.	27	
231+80.00--FIELD ENT.	RT.	25	
231+98.54--258+33.32	LT. & RT.		4954
239+66.81--DRIVEWAY	RT.	52	
245+15.93--FIELD ENT.	LT.	35	
245+15.93--FIELD ENT.	RT.	35	
258+33.32--275+50.00	LT. & RT.		3249
271+04.37--DRIVEWAY	RT.	52	
273+56.75--DRIVEWAY	RT.	55	
273+63.50--FIELD ENT.	LT.	26	
280+50.00--284+66.57	LT. & RT.		774
283+70.50--FIELD ENT.	RT.	25	
284+66.57--310+86.73	LT. & RT.		4825
290+00.00--FIELD ENT.	RT.	25	
297+56.48--DRIVEWAY	RT.	55	
301+58.16--DRIVEWAY	LT.	55	
304+50.00--FIELD ENT.	RT.	26	
310+86.73--337+39.17	LT. & RT.		4885
314+68.00--FIELD ENT.	RT.	25	
321+85.00--DRIVEWAY	LT.	42	
324+54.00--DRIVEWAY	LT.	55	
327+96.00--FIELD ENT.	LT.	25	
330+65.00--FIELD ENT.	RT.	26	
337+39.17--363+75.67	LT. & RT.		4971
347+00.00--FIELD ENT.	LT.	30	
347+00.00--FIELD ENT.	RT.	25	
348+87.10--DRIVEWAY	RT.	55	
356+70.50--DRIVEWAY	LT.	55	
356+70.50--FIELD ENT.	RT.	35	
363+75.67--390+11.21	LT. & RT.		4970
376+93.44--FIELD ENT.	RT.	30	
383+65.00--FIELD ENT.	LT.	30	
383+65.00--FIELD ENT.	RT.	25	
390+11.21--416+39.21	LT. & RT.		4853
390+35.00--FIELD ENT.	RT.	45	
407+19.85--DRIVEWAY	LT.	55	
410+23.87--DRIVEWAY	RT.	65	
416+39.21--442+75.53	LT. & RT.		4870

AGGREGATE			
STATION	LOCATION	BASE	
		CL. 2	CL. 5 MOD.
		TON	TON
417+12.66--DRIVEWAY	LT.	68	
429+57.37--FIELD ENT.	RT.	33	
435+36.91--DRIVEWAY	LT.	52	
440+00.00--FIELD ENT.	LT.	30	
440+00.00--FIELD ENT.	RT.	26	
442+75.53--456+77.02	LT. & RT.		2604
453+80.00--FIELD ENT.	RT.	25	
456+77.02--460+61.02	LT. & RT.		745
460+61.02--477+53.54	LT. & RT.		3436
469+81.00--DRIVEWAY	LT.	70	
477+53.54--480+41.54	LT. & RT.		548
479+03.62--DRIVEWAY	RT.	56	
479+18.13--FIELD ENT.	LT.	57	
480+41.54--483+00.74	LT. & RT.		490
483+00.74--487+82.56	LT. & RT.		962
485+55.42--DRIVEWAY	LT.	55	
487+82.56--490+41.76	LT. & RT.		490
490+41.76--493+29.76	LT. & RT.		548
493+29.76--497+70.29	LT. & RT.		892
497+70.29--499+50.29	LT. & RT.		343
499+50.29--501+12.29	LT. & RT.		306
499+70.00--FIELD ENT.	RT.	25	
501+12.29--505+10.45	LT. & RT.		795
503+66.00--DRIVEWAY	LT.	36	
503+84.00--DRIVEWAY	RT.	50	
504+83.00--DRIVEWAY	RT.	50	
505+10.45--508+65.65	LT. & RT.		620
508+65.65--519+17.37	LT. & RT.		1954
516+38.46--DRIVEWAY	RT.	52	
518+31.39--DRIVEWAY	RT.	49	
519+17.37--FIELD ENT.	LT.	43	
519+17.37--531+50.00	LT. & RT.		2290
521+55.19--DRIVEWAY	RT.	52	
25TH STREET S.E.			
7+75.00--9+88.00	LT. & RT.	155	137
10+12.00--12+25.00	LT. & RT.	154	138
15TH STREET S.E.			
16+75.00--19+88.00	LT. & RT.	244	138
17+35.00--DRIVEWAY	LT.	16	
18+75.00--DRIVEWAY	LT.	22	
18+75.00--FIELD ENT.	RT.	22	
20+12.00--23+25.00	LT. & RT.	245	137
21+60.00--FIELD ENT.	LT.	14	
21+60.00--FIELD ENT.	RT.	14	
10TH STREET S.E.			
25+25.00--28+88.00	LT. & RT.	378	137
30+12.00--32+50.00	LT. & RT.	177	138
31+95.00--DRIVEWAY	LT.	14	
QUINCY ROAD N.E.			
47+50.00--49+88.00	LT. & RT.	179	137
50+12.00--52+75.00	LT. & RT.	202	137
COUNTY ROAD 107			
56+75.00--59+88.00	LT. & RT.	242	158
60+12.00--67+50.00	LT. & RT.	601	159
63+25.00--DRIVEWAY	LT.	20	
41ST STREET N.E.			
70+12.00--74+75.00	LT. & RT.	381	137
74+22.00--FIELD ENT.	LT. & RT.	17	
C.S.A.H. 2 (EAST)			
80+12.00--82+75.00	LT. & RT.		670
80+35.23--82+75.00	RT.	50	
163RD AVENUE N.E.			
87+75.00--89+88.00	LT. & RT.	157	136
TOTALS		6158	81902

AS-BUILT

FEB 09 2012

ENGINEERING

FILE NAME: P3065706.DWG DATE: 03-04-10

CERTIFIED BY Kayce M Brenick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 11 of 299 Sheets

BITUMINOUS			
STATION	LOCATION	SPWEA340C	SPWEB340C
		TON	TON
C.S.A.H. 10			
101+88.41–106+70.56	LT. & RT.	161	489
106+94.94–112+25.71	LT. & RT.	81	247
110+42.45–125+92.93	RT.	85	114
112+25.71–125+93.21	LT.	75	100
126+76.99–152+66.56	LT.	142	190
126+77.15–152+66.56	RT.	142	190
128+05.33–DRIVEWAY	LT.	10	13
128+15.06–DRIVEWAY	RT.	7	9
130+01.50–DRIVEWAY	RT.	6	9
141+63.96–DRIVEWAY	LT.	6	9
143+89.76–DRIVEWAY	RT.	7	9
152+66.56–178+73.08	LT.	143	191
152+66.56–178+73.12	RT.	143	191
158+05.00–DRIVEWAY	LT.	17	22
179+56.74–205+18.48	RT.	141	188
179+57.46–205+19.31	LT.	141	188
206+02.85–231+98.54	RT.	143	190
206+02.94–231+98.54	LT.	143	190
225+34.89–DRIVEWAY	LT.	6	9
231+98.54–257+79.54	LT.	142	189
231+98.54–253+41.24	RT.	118	157
239+68.81–DRIVEWAY	RT.	6	9
253+41.24–257+80.95	RT.	48	148
258+86.04–263+25.48	LT.	48	148
258+86.58–277+52.76	RT.	103	137
263+25.48–277+52.76	LT.	79	105
271+04.37–DRIVEWAY	RT.	6	9
273+56.75–DRIVEWAY	RT.	7	9
276+45.00–DRIVEWAY	LT.	37	50
279+35.42–284+66.57	LT.	29	39
279+35.42–284+66.57	RT.	29	39
284+66.57–310+45.23	LT.	142	189
284+66.57–310+44.47	RT.	142	189
297+56.48–DRIVEWAY	RT.	6	9
301+58.16–DRIVEWAY	LT.	6	9
311+28.42–337+39.17	RT.	144	191
311+29.28–337+39.17	LT.	144	191
321+85.00–DRIVEWAY	LT.	7	9
324+54.00–DRIVEWAY	LT.	6	9
337+39.17–363+33.91	LT.	143	190
337+39.17–358+83.49	RT.	118	157
348+87.10–DRIVEWAY	RT.	6	9
356+70.50–DRIVEWAY	LT.	7	9
358+83.49–363+32.86	RT.	49	151
364+16.73–390+11.21	RT.	143	190
364+18.20–368+67.79	LT.	49	152
368+67.79–390+11.21	LT.	118	157
390+11.21–416+39.21	LT.	145	193
390+11.21–415+96.07	RT.	142	189
407+19.85–DRIVEWAY	LT.	6	9
410+23.87–DRIVEWAY	RT.	6	9
416+39.21–442+75.53	LT.	145	193
416+80.14–442+75.53	RT.	143	190
417+12.66–DRIVEWAY	LT.	7	9
435+36.91–DRIVEWAY	LT.	6	9
442+75.53–467+18.52	LT.	134	178
442+75.53–462+26.65	RT.	108	143
462+26.65–466+78.49	RT.	51	155
467+18.52–492+48.06	LT.	139	185
467+70.27–492+48.06	RT.	137	182
469+81.00–DRIVEWAY	LT.	6	9
479+03.52–DRIVEWAY	RT.	7	9
485+55.42–DRIVEWAY	LT.	6	9

BITUMINOUS			
STATION	LOCATION	SPWEA340C	SPWEB340C
		TON	TON
492+48.06–505+56.38	LT.	72	96
492+48.06–519+17.37	RT.	147	196
503+66.00–DRIVEWAY	LT.	6	7
503+84.00–DRIVEWAY	RT.	6	9
504+83.00–DRIVEWAY	RT.	7	9
506+39.19–519+17.37	LT.	70	94
516+38.46–DRIVEWAY	RT.	6	9
518+31.39–DRIVEWAY	RT.	6	9
519+17.37–531+50.00	LT.	68	90
519+17.37–531+50.00	RT.	68	90
521+55.19–DRIVEWAY	RT.	7	9
531+50.00–532+00.00	LT. & RT.	14	42
25TH STREET S.E.			
9+50.00–9+88.00	LT. & RT.	15	46
10+12.00–10+50.00	LT. & RT.	15	46
15TH STREET S.E.			
19+50.00–19+88.00	LT. & RT.	15	46
20+12.00–20+50.00	LT. & RT.	15	46
10TH STREET S.E.			
29+50.00–29+88.00	LT. & RT.	15	46
30+12.00–30+50.00	LT. & RT.	15	46
C.S.A.H. 9			
39+05.43–39+88.00	LT.	13	39
39+52.24–39+88.00	RT.	3	10
40+12.00–40+47.16	LT.	7	22
40+12.00–40+94.36	RT.	13	39
QUINCY ROAD N.E.			
49+50.00–49+88.00	LT. & RT.	15	46
50+12.00–50+50.00	LT. & RT.	15	46
COUNTY ROAD 107			
59+45.58–59+88.00	LT. & RT.	18	54
60+12.00–60+54.63	LT. & RT.	18	54
41ST STREET N.E.			
70+12.00–70+50.00	LT. & RT.	15	46
C.S.A.H. 2 (EAST)			
80+12.00–82+75.00	LT. & RT.	94	284
163RD AVENUE N.E.			
89+50.00–89+88.00	LT. & RT.	15	46
TOTALS		5462	8691

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ENGINEERING

(-16') Remove 2 sections
ADD Galv. Grate

STORM SEWER CONSTRUCTION														
STRUCTURE NUMBER	STATION	LOCATION	STRUCTURE DESIGN	TOP OF CASTING	ELEVATION		SLOPE	FRAME CASTING NUMBER	GRATE NUMBER	CURB BOX NUMBER	REINFORCED CONCRETE PIPE SEWER		CLASS	APRON
					INLET	OUTLET					18"	24"		
							%				LIN. FT.	LIN. FT.		EACH
C.S.A.H. 10														
APRON 1	106+20.30	40.28' LT.			1141.23(1)		0.70				41		IV	1 – 18" R.C.P.
C.B. 1	105+80.04	19.00' LT.	G	1144.11(2)	1140.90	1140.80	0.71	802A	811	823A	52		IV	
APRON 2	105+80.04	38.68' RT.			1140.39(1)									1 – 18" R.C.P.
APRON 3	~~110+68.15~~ 142	42.00' RT.			1147.49(1)		1.88					~~135~~ 114	III	1 – 24" R.C.P.
M.H. 1	109+43.25	31.13' RT.	F	1150.39	1144.84	1144.74	1.59	700–7	715			53	III	
APRON 4	107+60.52	93.61' RT.			1142.92(1)									1 – 24" R.C.P.
TOTALS											93	188		

(1) END OF APRON ELEVATION.

(2) TOP OF GRATE ELEVATION.

DATE: 03-25-10

FILE NAME: P0060707.DWG

CERTIFIED BY Kaye M Bierneke REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 12 of 299 Sheets

CONCRETE PAVEMENT AND JOINT SUMMARY

STATION	LOCATION	EXPANSION JOINT DESIGN EBS	DOWEL BAR ①	BRIDGE APPROACH PANEL	DRILL & GROUT DOWEL BAR ①	DRILL & GROUT REINF. BAR ②	CONCRETE PAVEMENT 8"	CONCRETE SHOULDER 6"	INCIDENTAL ITEMS				
									CONTRACTION JOINT	EXPANSION JOINT	LONGITUDINAL JOINT		
									C2A-D	E1-1	L1TH	L2KTH	L2KTU
		LIN. FT.	EACH	EACH	EACH	EACH	SQ. YD.	SQ. YD.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
C.S.A.H. 10													
107+24.45–126+35.10	LT. & RT.		2838				5141		3096		1928	294	
107+50.00–110+42.45	RT.							131	76				294
126+35.10–152+66.56	LT. & RT.		3850				7017		4200		2631		
152+66.56–179+15.12	LT. & RT.		3894				7063		4248		2649		
179+15.12–205+60.98	LT. & RT.		3872				7056		4224		2646		
205+60.98–231+98.54	LT. & RT.		3872				7034		4224		2638		
231+98.54–258+33.32	LT. & RT.		3872				7026		4224		2635		
258+33.32–277+52.76	LT. & RT.		2794				5119		3048		1919		
277+52.76	LT. & RT.	24											
277+52.76–277+96.25	LT. & RT.			1									
277+96.25	LT. & RT.					29							
278+91.96	LT. & RT.					29							
278+91.96–279+35.42	LT. & RT.			1									
279+35.42	LT. & RT.	24											
279+35.42–284+66.57	LT. & RT.		770				1416		840		531		
284+66.57–310+86.73	LT. & RT.		3850				6987		4200		2520		
310+86.73–337+39.17	LT. & RT.		3872				7073		4224		2652		
337+39.17–363+75.67	LT. & RT.		3872				7031		4224		2636		
363+75.67–390+11.21	LT. & RT.		3872				7028		4224		2636		
390+11.21–416+39.21	LT. & RT.		3850				7008		4200		2628		
416+39.21–442+75.53	LT. & RT.		3872				7030		4224		2636		
442+75.53–467+18.52	LT. & RT.		3586				6515		3912		2443		
467+18.52–492+48.06	LT. & RT.		3696				6745		4032		2530		
492+48.06–519+17.37	LT. & RT.		3916				7118		4272		2669		
519+17.37–531+50.00	LT. & RT.		1804				3287		1968		1233		
C.S.A.H. 9													
39+43.19	LT. & RT.				34								
39+43.19–39+88.00	LT. & RT.		68				179		72		45	45	
39+88.00	LT. & RT.									36			
40+12.00	LT. & RT.									24			
40+12.00–40+46.18	LT. & RT.		44				91		48		34		
40+46.18	LT. & RT.				22								
TOTALS		48	62064	2	56	58	112964	131	67780	60	42339	339	294

① USE 1-1/4 INCH DOWEL BARS (EPOXY COATED).

② USE No. 19 BARS (EPOXY COATED). DRILL 1'-6" INTO ABUTMENT AS DIRECTED BY ENGINEER.

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FEB 09 2012

ENGINEERING

CONCRETE

STATION	LOCATION	B424 CURB & GUTTER	6" DRIVEWAY PAVEMENT	REMARKS
		LIN. FT.	SQ. YD.	
C.S.A.H. 10				
104+34.61–106+10.94	LT.	181		
~~105+05.97~~	~~LT.~~		~~12~~	
107+50.00–110+42.45	RT.	294		
108+85.73	RT.		12	
110+22				
TOTALS		475	24	

FILE NAME: P3060708.DWG DATE: 03-25-10

CERTIFIED BY Kay M Brenneke REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 13 of 299 Sheets

TURF ESTABLISHMENT AND EROSION CONTROL

STATION	LOCATION	RANDOM RIPRAP CLASS III	SILT FENCE TYPE MACHINE SLICED	TEMPORARY DITCH CHECK TYPE 1 ①	TEMPORARY DITCH CHECK TYPE 2 ①	TEMPORARY DITCH CHECK TYPE 7 ①	FILTER LOG TYPE STRAW BIOROLL ②	SEEDING	SEED MIXTURE 110	SEED MIXTURE 250	SEED MIXTURE 325	SEED MIXTURE 328	SODDING TYPE LAWN	MULCH MATERIAL TYPE 1	DISK ANCHORING	EROSION CONTROL BLANKET CATEGORY 2	EROSION CONTROL BLANKET CATEGORY 3	EROSION CONTROL BLANKET CATEGORY 4	EROSION CONTROL BLANKET CATEGORY 5	EROSION CONTROL BLANKET CATEGORY 6	FERTILIZER TYPE 1	REMARKS
		CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU. YD.	LIN. FT.	ACRE	POUND	POUND	POUND	POUND	SQ. YD.	TON	ACRE	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	POUND	
C.S.A.H. 10																						
101+88.41–103+40.00	RT.		164	25			16	0.1	12	8				0.2	0.1						24	
103+09.07–104+93.97	LT.		131	25			16	0.1	11	8			108	0.2	0.1						26	
103+50.00–FIELD ENT.	RT.																	16				15" C.S.P. – MULCH INLET & OUTLET
103+60.00–106+51.14	RT.		254					0.3	28	20				0.6	0.3						56	
105+17.97–106+67.93	LT.							0.1	7	5			170	0.1	0.05						20	
105+80.04	RT.																	11				18" R.C.P. – MULCH OUTLET
106+20.30	LT.																	10				18" R.C.P. – MULCH INLET
106+89.38–108+73.73	RT.		61					0.7	63	24	24		209	1.2	0.6						134	
107+15.76–113+04.36	LT.			50	16		48	0.6	53	44				0.8	0.4	493	397	172			128	
107+23.47–107+43.94	LT. & RT.																	28				24" R.C.P. – MULCH INLET & OUTLET
107+28.77–107+60.52	RT.																	16				12" C.S.P. – MULCH INLET & OUTLET
107+56.93–109+07.86	RT.							0.07	7	5				0.14	0.07						14	
107+60.52	RT.																	15				24" R.C.P. – MULCH OUTLET
108+85.73–DRIVEWAY	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
108+97.73–126+23.10	RT.		242		112		112	1.9	182	127			249	2.5	1.25		274	2537			374	
110+58.15	RT.																	13				24" R.C.P. – MULCH INLET
113+19.35–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
113+34.36–126+23.10	LT.		451		96		96	1.3	131	92				1.6	0.8		99	2356			262	
126+47.10–127+95.33	LT.							0.2					1268								48	
126+47.10–128+03.06	RT.							0.2	5	4			682	0.1	0.05						38	
128+05.33–DRIVEWAY	LT.																					18" C.S.P. – SOD INLET & OUTLET
128+15.06–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
128+15.33–138+25.00	LT.		501					0.9	80	56			693	1.6	0.8						188	
128+27.06–129+89.50	RT.							0.3					1219								50	
130+01.50–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
130+13.50–138+90.00	RT.		652					0.8	68	48			418	1.1	0.55		528				152	
138+35.00–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
138+45.00–141+51.96	LT.							0.4	13	9			1421	0.2	0.1		183				86	
139+00.00–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
139+10.00–143+77.76	RT.							0.5	37	26			394	0.5	0.25		242	440			90	
141+63.96–DRIVEWAY	LT.																					18" C.S.P. – SOD INLET & OUTLET
141+75.96–148+58.50	LT.					5		0.9	83	58			174	1.3	0.65			196	782		172	
143+89.76–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
144+01.76–165+75.84	RT.		1375		48	5	64	2.0	200	140			199	2.6	1.3	316	2617		372		408	
148+00.00	LT. & RT.	11																19				36" SPAN RCP–ARCH – MULCH INLET, RIPRAP OUTLET
148+78.50–157+93.00	LT.					10	32	1.3	115	80			705	1.1	0.55		1795		1076		259	
158+05.00–DRIVEWAY	LT.																					18" C.S.P. – SOD INLET & OUTLET
158+17.00–165+75.84	LT.				48	5	64	0.7	69	48			254	0.8	0.4	319	587	466			148	
165+90.84–FIELD ENT.	LT.																	28				24" C.S.P. – MULCH INLET & OUTLET
165+90.84–FIELD ENT.	RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
166+05.84–179+03.12	LT.		325	175	16		144	1.3	134	94				2.2	1.1		1098				268	
166+05.84–179+03.12	RT.		952	175	16		144	1.4	135	94				2.5	1.25		582				270	
174+21.40–174+36.65	LT. & RT.	34																				10x6 P.C. BOX – RIPRAP INLET & OUTLET
174+33.35–174+48.60	LT. & RT.	34																				10x6 P.C. BOX – RIPRAP INLET & OUTLET
179+27.12–185+40.00	RT.							0.6	62	43				1.2	0.6						124	
179+27.12–187+35.00	LT.							0.9	53	37			1631	1.1	0.55						174	
185+50.00–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
185+60.00–192+40.00	RT.		525	50			32	0.5	54	38				1.1	0.55						108	
187+45.00–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
187+55.00–205+48.98	LT.		861	100		15	80	1.8	177	124				2.8	1.4			391	1352		354	
192+08.33–192+33.49	LT. & RT.	22																				8x5 P.C. BOX – RIPRAP INLET & OUTLET
192+18.51–192+43.67	LT. & RT.	22																				8x5 P.C. BOX – RIPRAP INLET & OUTLET

① TEMPORARY DITCH CHECKS SHALL BE PLACED AS SOON AS DITCH IS CUT AND TOPSOIL IS IN PLACE. THEY SHALL BE REMOVED JUST BEFORE FINAL DITCH SHAPING AND SEEDING.

② STRAW BIOROLLS TO BE USED AS PERMANENT DITCH CHECKS AFTER SEEDING, MULCHING AND EROSION BLANKETS HAVE BEEN PLACED.

AS-BUILT

FEB 09 2012

ENGINEERING

FILE NAME: P3060700.DWG DATED: 03-17-10

CERTIFIED BY Kevin M Reinert REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 14 of 299 Sheets

TURF ESTABLISHMENT AND EROSION CONTROL

STATION	LOCATION	RANDOM RIPRAP CLASS III	SILT FENCE TYPE MACHINE SLICED	TEMPORARY DITCH CHECK TYPE 1 ①	TEMPORARY DITCH CHECK TYPE 2 ①	TEMPORARY DITCH CHECK TYPE 7 ①	FILTER LOG TYPE STRAW BIOROLL ②	SEEDING	SEED MIXTURE 110	SEED MIXTURE 250	SEED MIXTURE 325	SEED MIXTURE 328	SODDING TYPE LAWN	MULCH MATERIAL TYPE 1	DISK ANCHORING	EROSION CONTROL BLANKET CATEGORY 2	EROSION CONTROL BLANKET CATEGORY 3	EROSION CONTROL BLANKET CATEGORY 4	EROSION CONTROL BLANKET CATEGORY 5	EROSION CONTROL BLANKET CATEGORY 6	FERTILIZER TYPE 1	REMARKS
		CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU. YD.	LIN. FT.	ACRE	POUND	POUND	POUND	POUND	SQ. YD.	TON	ACRE	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	POUND	
192+60.00–205+48.98	RT.		225	75	16	20	144	1.4	142	99				2.0	1.0		55	575	1369		284	
205+72.98–211+40.00	LT.		244	25	32		48	0.8	76	53				1.4	0.7			341			152	
205+72.98–219+24.00	RT.		200		48		48	1.4	91	64			2463	1.2	0.6	293	391	715			284	
211+50.00–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
211+60.00–220+22.00	LT.			25	48		64	1.0	100	70				1.3	0.65	330	391	902			260	
219+34.00–FIELD ENT.	RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
219+44.00–231+70.00	RT.		902	25			16	1.7	169	92	31			2.9	1.45	296	684	84			340	
220+32.00–FIELD ENT.	LT.																	28				24" C.S.P. – MULCH INLET & OUTLET
220+42.00–225+22.89	LT.			50			32	0.5	32	22			834	0.9	0.45		610				98	
222+13.00	LT. & RT.	16																34				42" R.C.P. – MULCH INLET, RIPRAP OUTLET
222+75.84–222+86.01	RT.																	16				12" C.S.P. – MULCH INLET & OUTLET
225+34.89–DRIVEWAY	LT.																					18" C.S.P. – SOD INLET & OUTLET
225+46.89–231+70.00	LT.			25			16	0.5	49	34			233	0.5	0.25	293	738				106	
231+80.00–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
231+80.00–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
231+90.00–239+54.81	RT.			25			16	0.8	65	46			6523	1.1	0.55	577					160	
231+90.00–245+00.93	LT.		571	50			32	1.2	117	82				2.0	1.0	660	289				234	
239+00.00	LT. & RT.	11																				36" SPAN RCP–ARCH – SOD INLET, RIPRAP OUTLET
239+78.81–245+00.93	RT.			25			16	0.5	47	33			196	0.7	0.35	565					102	
245+15.93–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
245+15.93–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
245+30.93–258+09.32	LT.		250		64		64	1.1	113	79				1.6	0.8		1632				226	
245+30.93–258+11.32	RT.		300		64		64	1.2	116	81				1.6	0.8		1651				232	
258+55.32–273+53.50	LT.			125			80	1.5	154	108				2.2	1.1	1884	221				308	
258+57.32–270+92.37	RT.		509	75			48	1.2	110	77			435	1.7	0.85	1062	227				246	
263+38.88–263+65.12	LT. & RT.	83																				14x4 P.C. BOX – RIPRAP INLET & OUTLET
271+16.37–273+44.75	RT.							0.2	20	14			198	0.2	0.1		146	357			48	
273+56.75–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
273+63.50–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
273+68.75–277+84.22	RT.		125	25			16	0.2	17	12			100	0.3	0.15		120				38	
273+73.50–276+33.00	LT.		127	25			16	0.2	18	13				0.3	0.15		107				36	
276+57.00–278+07.80	LT.							0.04	4	3				0.08	0.04						8	
278+80.39–283+60.50	RT.			50			32	0.3	31	22				0.6	0.3						62	
279+03.97–280+50.00	LT.							0.01	1	1				0.02	0.01						2	
280+70.00–301+46.16	LT.		680	75	16		80	2.1	208	146			85	3.1	1.55	134	2558				420	
283+70.50–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
283+80.50–289+90.00	RT.		351	25			16	0.5	54	38				0.9	0.45	480					108	
287+76.85–288+33.15	LT. & RT.	34																				8x4 P.C. BOX – RIPRAP INLET & OUTLET
290+00.00–FIELD ENT.	RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
290+10.00–297+44.48	RT.				48		48	1.0	90	63			336	1.2	0.6		1321				194	
297+56.48–DRIVEWAY	RT.																					24" C.S.P. – SOD INLET & OUTLET
297+68.48–304+40.00	RT.							0.7	49	34			1057	0.9	0.45	264					142	
301+58.16–DRIVEWAY	LT.																					24" C.S.P. – SOD INLET & OUTLET
301+70.16–310+74.73	LT.							1.0	71	50			1186	1.3	0.65	207					190	
304+50.00–FIELD ENT.	RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
304+60.00–310+74.73	RT.							0.8	79	55				1.5	0.75	205					158	
310+98.73–314+58.00	RT.							0.5	46	32				1.0	0.5						92	
310+98.73–321+73.00	LT.							1.1	111	78			95	2.2	1.1						226	
314+68.00–FIELD ENT.	RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
314+78.00–330+65.00	RT.							1.6	155	108				2.9	1.45						310	
321+85.00–DRIVEWAY	LT.																					18" C.S.P. – SOD INLET & OUTLET
321+97.00–324+42.00	LT.							0.2					946								40	
324+66.00–327+86.00	LT.							0.3	22	15			219	0.4	0.2						52	

① TEMPORARY DITCH CHECKS SHALL BE PLACED AS SOON AS DITCH IS CUT AND TOPSOIL IS IN PLACE. THEY SHALL BE REMOVED JUST BEFORE FINAL DITCH SHAPING AND SEEDING.

② STRAW BIOROLLS TO BE USED AS PERMANENT DITCH CHECKS AFTER SEEDING, MULCHING AND EROSION BLANKETS HAVE BEEN PLACED.

AS-BUILT

FEB 09 2012

ENGINEERING

CERTIFIED BY Gary M Poienick LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 20 10

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 15 of 299 Sheets

FILE NAME: P305010.DWG DATE: 03-18-10

TURF ESTABLISHMENT AND EROSION CONTROL

STATION	LOCATION	RANDOM RIPRAP CLASS III	SILT FENCE TYPE MACHINE SLICED	TEMPORARY DITCH CHECK TYPE 1 ①	TEMPORARY DITCH CHECK TYPE 2 ①	TEMPORARY DITCH CHECK TYPE 7 ①	FILTER LOG TYPE STRAW BIOROLL ②	SEEDING	SEED MIXTURE 110	SEED MIXTURE 250	SEED MIXTURE 325	SEED MIXTURE 328	SODDING TYPE LAWN	MULCH MATERIAL TYPE 1	DISK ANCHORING	EROSION CONTROL BLANKET CATEGORY 2	EROSION CONTROL BLANKET CATEGORY 3	EROSION CONTROL BLANKET CATEGORY 4	EROSION CONTROL BLANKET CATEGORY 5	EROSION CONTROL BLANKET CATEGORY 6	FERTILIZER TYPE 1	REMARKS
		CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU. YD.	LIN. FT.	ACRE	POUND	POUND	POUND	POUND	SQ. YD.	TON	ACRE	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	POUND	
327+96.00-FIELD ENT.	LT.																	22				18" C.S.P. - MULCH INLET & OUTLET
328+08.00-346+90.00	LT.		550		16		16	2.0	195	137				3.5	1.75	543	391				390	
330+65.00-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
330+75.00-346+90.00	RT.		478		64		64	1.6	155	109				2.1	1.05		1486	1070			310	
339+36.33-340+33.67	LT. & RT.	47																				14x4 P.C. BOX - RIPRAP INLET & OUTLET
347+00.00-FIELD ENT.	LT.																	22				18" C.S.P. - MULCH INLET & OUTLET
347+00.00-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
347+10.00-348+75.10	RT.							0.2	13	9			179	0.3	0.15						34	
347+10.00-356+58.50	LT.		350	75			48	0.9	91	64			96	1.8	0.9						186	
348+87.10-DRIVEWAY	RT.																					18" C.S.P. - SOD INLET & OUTLET
348+99.10-356+60.50	RT.		486	25			16	0.7	49	34			1082	1.0	0.5						142	
352+55.00	LT. & RT.	43																				12x6 P.C. BOX - RIPRAP INLET & OUTLET
356+80.50-363+63.67	RT.		400	25	112		160	1.1	107	75				1.7	0.85		560	291		288	214	
356+82.50-363+63.67	LT.		150	25	96		112	0.9	91	64			183	1.3	0.65		284	476	478		188	
363+87.67-376+83.44	RT.		767		64		64	1.5	152	106				2.1	1.05	196	1993	97			304	
363+87.67-383+55.00	LT.		400	150	64		160	2.3	228	160				2.8	1.4	1231	2252	676			456	
377+03.44-383+55.00	RT.		448					0.5	49	34				0.8	0.4		555				98	
378+91.00	LT. & RT.	32																				10x4 P.C. BOX - RIPRAP INLET & OUTLET
383+65.00-FIELD ENT.	LT.																	58				42" SPAN CSP-ARCH - MULCH INLET & OUTLET
383+65.00-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
383+75.00-390+25.00	RT.		500					0.6	55	38				1.0	0.5		281				110	
383+75.00-407+07.85	LT.			25	96	30	208	2.5	240	168			579	2.7	1.35	215	1781	1975	391	782	504	
390+45.00-410+11.87	RT.		1289	25	16		32	2.1	187	131			887	2.7	1.35	274	1616		261	268	410	
400+85.00	LT. & RT.	8																13				24" R.C.P. - MULCH INLET, RIPRAP OUTLET
407+31.85-417+00.66	LT.			25	48		64	1.0	76	53			1013	1.1	0.55	293	196	606			194	
410+23.87-DRIVEWAY	RT.																					18" C.S.P. - SOD INLET & OUTLET
410+35.87-416+27.21	RT.			50	64		96	1.0	94	66			444	1.3	0.65		238	779	293		266	
416+51.21-429+47.37	RT.		1006	25			16	1.7	167	107		12		2.7	1.35		1279	352			336	
416+75.26-417+01.47	LT. & RT.	11																				36" SPAN RCP-ARCH - SOD INLET, RIPRAP OUTLET
417+24.66-435+24.91	LT.		350	25	96		112	2.0	191	134			652	1.8	0.9	194	771	3772			410	
417+90.18-418+22.50	RT.																	16				12" C.S.P. - MULCH INLET & OUTLET
425+42.00	LT. & RT.	14																29				44" SPAN RCP-ARCH - MULCH INLET, RIPRAP OUTLET
429+57.37-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
429+67.37-439+90.00	RT.		675	25			16	1.0	101	71				1.3	0.65	196	1433				202	
435+48.91-439+90.00	LT.		100	25			16	0.6	42	29			629	0.4	0.2	196	950				110	
440+10.00-453+70.00	RT.		325	100	32		96	1.2	123	86				1.8	0.9	856	342	485			246	
440+10.00-469+69.00	LT.		704	200	64		192	2.9	285	200			383	3.8	1.9	1685	1763	1072			586	
452+10.00	LT. & RT.	14																29				44" SPAN RCP-ARCH - MULCH INLET, RIPRAP OUTLET
453+80.00-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
453+90.00-467+00.52	RT.			75	32		80	2.5	246	172				4.3	2.15	799	782				492	
467+42.52-478+93.62	RT.		1306					1.6	164	115				2.9	1.45	255	621				328	
469+81.00-DRIVEWAY	LT.																					18" C.S.P. - SOD INLET & OUTLET
469+93.00-479+08.13	LT.		256					2.5	198	69		66	2440	3.9	1.95						494	
479+15.62-499+60.00	RT.		1420	25	16		32	1.8	182	127				2.7	1.35	203	2086	95			364	
479+18.13-FIELD ENT.	LT.																	16				12" C.S.P. - MULCH INLET & OUTLET
479+28.13-485+43.42	LT.		571					1.3	124	87			375	2.2	1.1		569				264	
480+95.49-481+23.53	LT. & RT.	27																				6x5 P.C. BOX - RIPRAP INLET & OUTLET
485+55.42-DRIVEWAY	LT.																					18" C.S.P. - SOD INLET & OUTLET
485+67.42-503+56.00	LT.			50	112	5	160	1.9	164	115			1454	1.9	0.95	481	1377	1123	200	200	388	
499+70.00-FIELD ENT.	RT.																	22				18" C.S.P. - MULCH INLET & OUTLET
499+80.00-503+72.00	RT.				16	5	32	0.4	28	20			315	0.3	0.15			100	191	286	70	
503+66.00-DRIVEWAY	LT.																					18" C.S.P. - SOD INLET & OUTLET
503+76.00-505+85.73	LT.			25			16	0.2					1174								48	

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② STRAW BIOROLLS TO BE USED AS PERMANENT DITCH CHECKS AFTER SEEDING, MULCHING AND EROSION BLANKETS HAVE BEEN PLACED.

AS-BUILT
FEB 0 9 2012
ENGINEERING

FILE NAME: 1*20060711.DWG DATE: 02-19-10

CERTIFIED BY Kevin M Reisenauer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 16 of 299 Sheets

TURF ESTABLISHMENT AND EROSION CONTROL

STATION	LOCATION	RANDOM RIPRAP CLASS III	SILT FENCE TYPE MACHINE SLICED	TEMPORARY DITCH CHECK TYPE 1 ①	TEMPORARY DITCH CHECK TYPE 2 ①	TEMPORARY DITCH CHECK TYPE 7 ①	FILTER LOG TYPE STRAW BIOROLL ②	SEEDING	SEED MIXTURE 110	SEED MIXTURE 250	SEED MIXTURE 325	SEED MIXTURE 328	SODDING TYPE LAWN	MULCH MATERIAL TYPE 1	DISK ANCHORING	EROSION CONTROL BLANKET CATEGORY 2	EROSION CONTROL BLANKET CATEGORY 3	EROSION CONTROL BLANKET CATEGORY 4	EROSION CONTROL BLANKET CATEGORY 5	EROSION CONTROL BLANKET CATEGORY 6	FERTILIZER TYPE 1	REMARKS
		CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	CU. YD.	LIN. FT.	ACRE	POUND	POUND	POUND	POUND	SQ. YD.	TON	ACRE	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	SQ. YD.	POUND	
503+84.00–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
503+96.00–504+71.00	RT.							0.07					351								14	
504+83.00–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
504+95.00–516+26.46	RT.		757					1.5	109	76			1786	1.1	0.55		2583				292	
506+09.73–519+02.37	LT.		830	25	46		64	1.6	164	115				1.8	0.9	369	3210				328	
509+15.62–509+32.59	LT. & RT.	61																				10x10 P.C. BOX – RIPRAP INLET & OUTLET
509+27.41–509+44.38	LT. & RT.	62																				10x10 P.C. BOX – RIPRAP INLET & OUTLET
516+38.46–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
516+50.46–518+19.39	RT.							0.2					914								38	
518+31.39–DRIVEWAY	RT.																					18" C.S.P. – SOD INLET & OUTLET
518+43.39–521+43.19	RT.							0.3	10	7			820	0.2	0.1						54	
519+17.37–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
519+32.37–532+00.00	LT.		700	25			16	0.8	92	64				1.6	0.8	484					184	
521+67.19–533+00.00	RT.			75			48	1.0	102	71				1.7	0.85	880					204	
25TH STREET S.E.																						
9+58.00	LT. & RT.																	11				18" C.S.P. – SOD INLET, MULCH OUTLET
15TH STREET S.E.																						
16+30.00–17+23.00	LT.							0.04	3	2			43	0.06	0.03						8	
16+75.00–18+65.00	RT.		200					0.05	5	4				0.1	0.05						10	
17+35.00–DRIVEWAY	LT.																					12" C.S.P. – SOD INLET & OUTLET
17+47.00–18+63.00	LT.							0.07					319								14	
19+58.00	LT. & RT.																	11				18" C.S.P. – SOD INLET, MULCH OUTLET
20+42.00	LT. & RT.																	22				18" C.S.P. – MULCH INLET & OUTLET
21+70.00–23+25.00	LT.			25			16	0.07	7	5				0.14	0.07						14	
21+70.00–23+25.00	RT.			25			16	0.05	5	4				0.1	0.05						10	
30TH STREET S.E.																						
30+42.00	LT. & RT.																	11				18" C.S.P. – SOD INLET, MULCH OUTLET
32+05.00–32+50.00	LT.			25			16	0.01	1	1				0.02	0.01						2	
QUINCY ROAD N.E.																						
49+58.00	LT. & RT.																	38				24" C.S.P. – MULCH INLET & OUTLET
50+42.00	LT. & RT.																	38				24" C.S.P. – MULCH INLET & OUTLET
COUNTY ROAD 107																						
59+52.00	LT. & RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
60+48.00	LT. & RT.																	28				24" C.S.P. – MULCH INLET & OUTLET
63+25.00–DRIVEWAY	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
63+37.00–67+50.00	LT.		200	25			16	0.2	20	14				0.4	0.2						40	
41ST STREET S.E.																						
70+63.00	LT. & RT.	10																13				24" C.S.P. – MULCH INLET & OUTLET
74+22.00–FIELD ENT.	LT.																	22				18" C.S.P. – MULCH INLET & OUTLET
74+32.00–74+75.00	LT.							0.02	2	1				0.04	0.02						4	
163RD AVENUE N.E.																						
39+44.00	LT. & RT.																	15				24" C.S.P. – SOD INLET, MULCH OUTLET
TOTALS (SHEETS 14–17)		596	26196	2550	1744	100	3696	92.0	8461	5800	55	98	35023	129.0	64.5	18099	48940	23757	6764	1822	18370	

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AS-BUILT
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ENGINEERING

FILE NAME: P3050112.DWG DATE: 03-25-10

CERTIFIED BY Gary M Poeniek LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

PAVEMENT MARKINGS

STATION	LOCATION	4" SOLID LINE WHITE EPOXY	4" SOLID LINE YELLOW EPOXY	4" BROKEN LINE YELLOW EPOXY	4" DOUBLE SOLID LINE YELLOW EPOXY
		LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
C.S.A.H. 10					
101+88.41–106+22.56	RT.	431			
103+09.07–106+19.44	LT.	312			
103+09.07–106+22.56	LT. & RT.				314
104+18.41–106+22.56	RT.	201			
106+52.58	RT.	12			
106+67.69	LT.	7			
106+94.64	RT.	50			
107+14.47	LT.	8			
107+28.22–109+95.71	LT.	265			
107+28.22–115+33.00	LT.		605		
107+28.22–120+95.00	RT.			280	
107+28.22–125+92.93	RT.	1866			
107+45.71–125+93.21	LT.	1846			
120+95.00–130+65.00	LT.			200	
120+95.00–130+65.00	RT.		970		
126+76.99–178+73.08	LT.	5196			
126+77.15–178+73.12	RT.	5196			
130+65.00–138+20.00	LT. & RT.				755
138+20.00–147+55.00	LT.		935		
138+20.00–197+30.00	RT.			1180	
179+56.74–205+18.48	RT.	2562			
179+57.46–205+19.31	LT.	2562			
197+30.00–206+62.00	LT.			190	
197+30.00–206+62.00	RT.		932		
206+02.85–257+80.95	RT.	5178			
206+02.94–257+79.54	LT.	5177			
206+52.00–211+25.00	LT. & RT.				463
211+25.00–222+90.00	LT.		965		
211+25.00–223+86.00	RT.			250	
223+86.00–230+70.00	LT.			140	
223+86.00–230+70.00	RT.		684		
230+70.00–262+80.00	RT.			640	
233+73.00–240+68.00	LT.		695		
255+71.24–257+80.95	RT.	210			
258+86.04–260+95.48	LT.	209			
258+86.04–310+45.23	LT.	5160			
258+86.58–310+44.47	RT.	5158			
262+80.00–268+48.00	LT.			120	
262+80.00–268+48.00	RT.		568		
268+48.00–320+45.00	RT.			1040	
272+80.00–278+42.00	LT.		562		
311+28.42–363+32.86	RT.	5205			
311+29.28–363+33.91	LT.	5205			
320+45.00–329+10.00	LT.			170	
320+45.00–329+10.00	RT.		865		
329+10.00–354+45.00	RT.			510	
330+45.00–338+67.00	LT.		822		
354+45.00–363+85.00	LT.			180	
354+45.00–363+85.00	RT.		940		
361+13.49–363+32.86	RT.	219			
363+85.00–365+09.00	LT. & RT.				124
364+16.73–415+96.07	RT.	5179			

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ENGINEERING

PAVEMENT MARKINGS

STATION	LOCATION	4" SOLID LINE WHITE EPOXY	4" SOLID LINE YELLOW EPOXY	4" BROKEN LINE YELLOW EPOXY	4" DOUBLE SOLID LINE YELLOW EPOXY
		LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
364+18.20–366+37.79	LT.	220			
364+18.20–505+56.38	LT.	14120			
365+09.00–374+82.00	LT.		973		
365+09.00–392+50.00	RT.			550	
392+50.00–406+01.00	LT.			270	
392+50.00–406+01.00	RT.		1351		
406+01.00–407+65.00	LT. & RT.				164
407+65.00–417+31.00	LT.		966		
407+65.00–431+75.00	RT.			480	
416+80.14–466+78.49	RT.	5010			
431+75.00–440+39.00	LT.			170	
431+75.00–440+39.00	RT.		864		
440+39.00–452+10.00	RT.			230	
441+74.00–449+93.00	LT.		819		
452+10.00–462+00.00	LT.			200	
452+10.00–462+00.00	RT.		990		
462+00.00–470+65.00	LT. & RT.				865
464+56.65–466+78.49	RT.	224			
467+70.27–532+00.00	RT.	6439			
470+65.00–480+94.00	LT.		1029		
470+65.00–485+80.00	RT.			300	
485+80.00–495+53.00	LT.			190	
485+80.00–495+53.00	RT.		973		
495+53.00–500+35.00	LT. & RT.				482
500+35.00–510+41.00	LT.		1006		
500+35.00–513+85.00	RT.			270	
506+39.19–532+00.00	LT.	2561			
513+85.00–519+50.00	LT.			110	
513+85.00–519+50.00	RT.		565		
519+50.00–532+00.00	RT.			250	
523+75.00–529+50.00	LT.		575		
C.S.A.H. 9					
39+43.19–39+52.24	LT.			9	
39+43.19–39+52.24	RT.		9		
39+43.19–39+52.24	RT.	9			
39+43.19–39+52.24	RT.	9			
C.S.A.H. 2 (EAST)					
80+46.72–82+50.00	LT.	203			
80+46.72–82+75.00	LT.	232			
80+46.72–82+75.00	LT. & RT.				228
80+53.23–82+75.00	RT.	221			
TOTALS		86672	19863	7939	3395

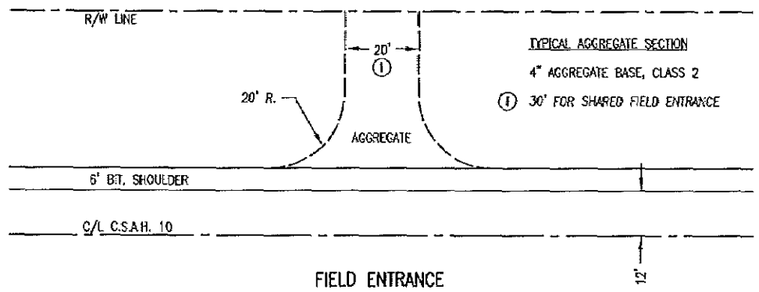
FILE NAME: P366013.DWG DATE: 03-04-10

CERTIFIED BY Kayce M Kuennen REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

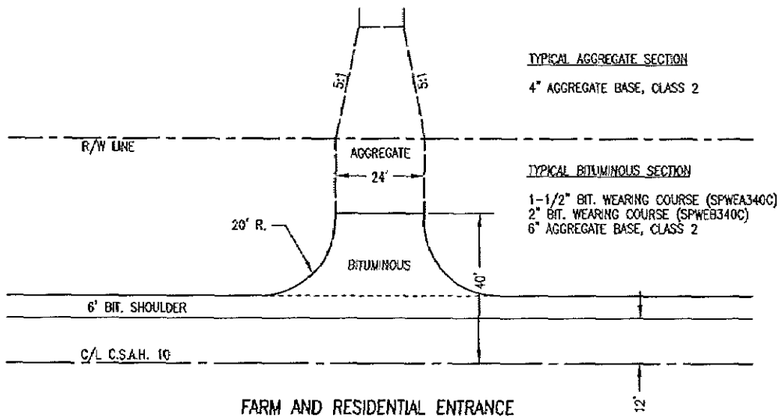
S.A.P. 55-610-22

TITLE: QUANTITY TABULATIONS

Sheet No. 18 of 299 Sheets

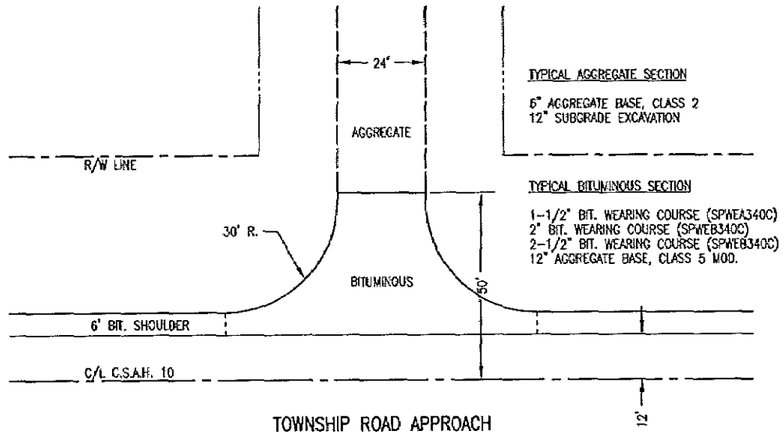


FIELD ENTRANCE



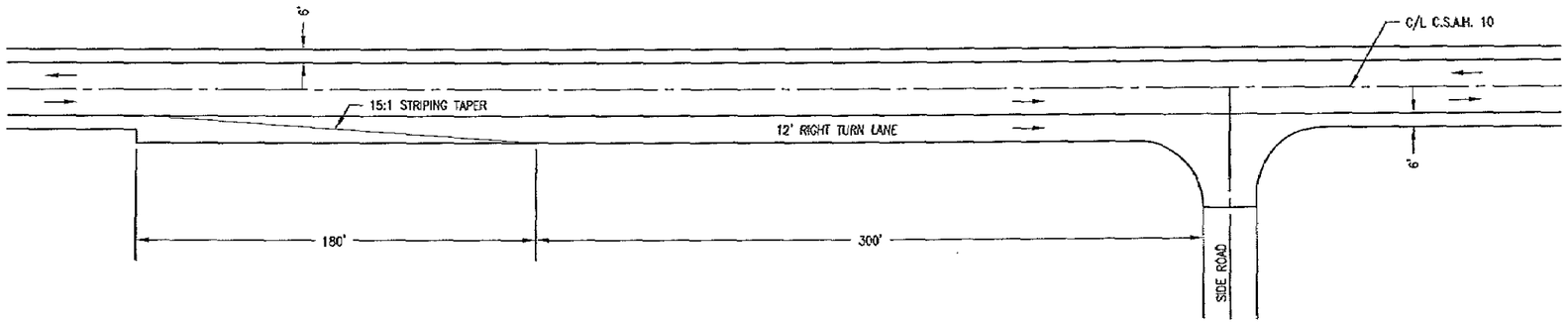
FARM AND RESIDENTIAL ENTRANCE

AS-BUILT
FEB 0 9 2012
ENGINEERING



TOWNSHIP ROAD APPROACH

APPROACHES AND ENTRANCES



TYPICAL RIGHT TURN LANE

FILE NAME: P0094001.DWG
DATE: 03-04-10

CERTIFIED BY Kyle M Biemus REG. NO. 19917 4/5 2010
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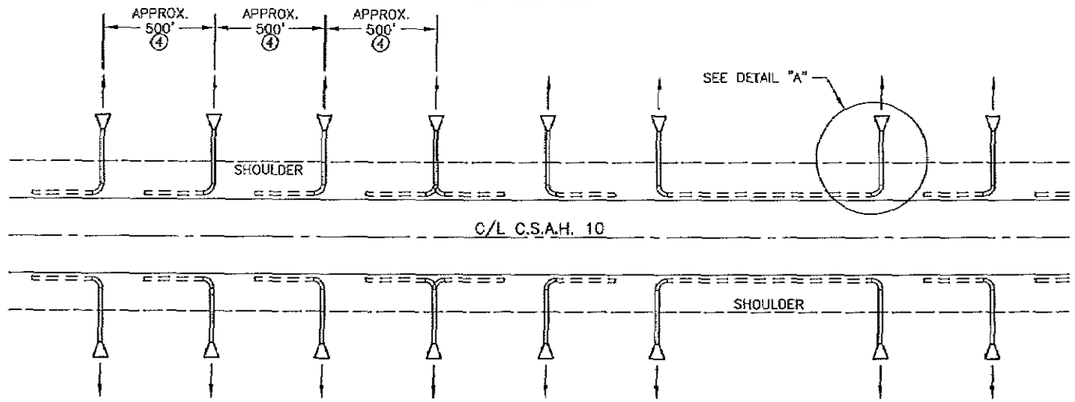
S.A.P. 55-610-22

TITLE:
ENTRANCE AND TURN LANE DETAILS

Sheet No. 19 of 299 Sheets

EDGE DRAIN DETAILS AND CONSTRUCTION NOTES

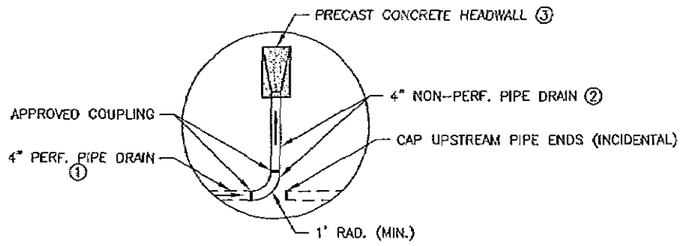
PLAN VIEW



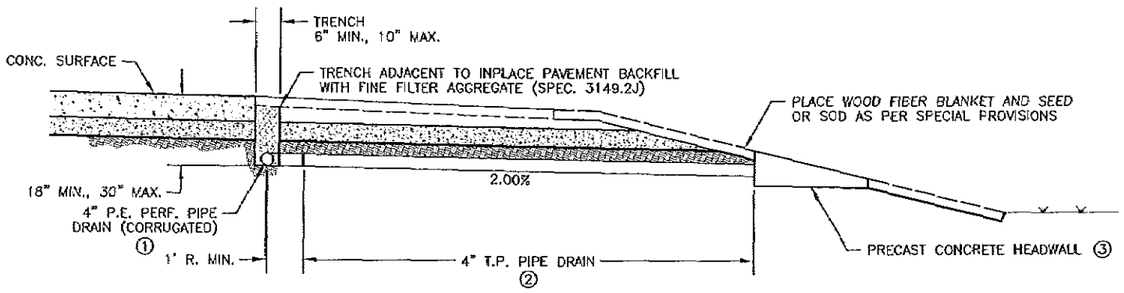


LEGEND

- 4" PERFORATED PIPE DRAIN
- 4" NON-PERFORATED PIPE DRAIN
- PRECAST CONCRETE HEADWALL



DETAIL "A"



X-SECTION VIEW

AS-BUILT

FEB 09 2012

ENGINEERING

CONSTRUCTION NOTES

① PAYMENT FOR 4" PERFORATED PIPE DRAIN SHALL BE FULL COMPENSATION FOR TRENCHING, FABRIC WRAPPED P.E. PIPE, INSTALLATION, FILTER AGGREGATE BACKFILL AND COMPACTION, BITUMINOUS OR AGGREGATE CAP, AND ALL OTHER ASSOCIATED WORK.

② PAYMENT FOR 4" NON-PERFORATED PIPE DRAIN SHALL BE FULL COMPENSATION FOR TRENCHING, FURNISHING AND PLACING PIPE AND CONNECTIONS, BACKFILL AND COMPACTION, AND ALL OTHER ASSOCIATED WORK.

③ PAYMENT FOR PRECAST CONCRETE HEADWALLS SHALL BE FULL COMPENSATION FOR PLACING HEADWALL, WOOD FIBER BLANKET AND SEED, AND ALL OTHER ASSOCIATED WORK.

④ IF AN OUTLET HAPPENS TO FALL WITHIN A CROSS-OVER OR DITCH BLOCK, INCREASE THE LENGTH OF THE PERFORATED PIPE TO A POINT WHERE AN OUTLET CAN BE SATISFACTORILY CONSTRUCTED AS DIRECTED BY THE ENGINEER.

⑤ EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH SPEC. 2104.3C3.

⑥ NO EDGE DRAINS WILL BE PLACED ON SUPERELEVATED SIDES AS DIRECTED BY THE ENGINEER.

DATE 03-04-10

FILE NAME: P:\09\4002.DWG

CERTIFIED BY Dave M Pruemich REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: EDGE DRAIN DETAILS

Sheet No. 20 of 299 Sheets

PAVEMENT EDGE DRAINS

STATION	LOCATION (1)	4" PERF. P.E. PIPE DRAIN	4" NON-PERF. T.P. PIPE DRAIN	PRECAST CONCRETE HEADWALL	HEADWALL LOCATION (2)(3)
		LIN. FT.	LIN. FT.	EACH	
107+50–112+50	LT. & RT.	1000	36	2	107+50 1107+25 RT
112+50–117+50	LT. & RT.	1000	30	2	112+50
117+50–122+50	LT. & RT.	1000	30	2	117+50
122+50–127+50	LT. & RT.	1000	30	2	122+50
126+80 (4)	LT.			1	126+80
127+50–132+78	LT. & RT.	1056	30	2	127+50
128+30 (4)	LT.			1	128+30
129+30 (4)	LT.			1	129+30
132+78–137+85	LT. & RT.	1014	30	2	137+85
137+85–142+85	LT. & RT.	1000	30	2	142+85
142+85–147+85	LT. & RT.	1000	30	2	147+85
147+85–153+00	LT. & RT.	1030	30	2	153+00
153+00–158+50	LT. & RT.	1100	30	2	158+50
158+50–163+77	LT. & RT.	1054	30	2	163+77
163+77–168+77	LT. & RT.	1000	30	2	168+77 (5)
168+77–173+67	LT. & RT.	980			
173+67–178+60	LT. & RT.	986	30	2	173+67
178+60–183+56	LT. & RT.	992	30	2	178+60
183+56–188+00	LT. & RT.	888	30	2	188+00
188+00–190+52	LT. & RT.	504	30	2	190+52 (5)
190+52–195+00	LT. & RT.	896			
195+00–200+00	LT. & RT.	1000	30	2	195+00
200+00–205+00	LT. & RT.	1000	30	2	200+00
205+00–209+95	LT. & RT.	990	30	2	205+00
209+95–214+41	LT. & RT.	892	30	2	214+41
214+41–218+88	LT. & RT.	894	30	2	218+88
218+88–223+35	LT. & RT.	894	30	2	223+35 (5)
223+35–228+10	LT. & RT.	950			
228+10–232+90	LT. & RT.	960	30	2	228+10
232+90–238+10	LT. & RT.	1040	30	2	238+10
238+10–243+30	LT. & RT.	1040	30	2	243+30
243+30–248+50	LT. & RT.	1040	30	2	248+50
248+50–253+70	LT. & RT.	1040	36	2	253+70
253+70–258+90	LT. & RT.	1040	36	2	258+90
258+90–263+71	LT. & RT.	962	30	2	263+71 (5)
263+71–270+13	LT. & RT.	1284			
270+13–274+00	LT. & RT.	774	30	2	274+00
274+00–277+53	LT. & RT.	706	30	2	277+53
279+35–284+50	LT. & RT.	1030	30	2	279+35
284+50–289+60	LT. & RT.	1020	30	2	284+50
289+60–294+81	LT. & RT.	1042	30	2	289+60
294+81–300+02	LT. & RT.	1042	30	2	294+81
300+02–305+23	LT. & RT.	1042	30	2	300+02
305+23–310+45	LT. & RT.	1044	30	2	305+23
310+45–315+66	LT. & RT.	1042	30	2	310+45
315+66–320+87	LT. & RT.	1042	30	2	315+66
320+87–326+08	LT. & RT.	1042	30	2	320+87
326+08–331+15	LT. & RT.	1014	30	2	331+15
331+15–336+22	LT. & RT.	1014	30	2	336+22
336+22–341+29	LT. & RT.	1014	30	2	341+29
341+29–346+36	LT. & RT.	1014	30	2	346+36
346+36–351+41	LT. & RT.	1010	30	2	351+41 (5)
351+41–356+00	LT. & RT.	918			
356+00–360+59	LT. & RT.	918	30	2	356+00
360+59–365+19	LT. & RT.	920	38	2	360+59
365+19–369+41	LT. & RT.	844	30	2	369+41
369+41–373+63	LT. & RT.	844	30	2	373+63
373+63–377+84	LT. & RT.	842	30	2	377+84 (5)

PAVEMENT EDGE DRAINS

STATION	LOCATION (1)	4" PERF. P.E. PIPE DRAIN	4" NON-PERF. T.P. PIPE DRAIN	PRECAST CONCRETE HEADWALL	HEADWALL LOCATION (2)(3)
		LIN. FT.	LIN. FT.	EACH	
377+84–382+76	LT. & RT.	984			
382+76–387+68	LT. & RT.	984	30	2	382+76
387+68–392+60	LT. & RT.	984	30	2	387+68
392+60–397+52	LT. & RT.	984	30	2	392+60
397+52–402+44	LT. & RT.	984	30	2	397+52
402+44–407+35	LT. & RT.	982	30	2	402+44
407+35–412+49	LT. & RT.	1028	30	2	412+49
412+49–417+63	LT. & RT.	1028	30	2	417+63
417+63–422+77	LT. & RT.	1028	30	2	422+77
422+77–427+91	LT. & RT.	1028	30	2	427+91
427+91–433+06	LT. & RT.	1030	30	2	433+06 (5)
433+06–439+61	LT. & RT.	1310			
439+61–443+81	LT. & RT.	840	30	2	443+81
443+81–448+02	LT. & RT.	842	30	2	448+02
448+02–452+22	LT. & RT.	840	30	2	452+22 (5)
452+22–456+52	LT. & RT.	860			
456+52–459+65	RT.	313	15	1	456+52
456+52–460+82	LT.	430	15	1	456+52
460+82–465+99	LT.	517	15	1	465+99
465+99–471+16	LT.	517	15	1	471+16
471+16–476+33	LT.	517	15	1	476+33
476+33–481+49	LT.	516	15	1	481+49 (5)
478+50–481+49	RT.	299	15	1	481+49 (5)
481+49–482+14	LT.	65			
481+49–486+89	RT.	540			
486+89–492+34	RT.	545	15	1	486+89
487+83–491+68	LT.	385	15	1	487+83
491+68–495+52	LT.	384	15	1	491+68
495+52–500+28	LT.	476	15	1	500+28
495+52–500+72	RT.	520	15	1	500+72
500+72–505+91	RT.	519	15	1	505+91
505+91–511+11	RT.	520	15	1	511+11 (5)
505+97–511+11	LT.	514	15	1	511+11 (5)
511+11–515+35	LT. & RT.	848			
515+35–519+60	LT. & RT.	850	30	2	515+35
519+60–523+79	LT. & RT.	838	30	2	519+60
523+79–527+65	LT. & RT.	772	30	2	527+65
527+65–531+50	LT. & RT.	770	30	2	531+50
TOTALS		81095	2259	152	

(1) FINAL LOCATION AND ELEVATION SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

(2) OUTLET ALL TO DITCH OR EMBANKMENT.

(3) STATIONS SHOWN BELOW ARE APPROXIMATE LOCATIONS OF SUBSURFACE DRAIN OUTLETS.

(4) EXISTING RAIN GUTTER OUTLETS IN BACKSLOPE OF DITCH.

(5) CONNECT PIPES WITH A "Y" CONNECTION AND USE ONE HEADWALL.

AS-BUILT

FEB 09 2021

ENGINEERING

FILE NAME: P206A003.DWG DATE: 03-04-10

CERTIFIED BY Dave M Boisvert REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: EDGE DRAIN TABULATION

Sheet No. 21 of 299 Sheets

STA. 105+05.97 – DRIVEWAY LT.
REMOVE INPL. 15" x 28 L.F. CMP
NO CULVERT REQUIRED

STA. 106+04.00 – DRIVEWAY LT.
REMOVE INPL. 15" x 28 L.F. CMP
REMOVE DRIVEWAY

PI STA. 105+38.14
Δ=16°27'04" RT.
D=08°00'00"
R=716.20
L=205.64
T=103.53
X=704677.4977
Y=153707.3245

STA. 108+06.00 – FIELD ENT. LT.
REMOVE INPL. 18" x 30 L.F. CMP
REMOVE FIELD ENTRANCE

PI STA. 109+92.93
Δ=07°56'09" RT.
D=08°00'00"
R=716.20
L=99.20
T=49.68
X=704691.9544
Y=154159.5469

STA. 113+19.36 – SHARED FIELD ENT. LT.
NO INPLACE CULVERT
18" x 48.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

Tile Outlet 6"

STA. 103+09.07
BEGIN C/L GRADING

BEGIN S.A.P. 55-610-22
STA. 101+88.41

PC STA. 103+09.07
PT STA. 103+84.61
BEGIN EXCEPTION
STA. 106+70.56
T.H. 14
PC STA. 106+82.74
END EXCEPTION
STA. 106+94.94
PT STA. 109+12.05
CONSTRUCTION LIMITS
STA. 112+25.71
END 12' TURN LANE
120' R/W
STA. 113+50.00

20' T.E.
5' T.E.
300' RIGHT TURN LANE
10' T.E.
25' T.E.
STA. 101+88.41
BEGIN 12' TURN LANE
PC STA. 104+34.61
CONSTRUCTION LIMITS
PT STA. 106+40.25
POND "A"
PC STA. 109+43.25
PT STA. 110+42.45
SEE POND "A" PLAN SHEET FOR POND, DRIVEWAY AND CULVERT DETAILS.
MATCH LINE

STA. 103+50.00 – FIELD ENT. RT.
NO INPLACE CULVERT
15" x 37.00 L.F. C.S.P. – 54.00' RT.
2 – 15" G.S. APRONS

STA. 103+95.00 – FIELD ENT. RT.
REMOVE INPL. 12" x 20 L.F. CMP
REMOVE FIELD ENTRANCE

C.B. 1
STA. 105+80.04 – 19.00' LT.
DRAINAGE STRUCTURE DESIGN G
TOP CURB EL. 44.56
TOP GRATE EL. 44.11
INL. EL. 40.90 FROM APRON 1
OUT. EL. 40.80 TO APRON 2
51.60 L.F. 18" R.C.P. CL. IV

PI STA. 103+46.87
Δ=06°02'33" LT.
D=08°00'00"
R=716.20
L=75.54
T=37.80
X=704700.0300
Y=153517.3213

PI STA. 107+98.38
Δ=18°20'40" LT.
D=08°00'00"
R=716.20
L=229.31
T=115.64
X=704721.5330
Y=153965.2631

STA. 108+33.8 – 57.1' RT.
T.E. 50.00' C/L RAD.

STA. 107+33.00 – C/L (14° SKEW)
REMOVE INPL. 24" x 125 L.F. CMP
REMOVE INPL. 24" x 38 L.F. CMP
24" x 72.00 L.F. R.C.P.
2 – 24" R.C.P. APRONS

STA. 107+34.00 – DRIVEWAY RT.
REMOVE INPL. 12" x 21 L.F. RCP
REMOVE DRIVEWAY

STA. 108+85.73 – DRIVEWAY RT.
NO INPLACE CULVERT
18" x 55.00 L.F. C.S.P. – 245.00' RT.
2 – 18" G.S. APRONS

STA. 109+43.00 – DRIVEWAY RT.
REMOVE INPL. 18" x 29 L.F. CMP
REMOVE DRIVEWAY

PI STA. 100+00.00
Δ=00°04'36" LT.
X=704704.3914
Y=153170.4741

APRON 1
STA. 106+20.30 – 40.28' LT.
END APRON EL. 41.23
40.93 L.F. 18" R.C.P. CL. IV

APRON 2
STA. 105+80.04 – 38.66' RT.
END APRON EL. 40.39

STA. 107+88.9 – 257.5' RT.
50.00' C/L RAD.

0 25 50 100
SCALE IN FEET

T/C LEFT ELEVATION
G/L PROFILE ELEVATION
T/C RIGHT ELEVATION

BEGIN
P.V.C.
P.C.
P.T.
P.V.T.
LOW PT.
END LT.
P.I.

EXISTING G/L PROFILE
FINISHED G/L PROFILE

-0.20%
0.68%
+1.32%
+1.88%
+1.28%

PVI STA. 103+25.00
PVI EL. 1146.42
150' V.C.
M=0.09

PVI STA. 106+00.00
PVI EL. 1144.55
125' V.C.
M=0.31

PVI STA. 111+00.00
PVI EL. 1153.28
300' V.C.
M=0.53

AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P0060101.DWG

CERTIFIED BY Lance M Reimnitz REG. NO. 19917 4/5 2010
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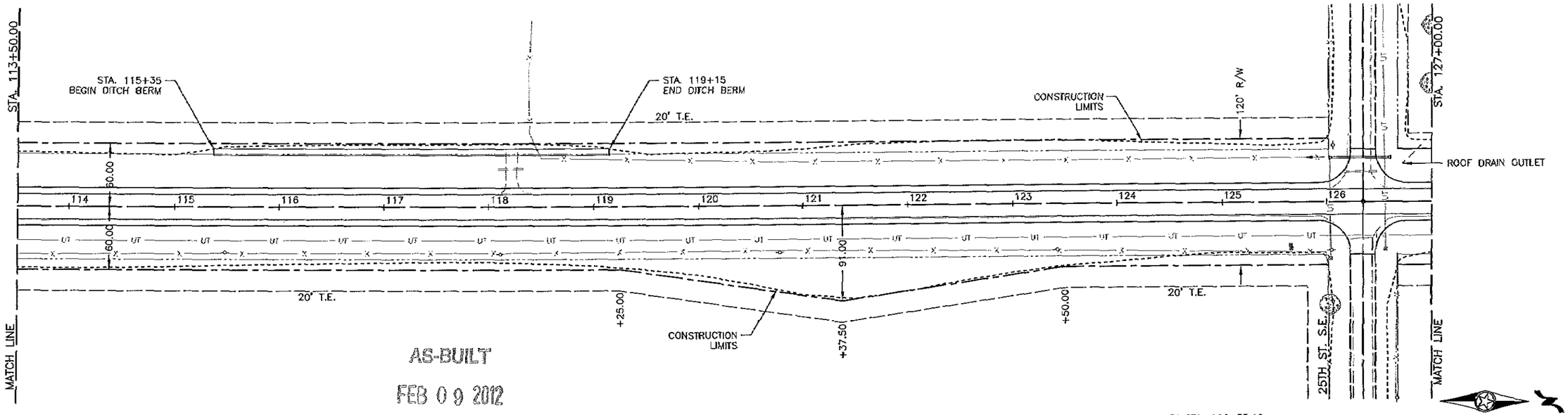
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 100+00.00 to STA. 113+50.00

Sheet No. 22 of 299 Sheets

STA. 118+21.00 – FIELD ENT. LT.
REMOVE (NPL. 18" x 24 L.F. CMP
REMOVE FIELD ENTRANCE

STA. 126+35.10 – 25TH ST. S.E.
SEE 25TH ST. S.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES



AS-BUILT

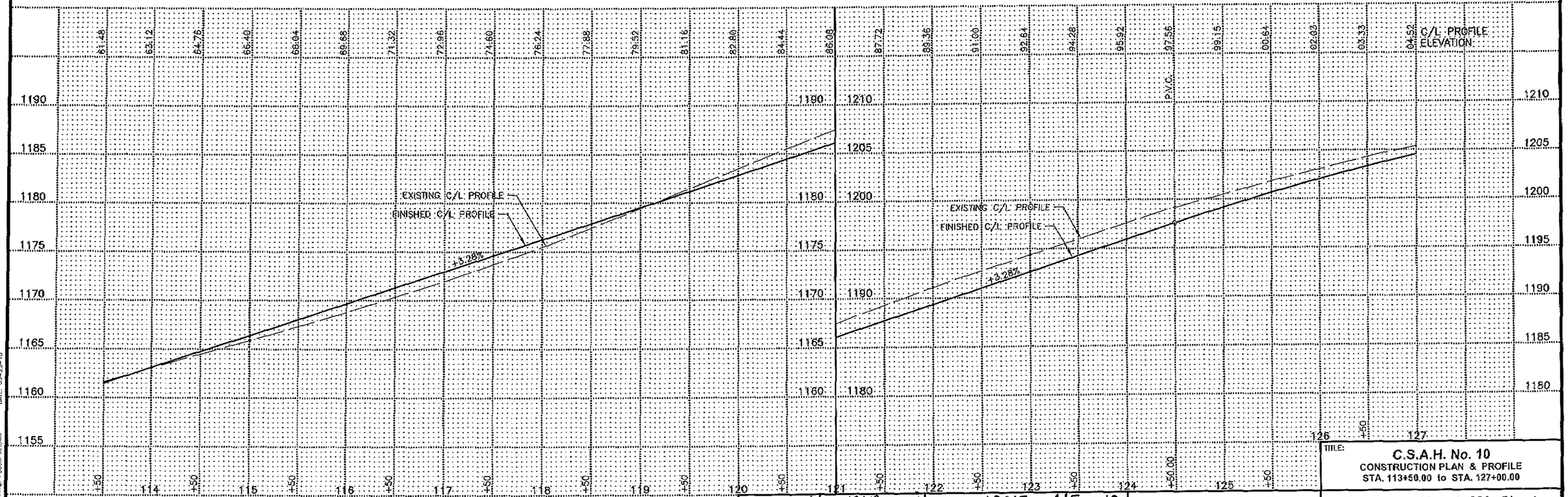
FEB 0 9 2012

ENGINEERING

STA. 126+35.10 – 25TH ST. S.E.
SEE 25TH ST. S.E. PLAN & PROFILE
DRAWING FOR DETAILS

PI STA. 126+35.10
Δ=00°16'25" RT.
X=704671.3048
Y=155801.7452

0 25 50 100
SCALE IN FEET



DATE: 03-25-10

FILE NAME: P:\06CSAH10.RWC

CERTIFIED BY Kaye M Brenneke REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

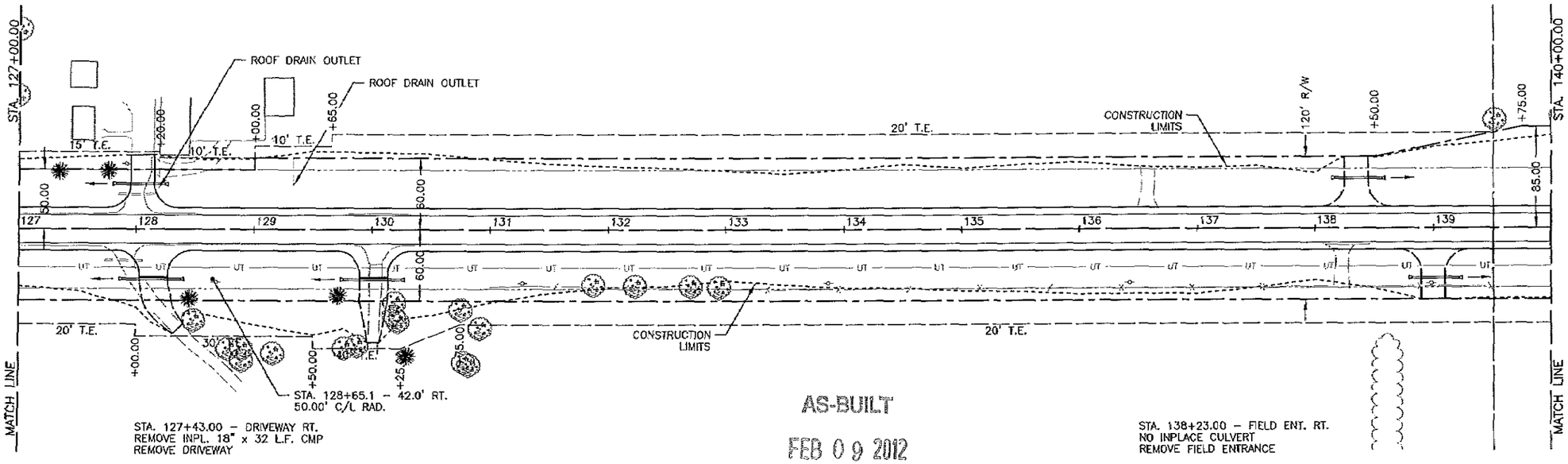
TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 113+50.00 to STA. 127+00.00

Sheet No. 23 of 299 Sheets

STA. 128+05.33 – DRIVEWAY LT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 42.00 L.F. C.S.P. – 38.00' LT.
2 – 18" G.S. APRONS

STA. 136+56.00 – FIELD ENT. LT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 138+35.00 – FIELD ENT. LT.
NO INPLACE CULVERT
18" x 40.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



STA. 127+43.00 – DRIVEWAY RT.
REMOVE INPL. 18" x 32 L.F. CMP
REMOVE DRIVEWAY

STA. 128+15.06 – DRIVEWAY RT.
NO INPLACE CULVERT
18" x 50.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

STA. 130+01.50 – DRIVEWAY RT.
NO INPLACE CULVERT
18" x 50.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

AS-BUILT

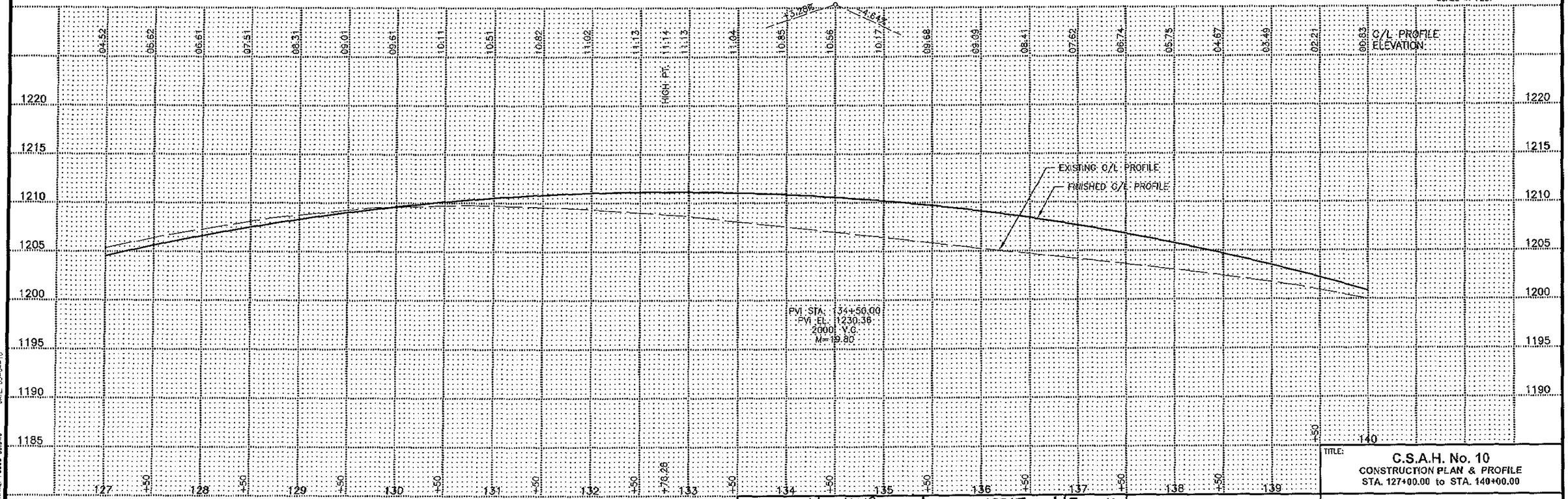
FEB 0 9 2012

ENGINEERING

STA. 138+23.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 139+00.00 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 40.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3060P03.DWG

CERTIFIED BY Kaye M Brunick REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

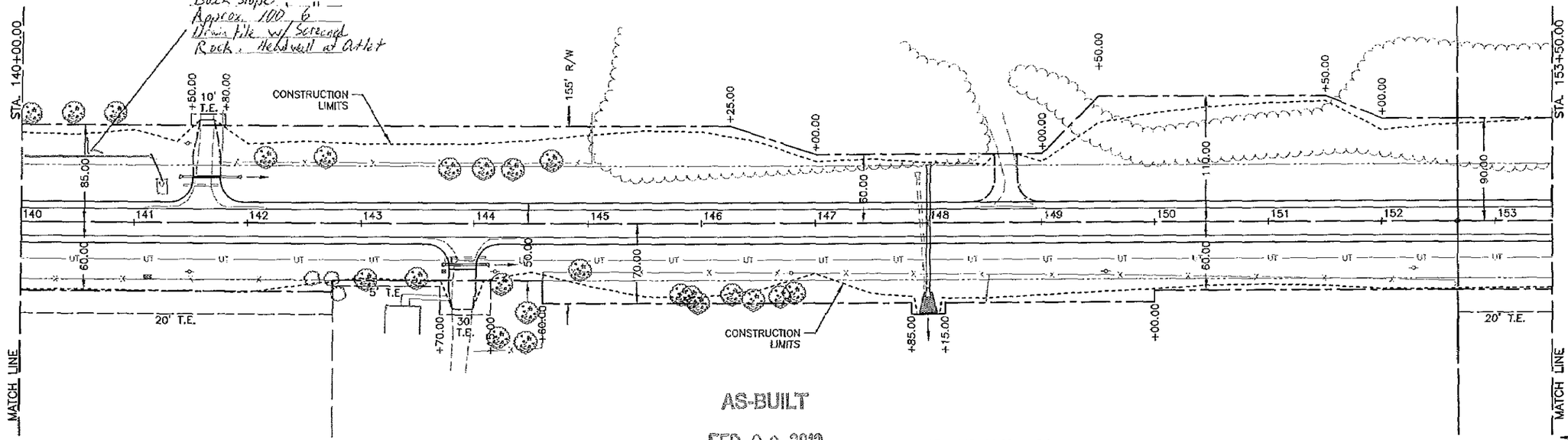
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 127+00.00 to STA. 140+00.00

Sheet No. 24 of 299 Sheets

STA. 141+63.96 – DRIVEWAY LT.
REMOVE INPL. 18" x 31 L.F. CMP
18" x 49.00 L.F. C.S.P. – 40.00' LT.
2 – 18" G.S. APRONS
Back Slope
Approx. 100'
Drain Tile w/ Screen
Rock Headwall at Outlet

STA. 148+68.50 – FIELD ENT. LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED



STA. 143+89.76 – DRIVEWAY RT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 36.00 L.F. C.S.P. – 36.00' RT.
2 – 18" G.S. APRONS

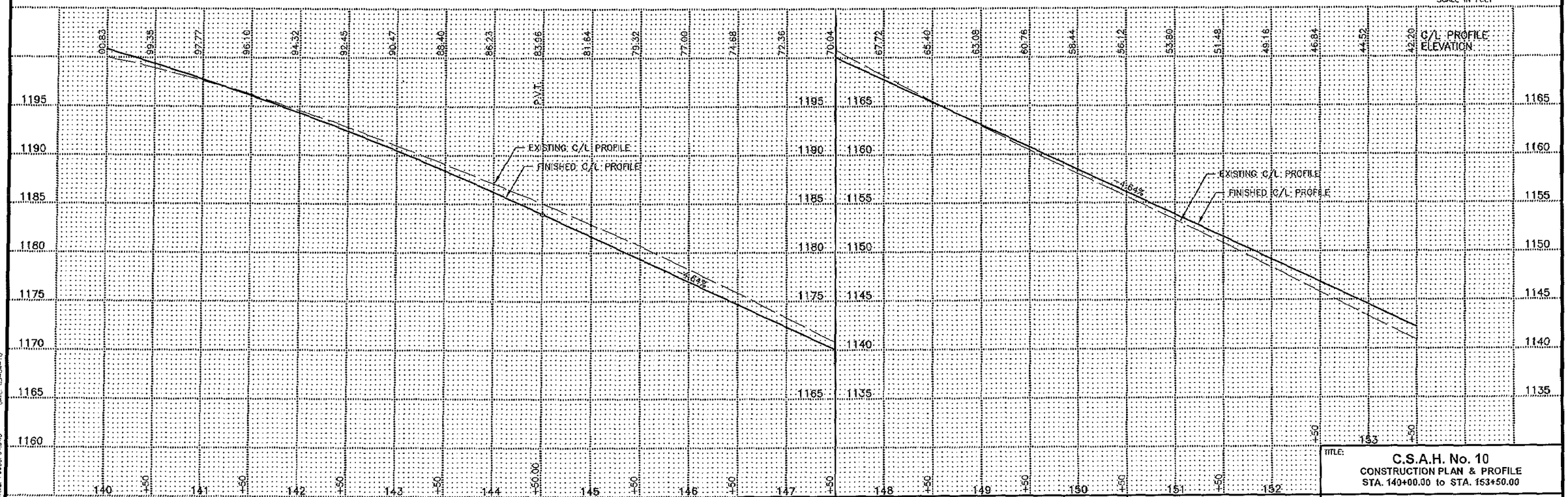
AS-BUILT
FEB 0 9 2012
ENGINEERING

STA. 148+00.00 – C/L
REMOVE INPL. 30" x 102 L.F. RCP
36" SPAN x 100.00 L.F. RCP-ARCH
2 – 36" SPAN RCP-ARCH APRONS
11 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 152+66.56
Δ=60°00'03" LT.
X=704650.7744
Y=158433.1259

0 25 50 100
SCALE IN FEET

C/L PROFILE ELEVATION



DATE: 03-04-10
FILE NAME: P3052P04.DWG

CERTIFIED BY Kayle M Bruenig REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

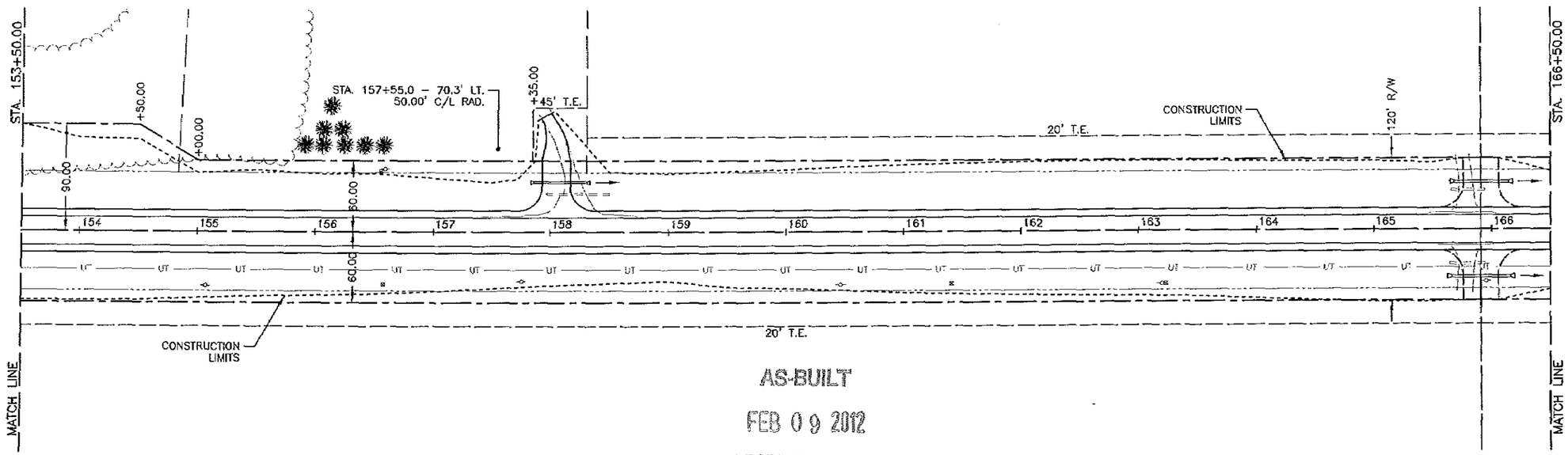
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 140+00.00 to STA. 153+50.00

Sheet No. 25 of 299 Sheets

STA. 158+05.00 – DRIVEWAY LT.
REMOVE INPL. 15" x 53 L.F. CMP
18" x 45.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

STA. 165+90.84 – SHARED FIELD ENT. LT.
REMOVE INPL. 24" x 28 L.F. CMP
24" x 46.00 L.F. C.S.P. – 40.00' LT.
2 – 24" G.S. APRONS



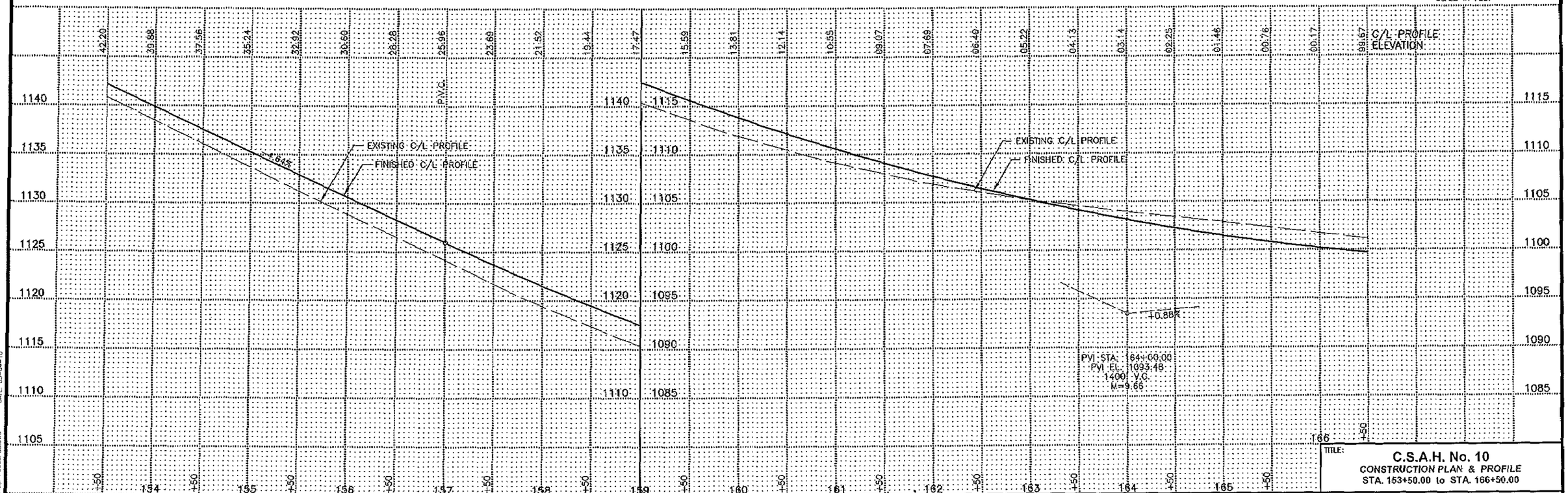
AS-BUILT

FEB 09 2012

ENGINEERING

STA. 165+90.84 – SHARED FIELD ENT. RT.
REMOVE INPL. 24" x 30 L.F. CMP
24" x 50.00 L.F. C.S.P. – 40.00' RT.
2 – 24" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

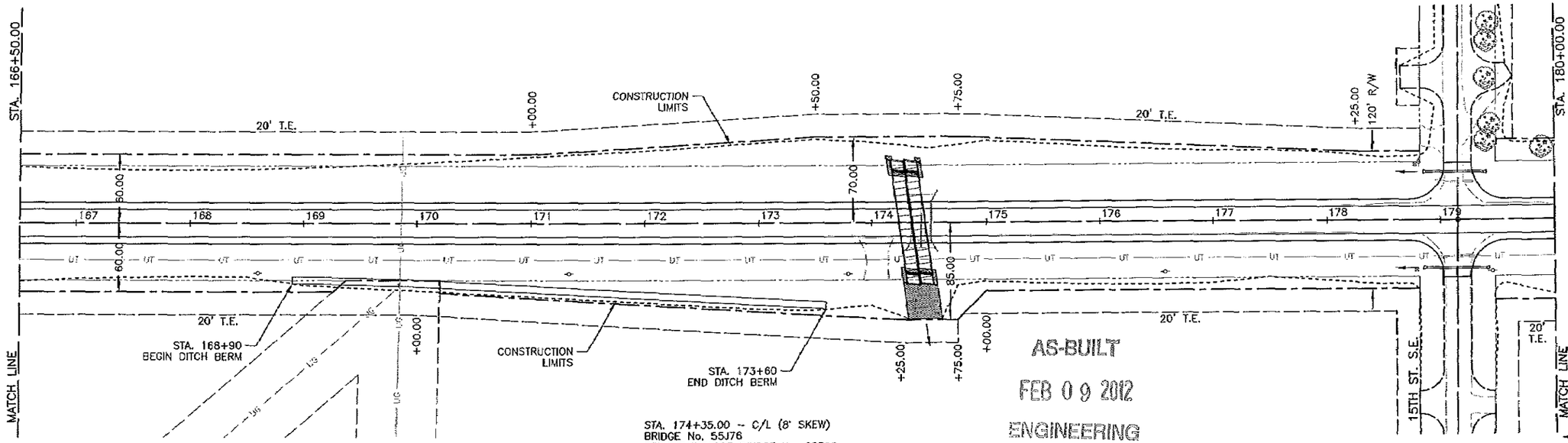
FILE NAME: P:\DWG\P05.DWG

CERTIFIED BY Paul M Bremicker LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 20 10	S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 153+50.00 to STA. 166+50.00

Sheet No. 26 of 299 Sheets

STA. 179+15.12 – 15TH ST. S.E.
SEE 15TH ST. S.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES



AS-BUILT

FEB 0 9 2012

ENGINEERING

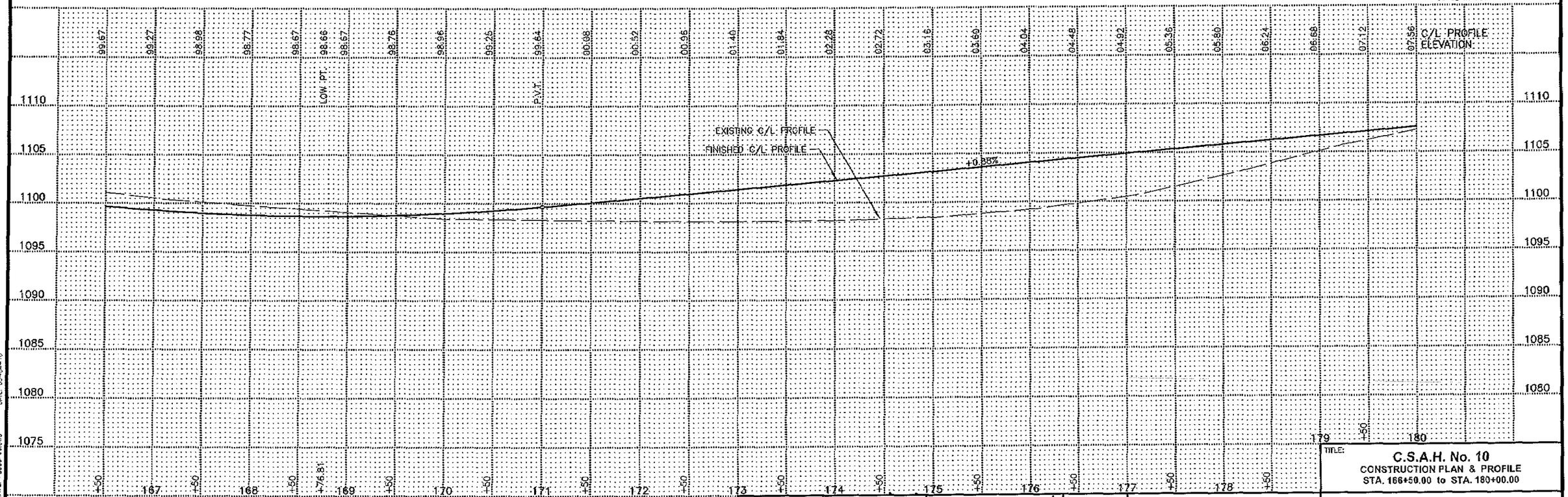
STA. 174+06.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 174+35.00 – C/L (8° SKEW)
BRIDGE No. 55J76
REMOVE INPLACE BRIDGE No. 88725
2 – 10x6 x 84.00 L.F. P.C. BOX CULVERT
4 – 10x6 P.C. BOX CULVERT END SECTIONS
10 C.Y. CL. III RIPRAP AT INLET
58 C.Y. CL. III RIPRAP AT OUTLET

STA. 179+15.12 – 15TH ST. S.E.
SEE 15TH ST. S.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES

PI STA. 179+15.12
Δ=00°27'19" LT.
X=704630.0703
Y=161081.6113

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3056P06.DWG

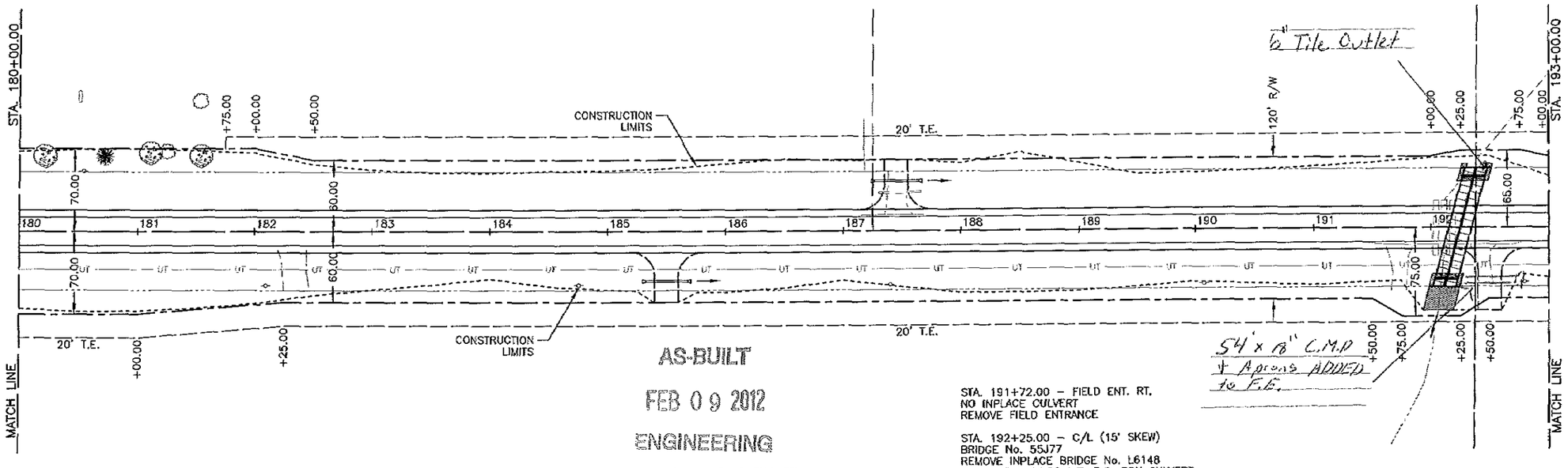
CERTIFIED BY Kayc M Bienieck REG. NO. 19317 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 166+50.00 to STA. 180+00.00

Sheet No. 27 of 299 Sheets

STA. 187+45.00 – FIELD ENT. LT.
REMOVE INPL. 18" x 36 L.F. CMP
18" x 38.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



54" x 18" C.M.P
+ Aprons ADDED
to F.E.

AS-BUILT

FEB 0 9 2012

ENGINEERING

STA. 182+35.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

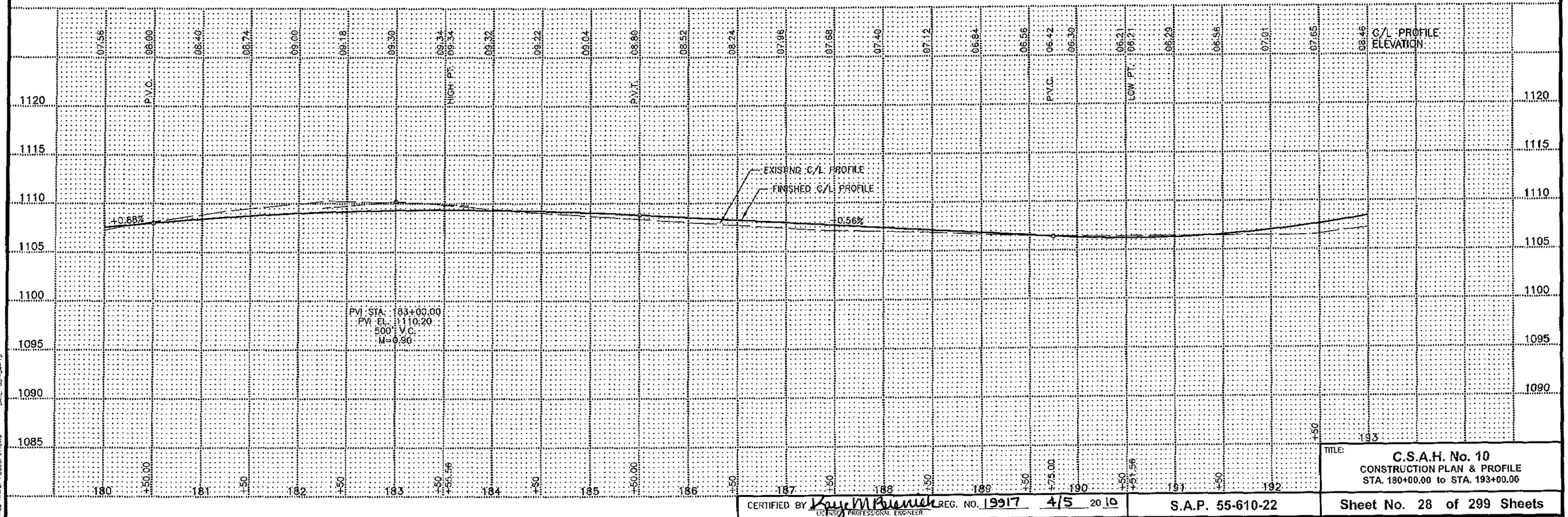
STA. 185+50.00 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 36.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

STA. 191+72.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 192+25.00 – C/L (15' SKEW)
BRIDGE No. 55J77
REMOVE INPLACE BRIDGE No. L6148
2 – 8x5 x 84.00 L.F. P.C. BOX CULVERT
4 – 8x5 P.C. BOX CULVERT END SECTIONS
9 C.Y. CL. III RIPRAP AT INLET
35 C.Y. CL. III RIPRAP AT OUTLET

STA. 192+50.00 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: PJ05CP07.DWG

CERTIFIED BY Kaye M Brunich REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

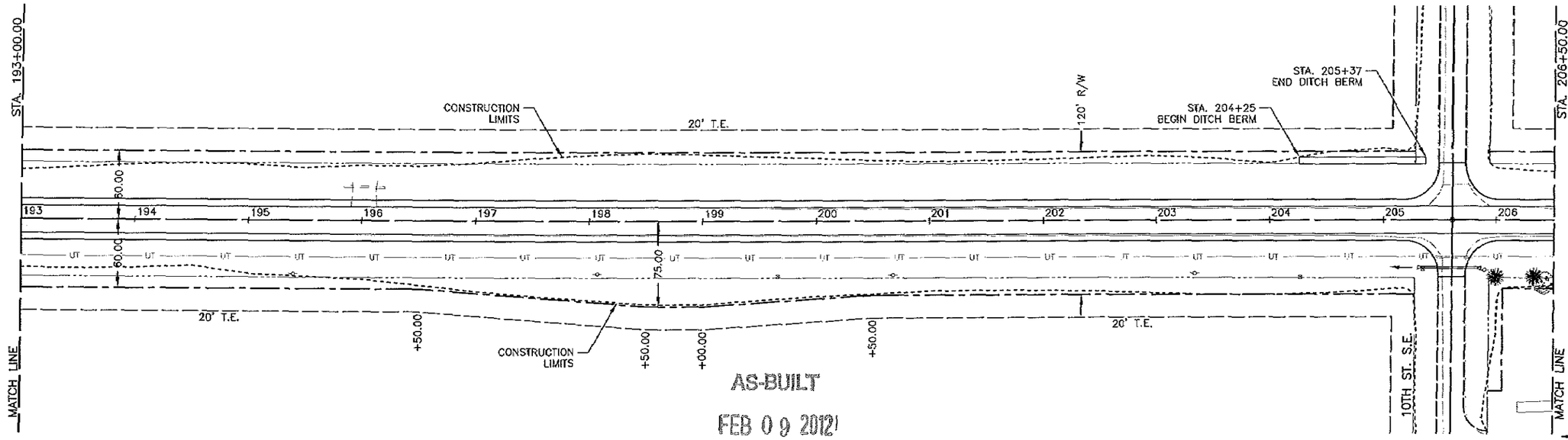
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 180+00.00 to STA. 193+00.00

Sheet No. 28 of 299 Sheets

STA. 196+02.00 – FIELD ENT. LT.
REMOVE 1NPL. 18" x 36 L.F. CMP
REMOVE FIELD ENTRANCE

STA. 205+60.98 – 10TH ST. S.E.
SEE 10TH ST. S.E. PLAN & PROFILE
DRAWING FOR DETAILS



AS-BUILT

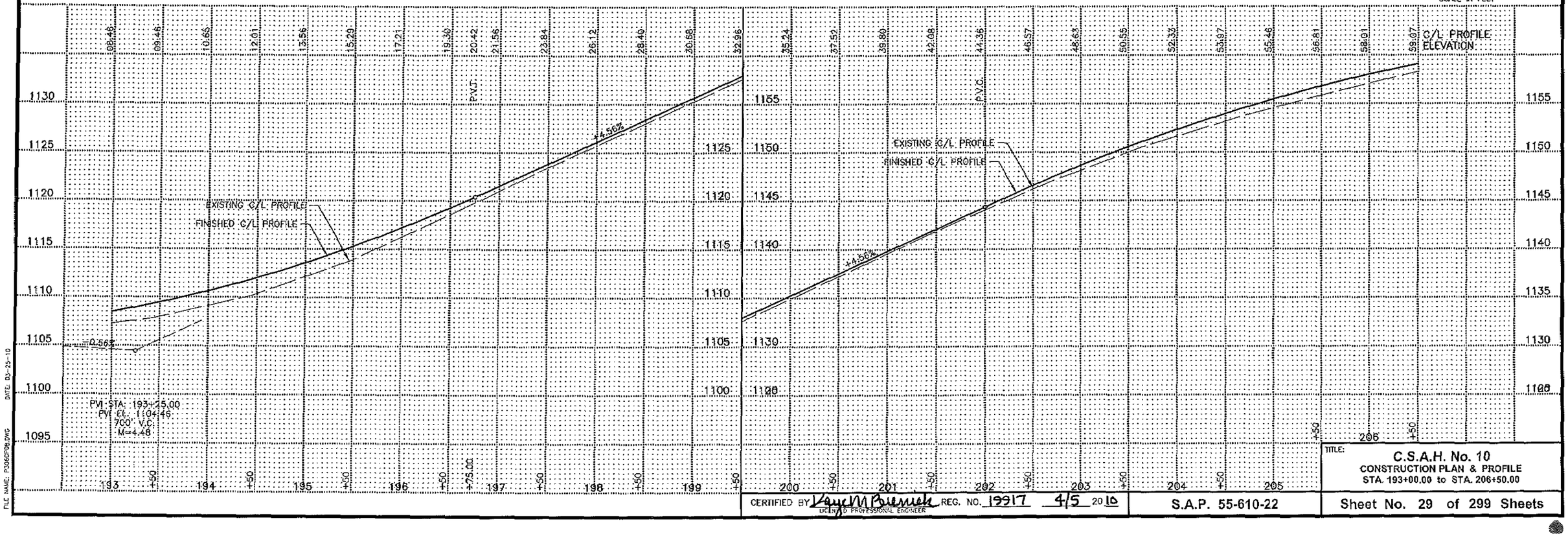
FEB 09 2012

ENGINEERING

STA. 205+60.98 – 10TH ST. S.E.
SEE 10TH ST. S.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES

PI STA. 205+60.98
Δ=00°26'25" RT.
X=704588.3644
Y=163727.1419

0 25 50 100
SCALE IN FEET



DATE: 03-25-10

FILE NAME: P306GP06.DWG

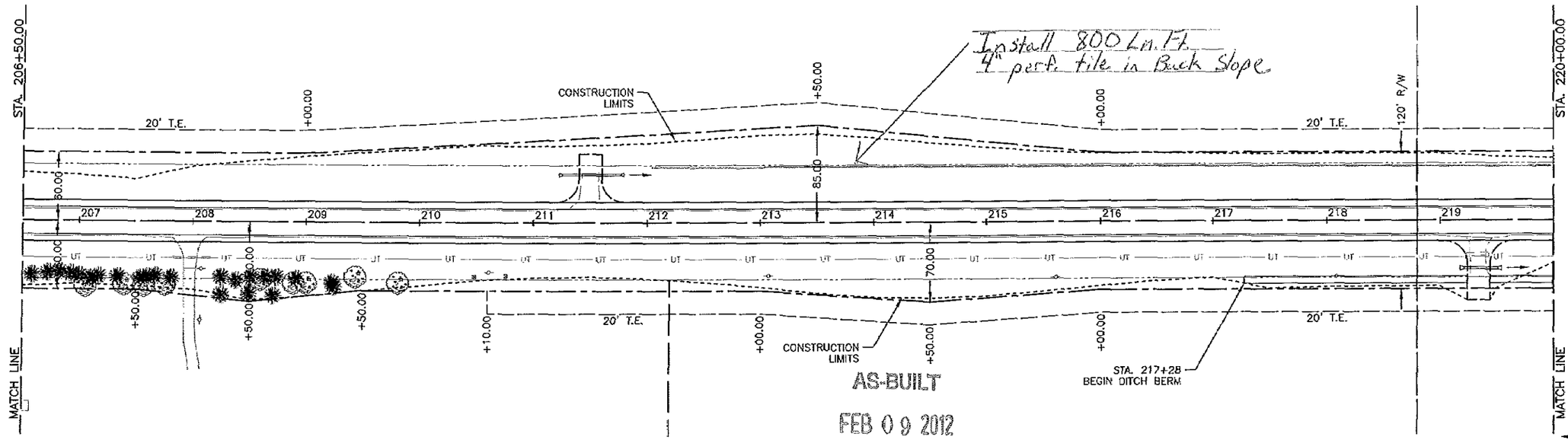
TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 193+00.00 to STA. 206+50.00

CERTIFIED BY Dave M Buesch REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 29 of 299 Sheets

STA. 211+50.00 – FIELD ENT. LT.
NO INPLACE CULVERT
18" x 52.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



AS-BUILT

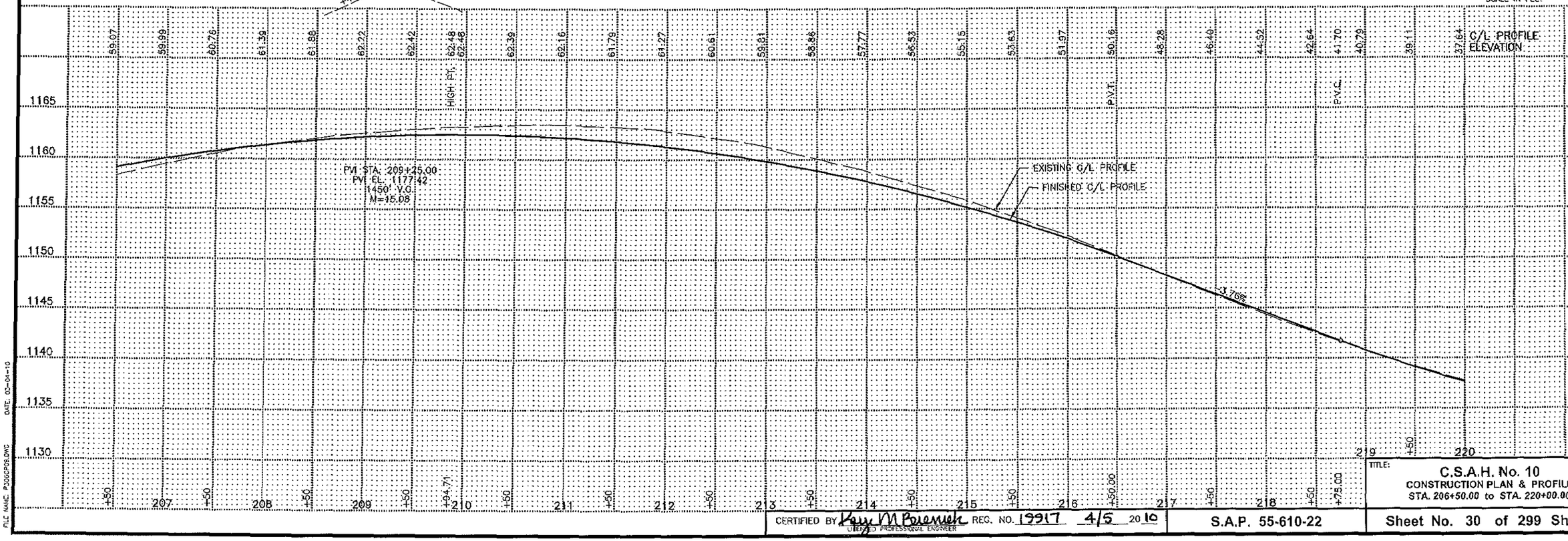
FEB 0 9 2012

ENGINEERING

STA. 207+97.15 – DRIVEWAY RT.
REMOVE INPL. 18" x 33 L.F. CMP
REMOVE DRIVEWAY

STA. 219+34.00 – FIELD ENT. RT.
REMOVE INPL. 30" x 20 L.F. CMP
24" x 30.00 L.F. C.S.P. – 42.00' RT.
2 – 24" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P30GCP08.DWG

CERTIFIED BY Paul M Poremski REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

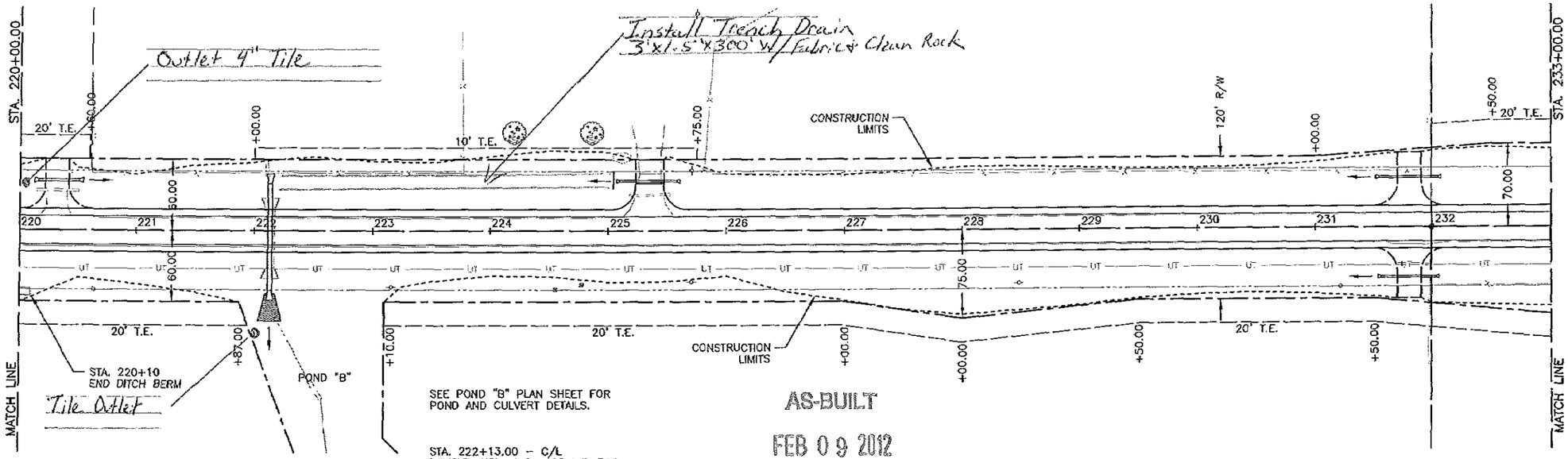
TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 206+50.00 to STA. 220+00.00

Sheet No. 30 of 299 Sheets

STA. 220+32.00 – FIELD ENT. LT.
REMOVE INPL. 24" x 36 L.F. CMP
24" x 35.00 L.F. C.S.P. – 42.00' LT.
2 – 24" G.S. APRONS

STA. 225+34.89 – DRIVEWAY LT.
REMOVE INPL. 18" x 35 L.F. CMP
18" x 49.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

STA. 231+80.00 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 50.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



SEE POND "B" PLAN SHEET FOR POND AND CULVERT DETAILS.

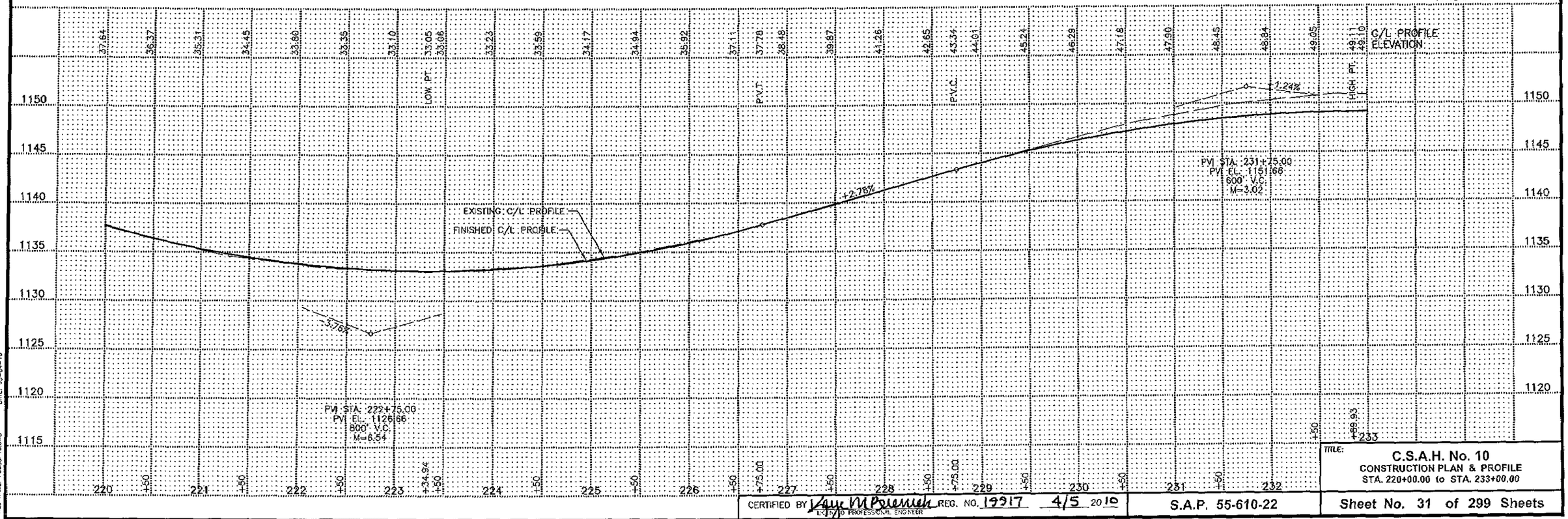
STA. 222+13.00 – C/L
REMOVE INPL. 4x6 x 68 L.F. RCP
REMOVE INPL. 24" x 32 LF CMP
42" x 90.00 L.F. R.C.P.
2 – 42" R.C.P. APRONS
16 C.Y. CL. III RIPRAP AT OUTLET

AS-BUILT
FEB 09 2012
ENGINEERING

STA. 231+80.00 – FIELD ENT. RT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 47.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

PI STA. 231+98.54
Δ=00°00'05" RT.
X=704567.0598
Y=166364.6172

0 25 50 100
SCALE IN FEET



FILE NAME: P356P10.DWG DATE: 03-04-10

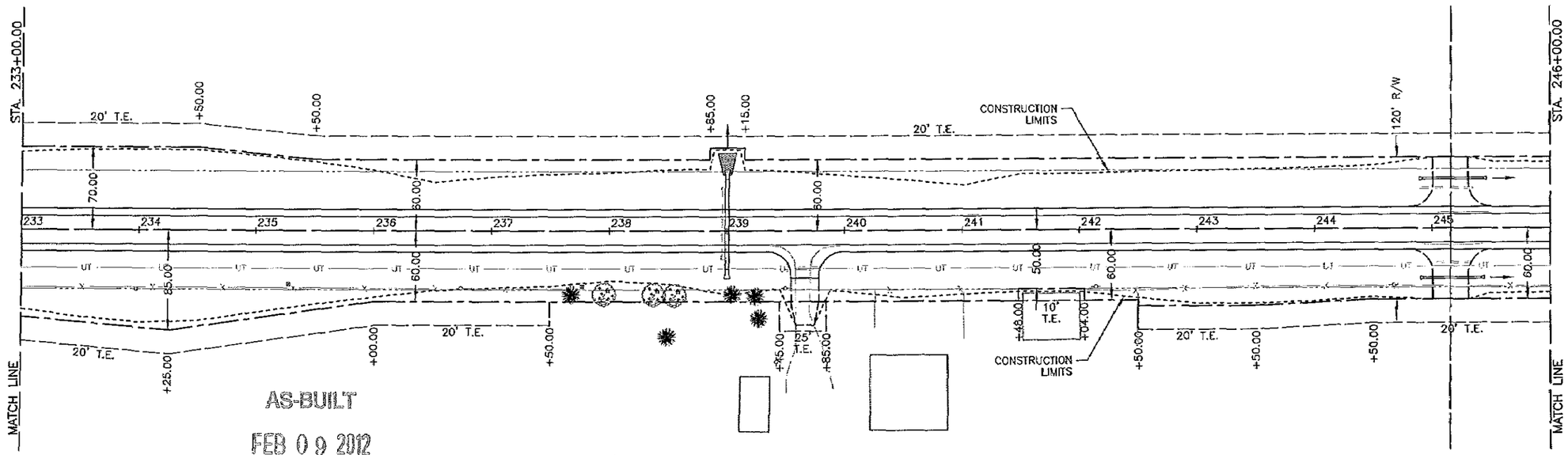
CERTIFIED BY Jay M Peterich REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 220+00.00 to STA. 233+00.00

Sheet No. 31 of 299 Sheets

STA. 245+15.93 – SHARED FIELD ENT. LT.
REMOVE INPL. 18" x 45 L.F. CMP
18" x 52.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



AS-BUILT

FEB 09 2012

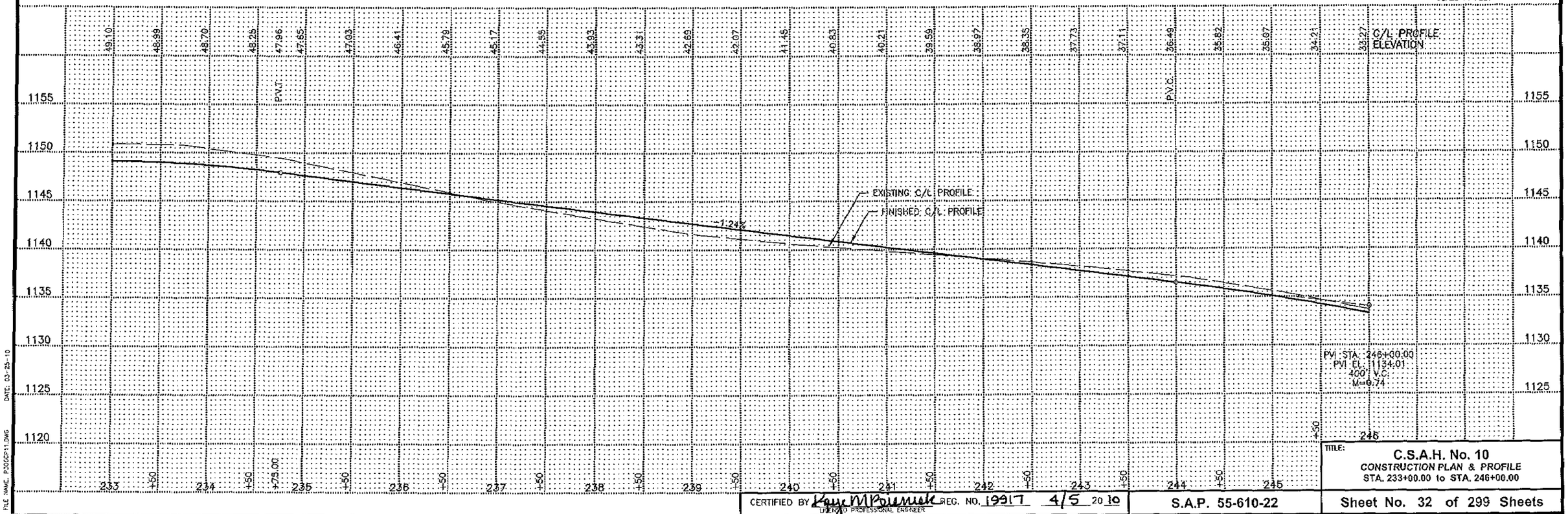
ENGINEERING

STA. 239+00.00 – C/L
REMOVE INPL. 30" x 61 L.F. RCP
36" SPAN x 76.00 L.F. RCP-ARCH
2 – 36" RCP-ARCH APRONS
11 C.Y. CL. III RIPRAP AT OUTLET

STA. 239+66.81 – DRIVEWAY RT.
REMOVE INPL. 18" x 30 L.F. CMP
NO CULVERT REQUIRED

STA. 245+15.93 – SHARED FIELD ENT. RT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 49.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-25-10

FILE NAME: P30GP11.DWG

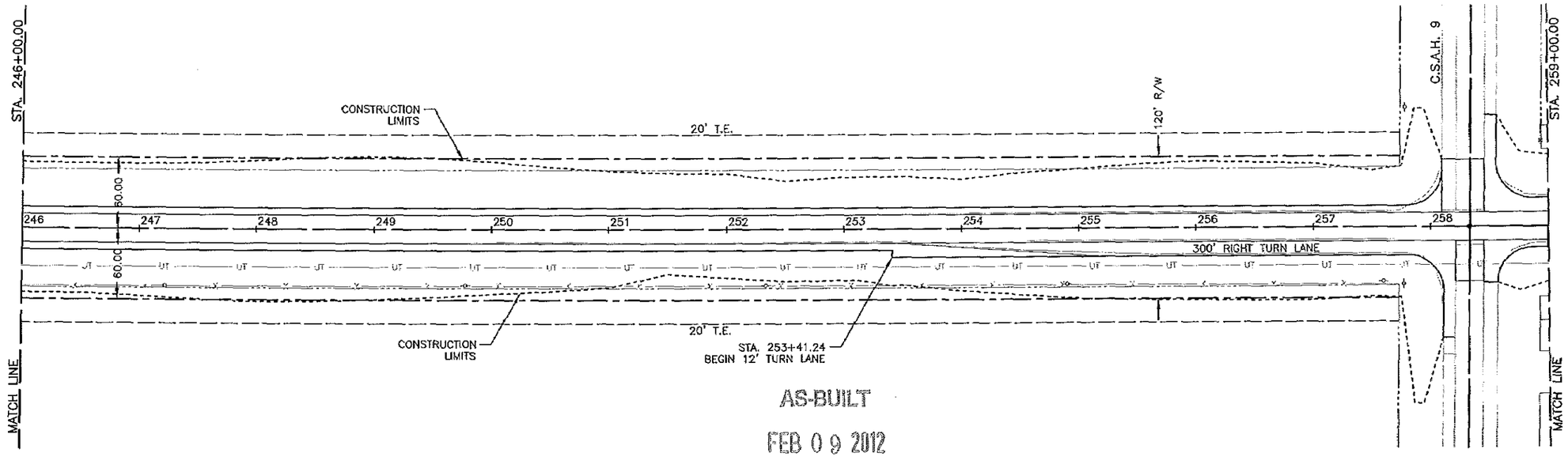
CERTIFIED BY Kayne M Polenske REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 233+00.00 to STA. 246+00.00

Sheet No. 32 of 299 Sheets

STA. 258+33.32 – C.S.A.H. 9
SEE C.S.A.H. 9 PLAN & PROFILE
DRAWING FOR DETAILS



AS-BUILT

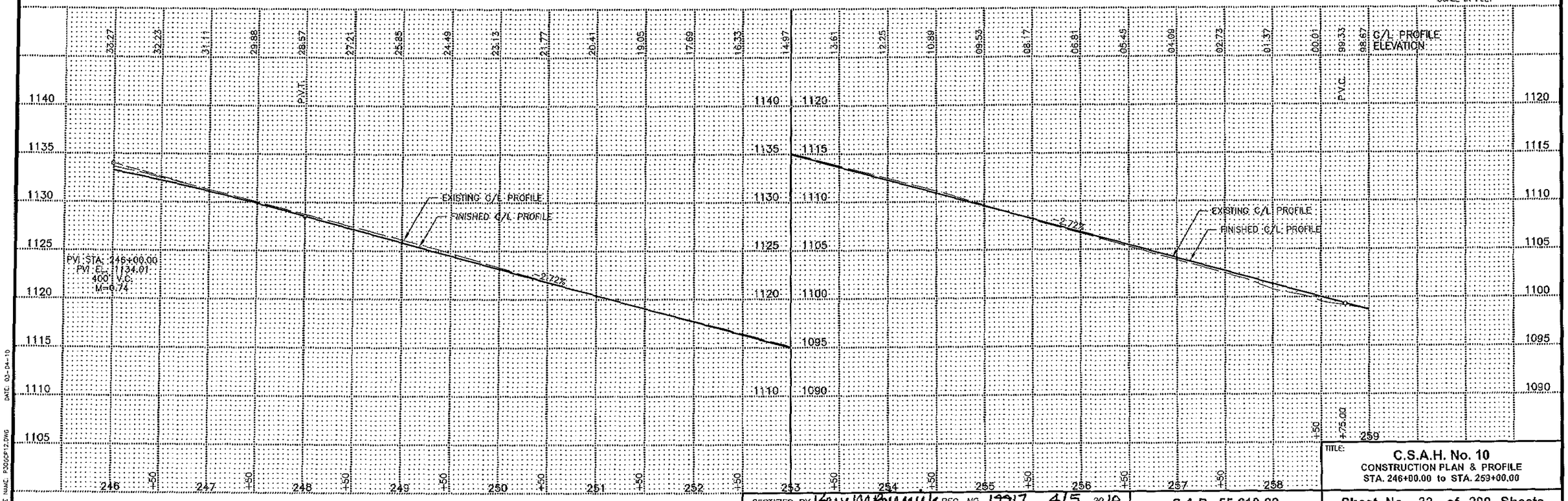
FEB 0 9 2012

ENGINEERING

STA. 258+33.32 – C.S.A.H. 9
SEE C.S.A.H. 9 PLAN & PROFILE
DRAWING FOR DETAILS

PI STA. 258+33.32
Δ=00°29'59" LT.
X=704545.8398
Y=168999.3072

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

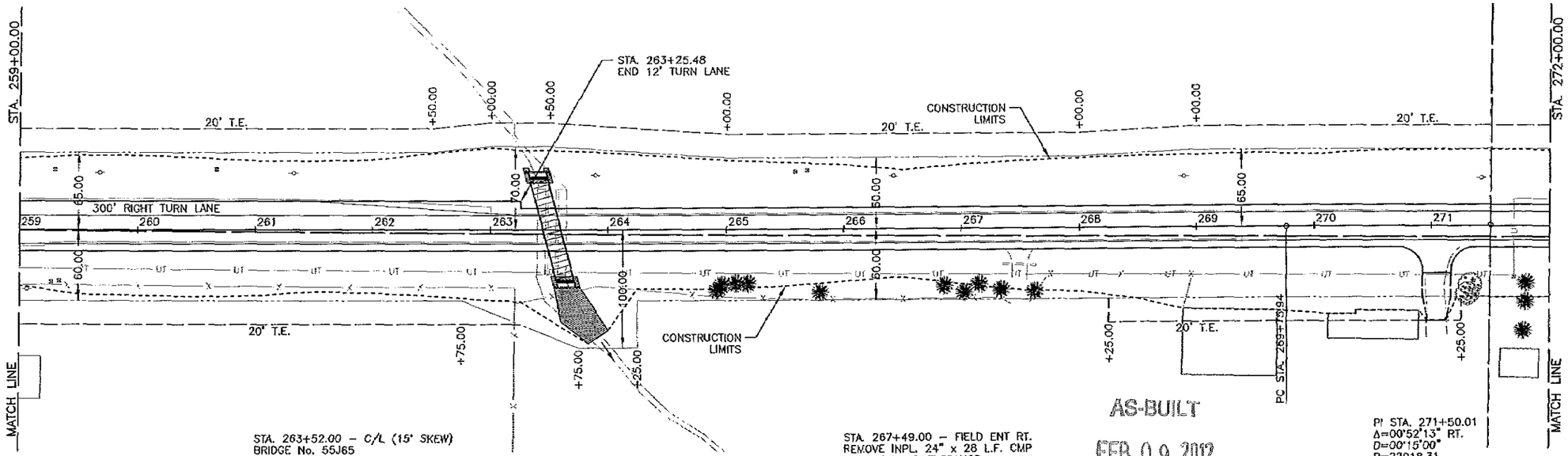
FILE NAME: P30GCP12.DWG

CERTIFIED BY Kayl M Buenish REG. NO. 19317 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 246+00.00 to STA. 259+00.00

Sheet No. 33 of 299 Sheets



STA. 263+52.00 – C/L (15° SKEW)
BRIDGE No. 55J65
REMOVE INPL. BRIDGE No. L6147
14x4 x 83.00 L.F. P.C. BOX CULVERT
2 – 14x4 P.C. BOX CULVERT END SECTIONS
8 C.Y. CL. III RIPRAP AT INLET
75 C.Y. CL. III RIPRAP AT OUTLET

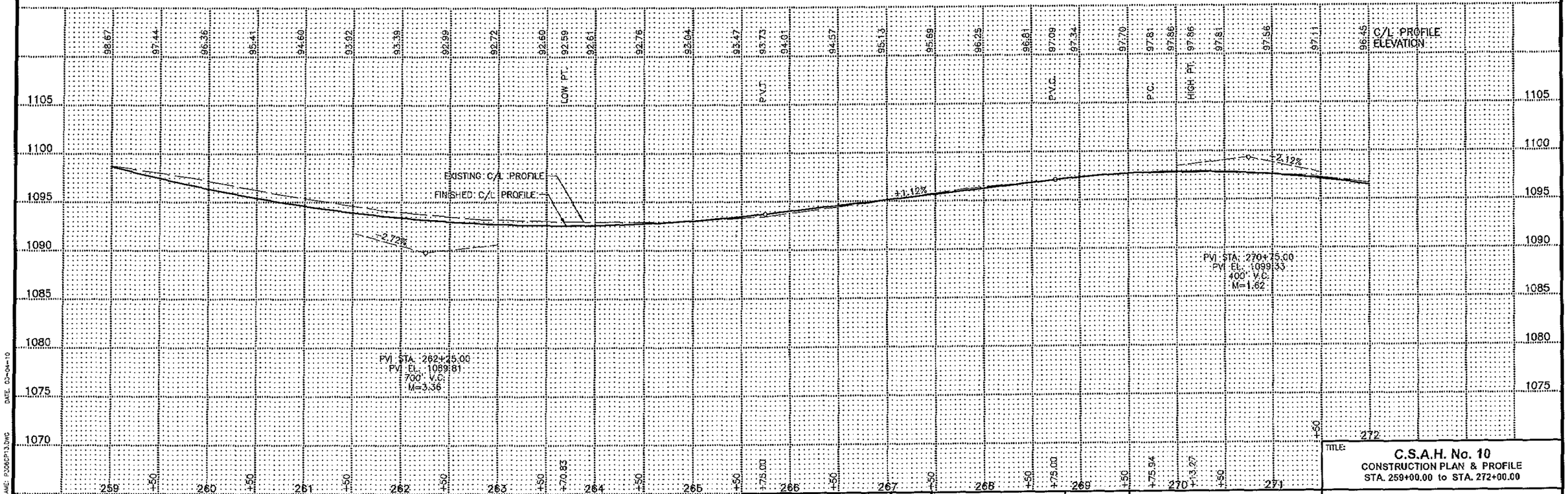
STA. 267+49.00 – FIELD ENT RT.
REMOVE INPL. 24" x 28 L.F. CMP
REMOVE FIELD ENTRANCE

STA. 271+04.37 – DRIVEWAY RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

AS-BUILT
FEB 09 2012
ENGINEERING

PI STA. 271+50.01
Δ=00°52'13" RT.
D=00°15'00"
R=22918.31
L=348.14
T=174.07
X=704523.7548
Y=170315.8153

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kaye M Bruinsma REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 259+00.00 to STA. 272+00.00

Sheet No. 34 of 299 Sheets

FILE NAME: P:\56CP13.DWG DATE: 03-04-10

STA. 273+63.50 – FIELD ENT. LT.
REMOVE INPL. 18" x 28 L.F. CMP
18" x 44.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

STA. 276+45.00 – DRIVEWAY LT.
INPLACE 24" x 77 L.F. CMP
INPLACE 24" G.S. APRONS
LEAVE AS IS

STA. 276+90.5 – 232.6' LT.
75.00' C/L RAD.

STA. 277+20.0 – 80.0' LT.
75.00' C/L RAD.

STA. 280+60.00 – FIELD ENT. LT.
INPLACE 24" x 31 L.F. CMP
INPLACE 24" G.S. APRONS
LEAVE AS IS

MIDDLE FORK WHITEWATER RIVER

INPLACE BRIDGE
No. 55583

CONSTRUCTION LIMITS

STA. 282+00.00
MATCH INPLACE DITCH

STA. 275+50.00
END C/L GRADING

STA. 280+50.00
BEGIN C/L GRADING

CONSTRUCTION LIMITS

MATCH LINE

MATCH LINE

PI STA. 271+50.01
Δ=00°52'13" RT.
D=00°25'00"
R=22918.31
L=348.14
T=174.07
X=704523.7548
Y=170315.8153

STA. 273+56.75 – DRIVEWAY RT.
REMOVE INPL. 18" x 32 L.F. CMP
18" x 48.00 L.F. C.S.P. – 39.00' RT.
2 – 18" G.S. APRONS

STA. 283+70.50 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 39.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

PI STA. 284+66.57
Δ=00°23'19" LT.
X=704521.6698
Y=171632.3798

0 25 50 100
SCALE IN FEET

BUILT

19 2012

ERING

C/L PROFILE ELEVATION

EXISTING C/L PROFILE

FINISHED C/L PROFILE

2.12%

+0.72%

BRIDGE No. 55583

PVI STA. 277+45.00
PVI EL. 1085.55
275' V.C.
K=0.96

P.V.T. P.T. P.V.C. LOW PT. P.V.T.

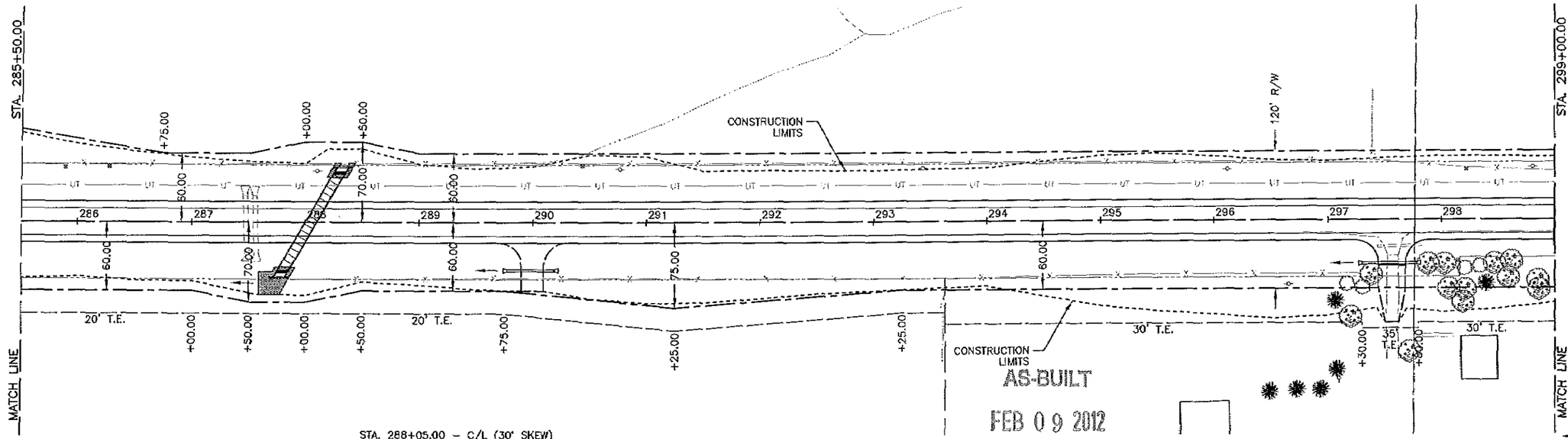
TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 272+00.00 to STA. 285+50.00

CERTIFIED BY Kaye M Bonnett REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 35 of 299 Sheets

FILE NAME: P:\PLOT\A.DWG DATE: 03-04-10



STA. 287+51.71 – C/L
REMOVE INPL. 2 – 48" x 65 L.F. RCP
NO CULVERT REQUIRED

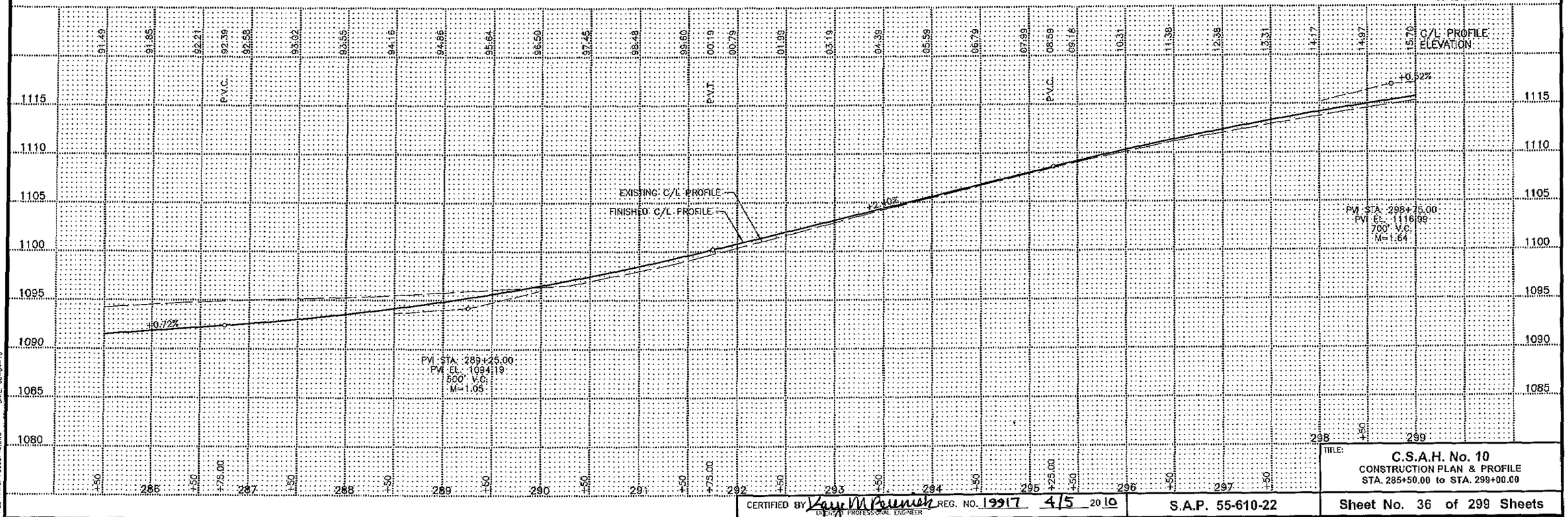
STA. 288+05.00 – C/L (30° SKEW)
NO INPLACE CULVERT
8x4 x 92.00 L.F. P.C. BOX CULVERT
2 – 8x4 P.C. BOX CULVERT END SECTIONS
7 C.Y. CL. III RIPRAP AT INLET
27 C.Y. CL. III RIPRAP AT OUTLET

STA. 290+00.00 – FIELD ENT. RT.
NO INPLACE CULVERT
24" x 42.00 L.F. C.S.P. – 42.00' RT.
2 – 24" G.S. APRONS

AS-BUILT
FEB 09 2012
ENGINEERING

STA. 297+56.48 – DRIVEWAY RT.
REMOVE INPL. 24" x 39 L.F. CMP
24" x 48.00 L.F. C.S.P. – 38.00' RT.
2 – 24" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10
FILE NAME: P256P15.DWG

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 285+50.00 to STA. 299+00.00

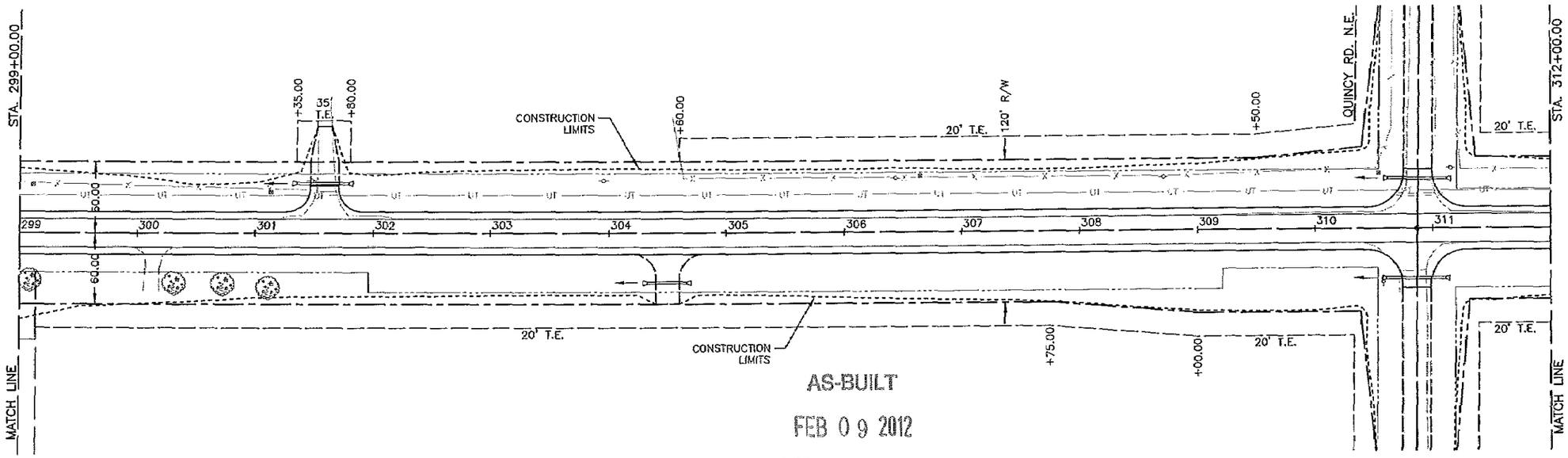
CERTIFIED BY Kaye M Petermich REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 36 of 299 Sheets

STA. 301+58.16 – DRIVEWAY LT.
NO INPLACE CULVERT
24" x 44.00 L.F. C.S.P. – 42.00' LT.
2 – 24" G.S. APRONS

STA. 310+86.73 – QUINCY RD. N.E.
SEE QUINCY RD. N.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES



AS-BUILT

FEB 09 2012

ENGINEERING

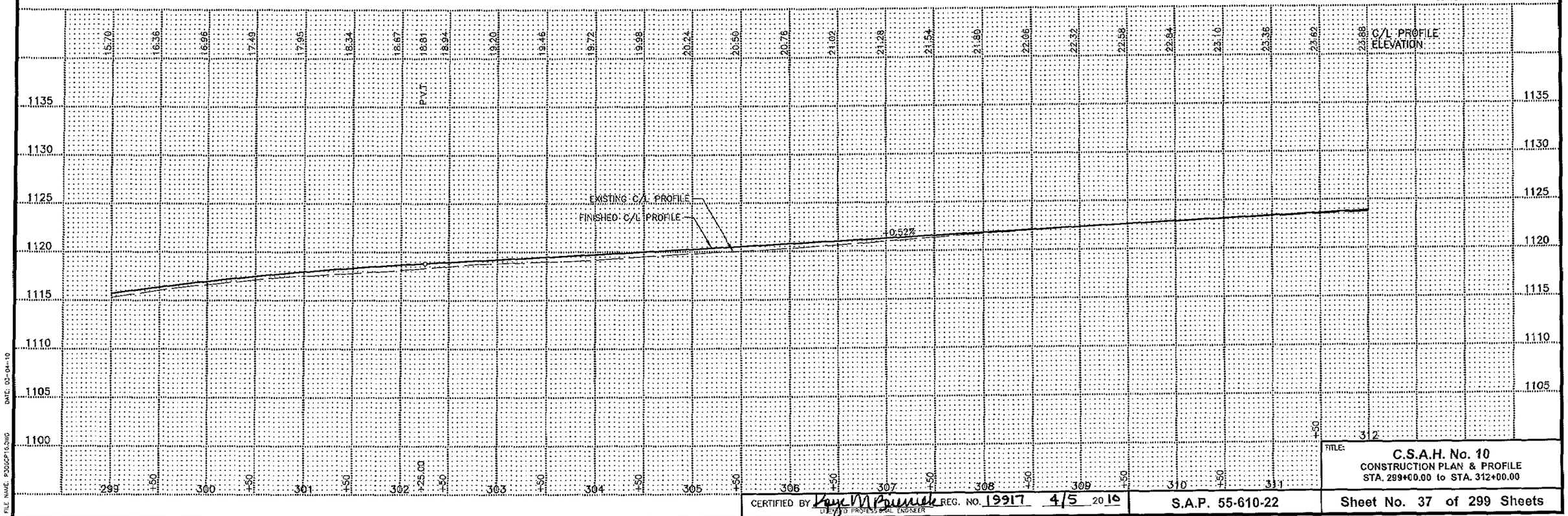
STA. 300+14.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 304+50.00 – FIELD ENT. RT.
NO INPLACE CULVERT
24" x 34.00 L.F. C.S.P. – 42.00' RT.
2 – 24" G.S. APRONS

STA. 310+86.73 – QUINCY RD. N.E.
SEE QUINCY RD. N.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES

PI STA. 310+86.73
Δ=00°03'11" LT.
X=704498.9768
Y=174252.4378

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kaye M Bunnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 299+00.00 to STA. 312+00.00

S.A.P. 55-610-22

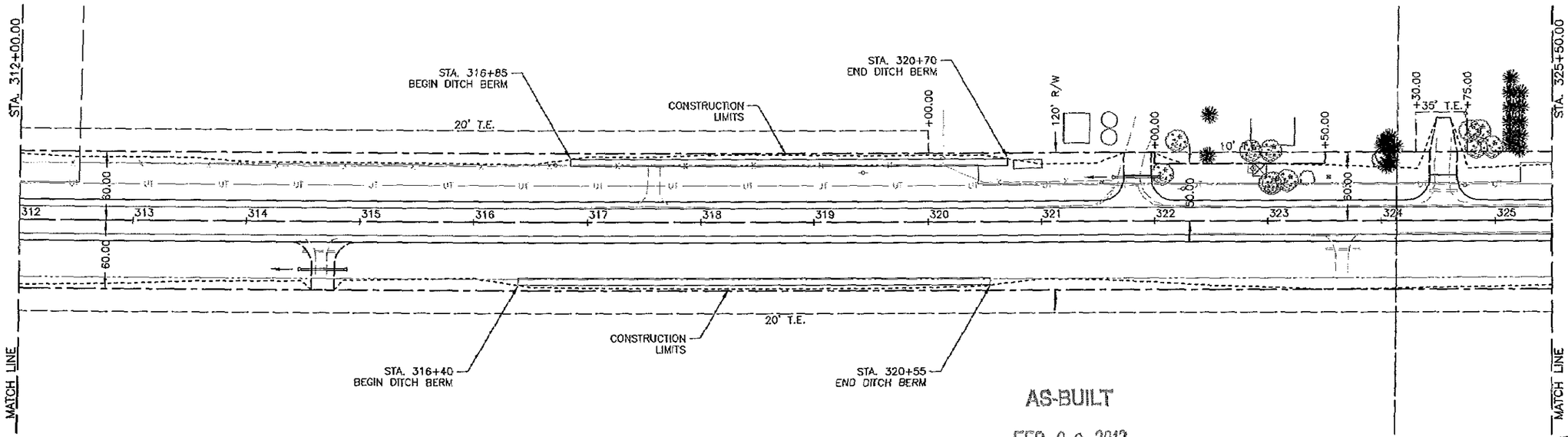
Sheet No. 37 of 299 Sheets

FILE NAME: P3056P16.DWG
DATE: 03-04-10

STA. 317+58.00 – FIELD ENT. LT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 321+85.00 – DRIVEWAY LT.
NO INPLACE CULVERT
18" x 37.00 L.F. C.S.P. – 38.50' LT.
2 – 18" G.S. APRONS

STA. 324+54.00 – DRIVEWAY LT.
REMOVE INPL. 24" x 24 L.F. CMP
NO CULVERT REQUIRED



STA. 314+68.00 – FIELD ENT. RT.
REMOVE INPL. 18" x 28 L.F. CMP
18" x 38.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

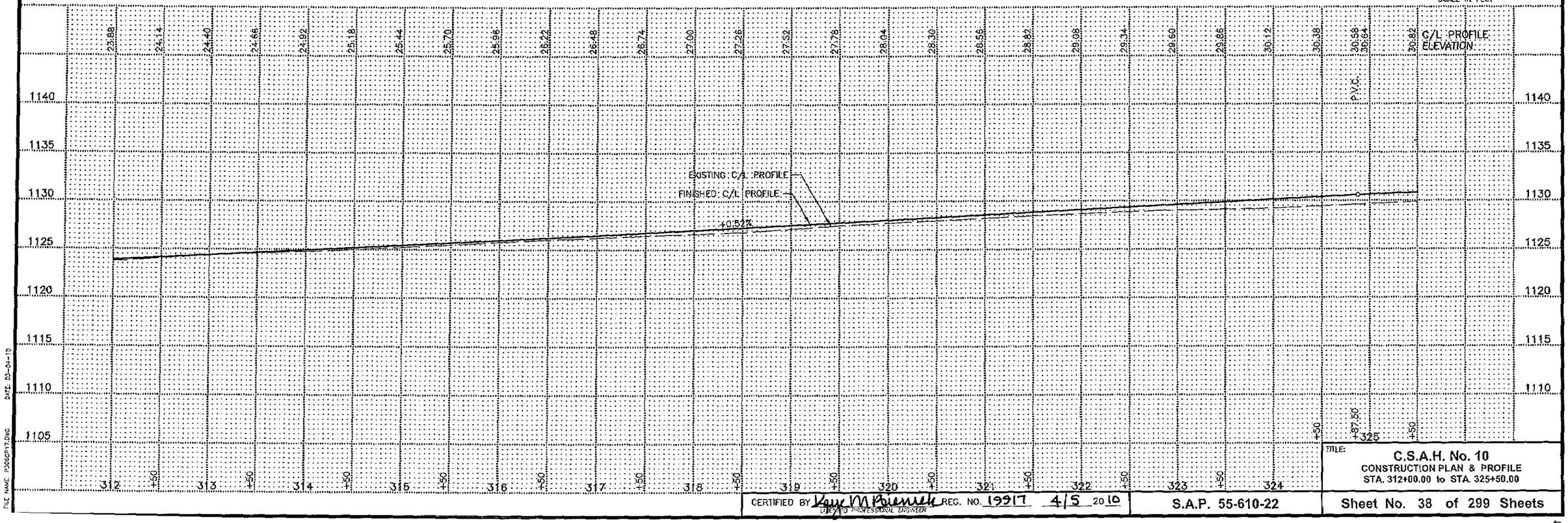
AS-BUILT

FEB 0 9 2012

ENGINEERING

STA. 323+65.00 – FIELD ENT. RT.
REMOVE INPL. 18" x 31 L.F. CMP
REMOVE FIELD ENTRANCE

0 25 50 100
SCALE IN FEET



DATE: 03-01-10

FILE NAME: P306SP17.DWG

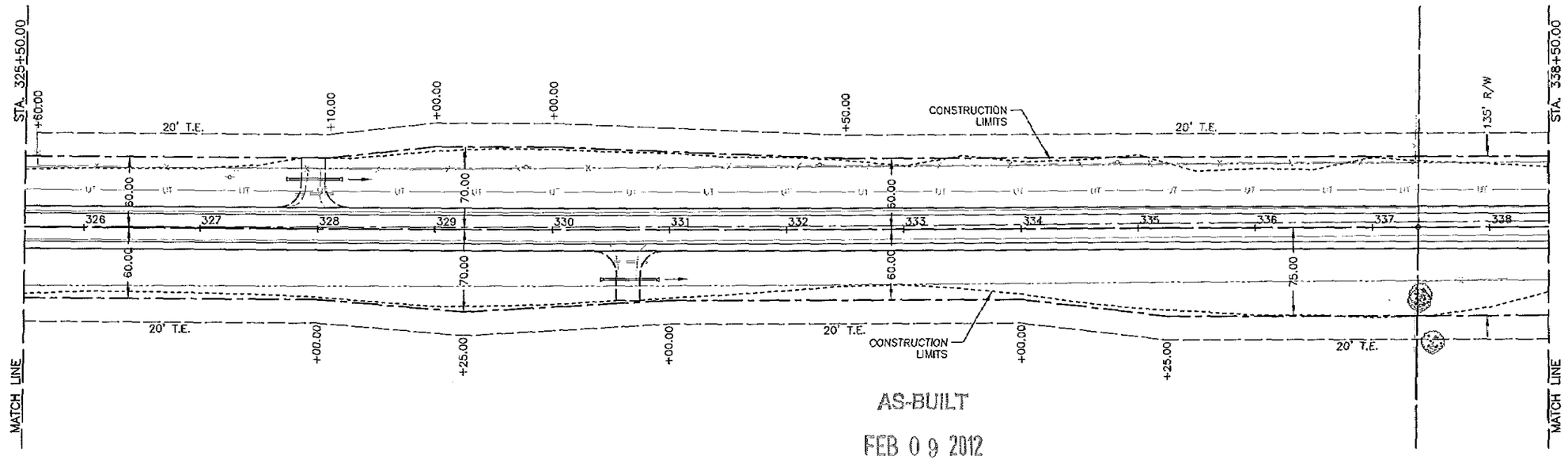
CERTIFIED BY Kevin M Bierneth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 312+00.00 to STA. 325+50.00

Sheet No. 38 of 299 Sheets

STA. 327+96.00 – FIELD ENT. LT.
REMOVE INPL. 18" x 32 L.F. CMP
18" x 42.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



AS-BUILT

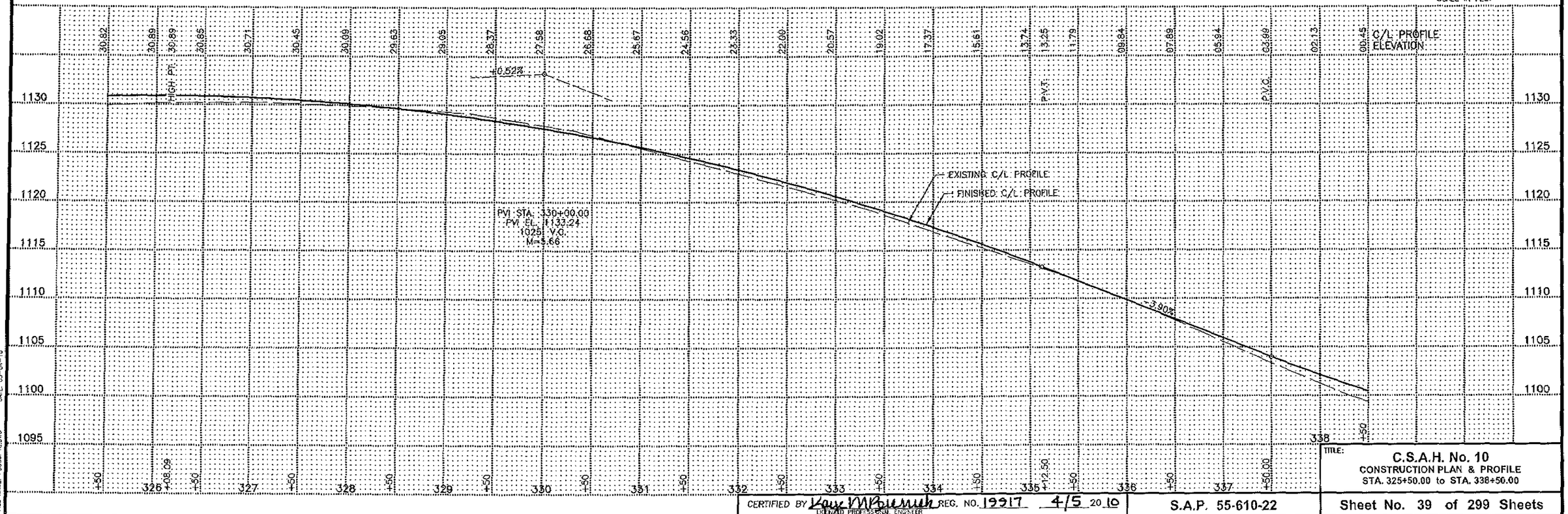
FEB 0 9 2012

ENGINEERING

STA. 330+65.00 – FIELD ENT. RT.
REMOVE INPL. 18" x 28 L.F. CMP
18" x 45.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

PI STA. 337+39.17
Δ=00°00'04" LT.
X=704473.5539
Y=176904.7570

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kay M Bruinsma REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

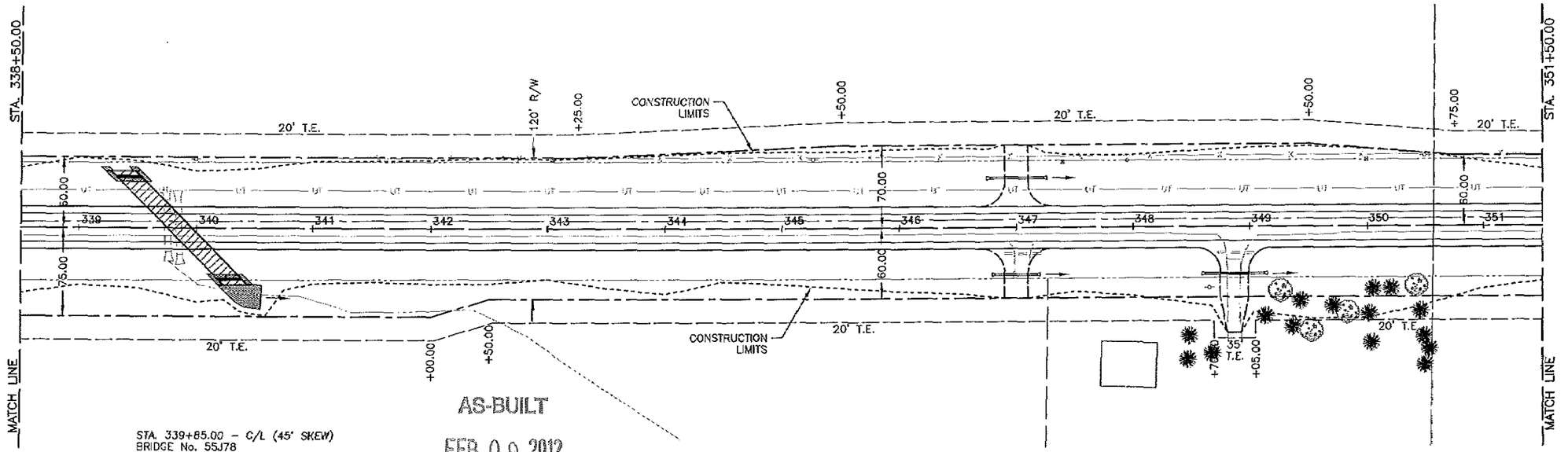
S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 325+50.00 to STA. 338+50.00

Sheet No. 39 of 299 Sheets

DATE: 03-04-10
FILE NAME: P3060P16.DWG

STA. 347+00.00 – FIELD ENT LT.
NO INPLACE CULVERT
18" x 46.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



AS-BUILT

FEB 09 2012

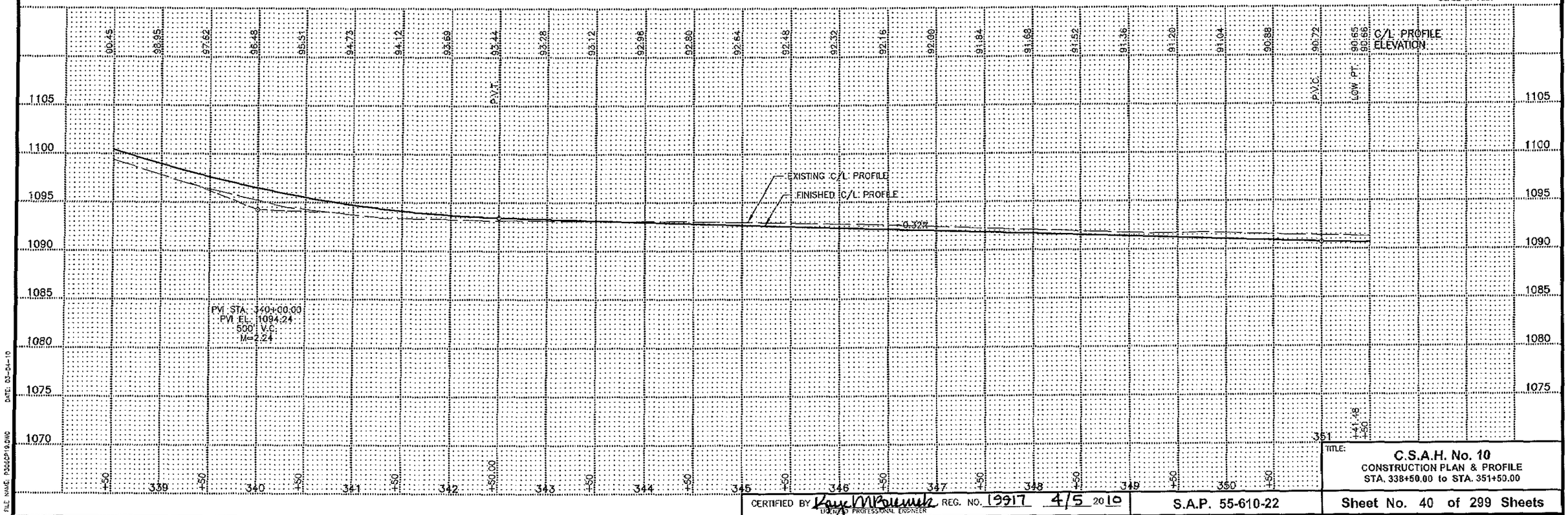
ENGINEERING

STA. 339+85.00 – C/L (45° SKEW)
BRIDGE No. 55J78
REMOVE INPL. 2 – 60" x 63 L.F. RCP
14x4 x 105.00 L.F. P.C. BOX CULVERT
2 – 14x4 P.C. BOX CULVERT END SECTIONS
10 C.Y. CL. III RIPRAP AT INLET
37 C.Y. CL. III RIPRAP AT OUTLET

STA. 347+00.00 – FIELD ENT RT.
REMOVE INPL. 18" x 31 L.F. CMP
18" x 36.00 L.F. C.S.P. – 40.00' RT.
2 – 18" G.S. APRONS

STA. 348+87.10 – DRIVEWAY RT.
REMOVE INPL. 18" x 31 L.F. CMP
18" x 50.00 L.F. C.S.P. – 40.00' RT.
2 – 18" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P366CP19.DWG

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 338+50.00 to STA. 351+50.00

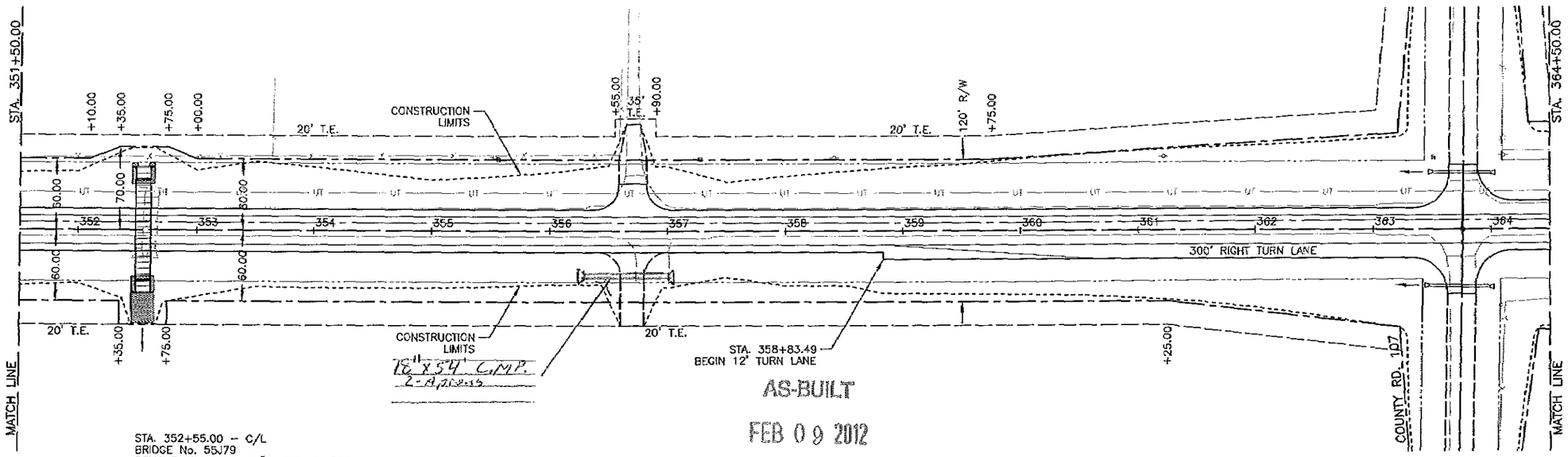
CERTIFIED BY Kaye M Bruemmer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 40 of 299 Sheets

STA. 356+70.50 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 363+75.67 – COUNTY ROAD 107
SEE COUNTY ROAD 107 PLAN & PROFILE
DRAWING FOR CULVERT NOTES



AS-BUILT

FEB 09 2012

ENGINEERING

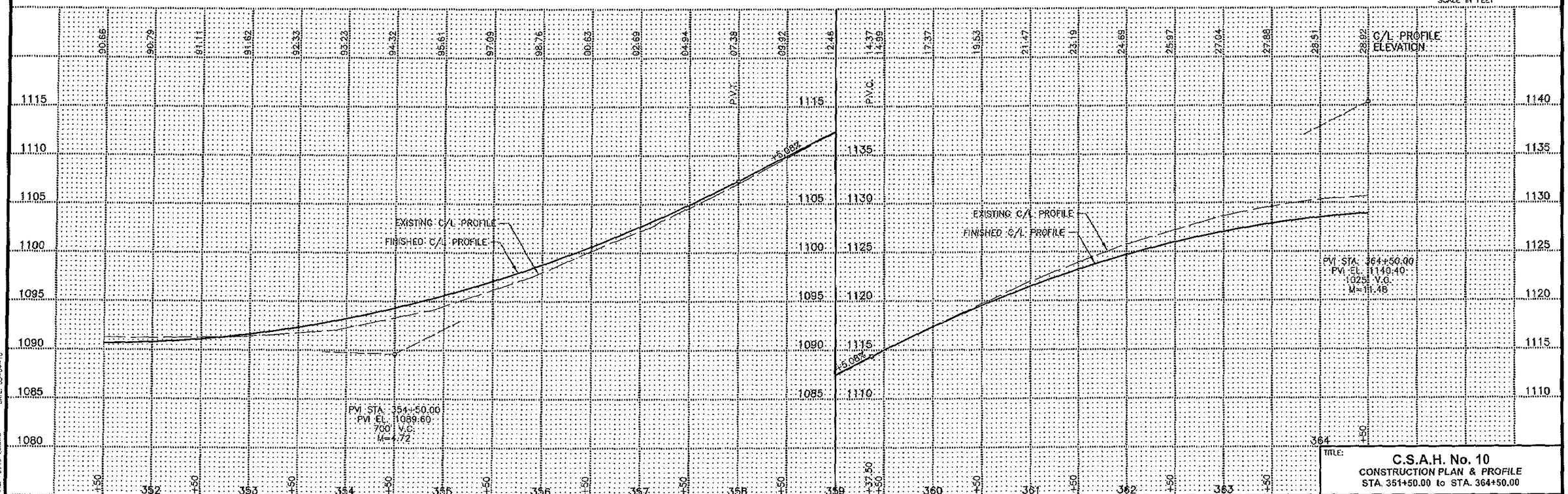
STA. 352+55.00 – C/L
BRIDGE No. 55J79
REMOVE INPL. 2 – 72" x 60 L.F. RCP
12x6 x 83.00 L.F. P.C. BOX CULVERT
2 – 12x6 P.C. BOX CULVERT END SECTIONS
9 C.Y. CL. III RIPRAP AT INLET
34 C.Y. CL. III RIPRAP AT OUTLET

STA. 356+70.50 – FIELD ENT. RT.
NO INPLACE CULVERT
~~NO~~ CULVERT REQUIRED

STA. 363+75.67 – COUNTY ROAD 107
SEE COUNTY ROAD 107 PLAN & PROFILE
DRAWING FOR CULVERT NOTES

PI STA. 363+75.67
Δ=00°16'44" LT.
X=704448.2271
Y=179541.1310

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

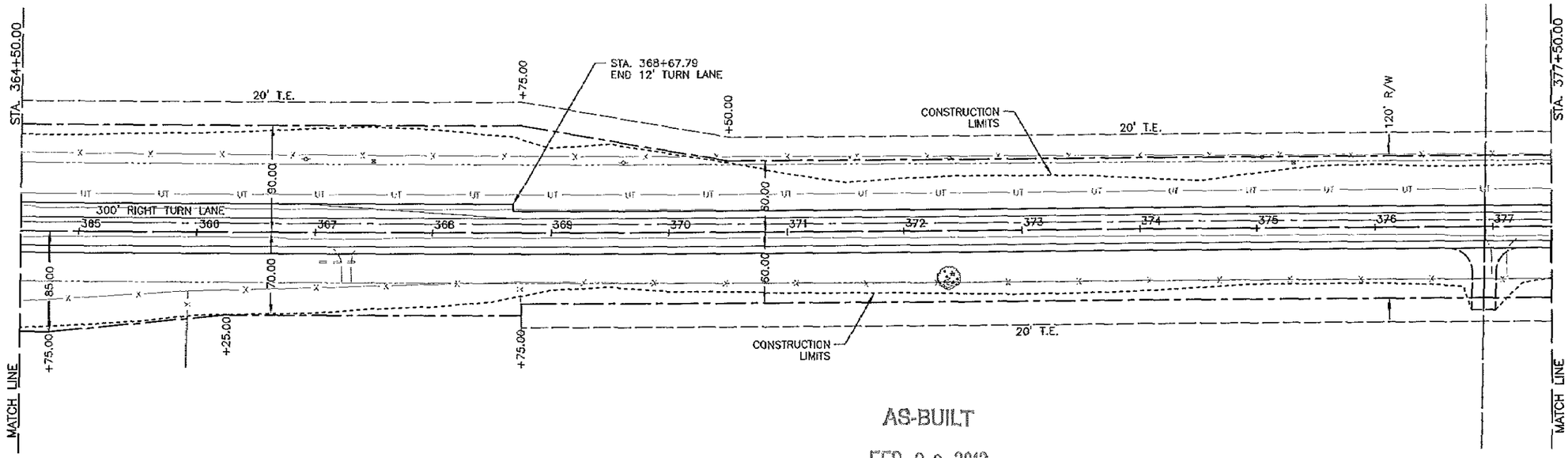
FILE NAME: P3056P20.DWG

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 351+50.00 to STA. 364+50.00

CERTIFIED BY Paul M Buesch REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 41 of 299 Sheets



AS-BUILT

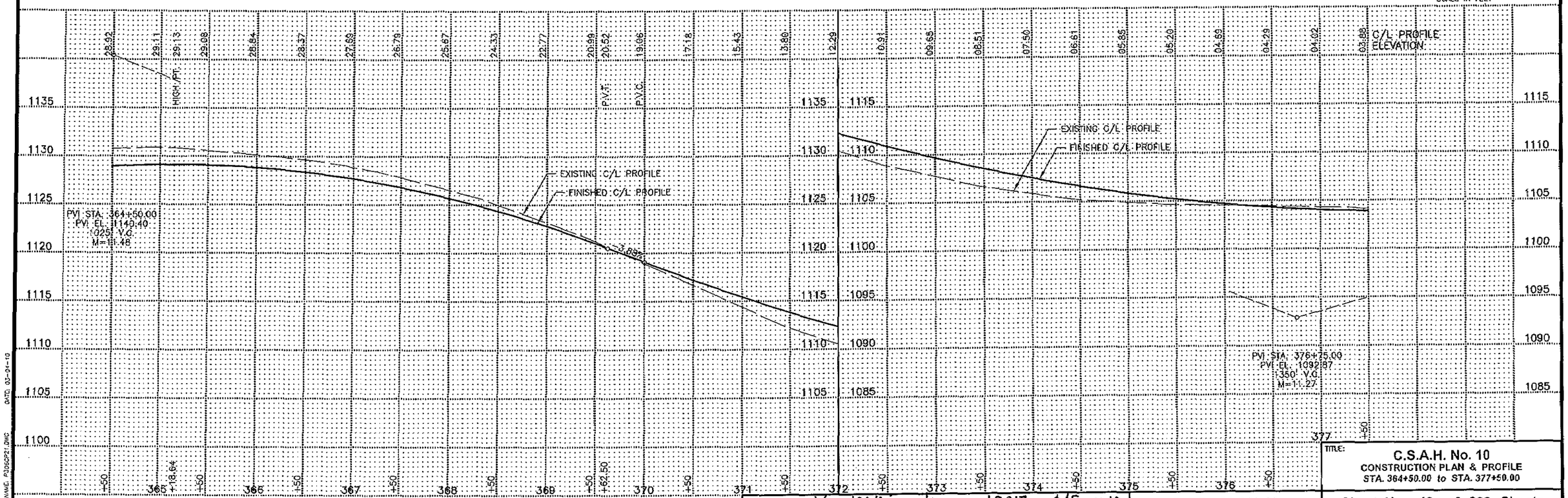
FEB 0 9 2012

ENGINEERING

STA. 367+27.00 – DRIVEWAY RT.
REMOVE INPL. 18" x 30 L.F. CMP
REMOVE DRIVEWAY

STA. 376+93.44 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

0 25 50 100
SCALE IN FEET



DATE: 02-01-10

FILE NAME: P3060P21.DWG

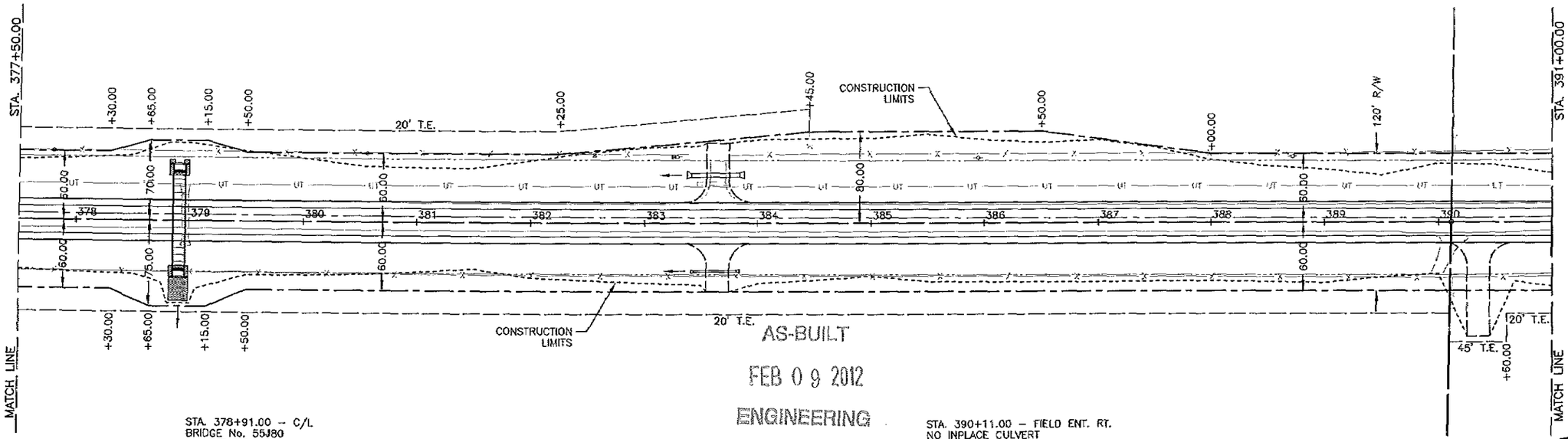
CERTIFIED BY Dave M Roenneck REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 364+50.00 to STA. 377+50.00

Sheet No. 42 of 299 Sheets

STA. 383+65.00 – FIELD ENT. LT.
REMOVE INPL. 36" x 29 L.F. CMP
42" SPAN x 43.00 L.F. CSP-ARCH – 42.00' LT.
2 – 42" SPAN GS-ARCH APRONS



AS-BUILT

FEB 0 9 2012

ENGINEERING

STA. 378+91.00 – C/L
BRIDGE No. 55J80
REMOVE INPL. 72" x 53 L.F. RCP
10x4 x 84.00 L.F. P.C. BOX CULVERT
2 – 10x4 P.C. BOX CULVERT END SECTIONS
7 C.Y. CL. III RIPRAP AT INLET
25 C.Y. CL. III RIPRAP AT OUTLET

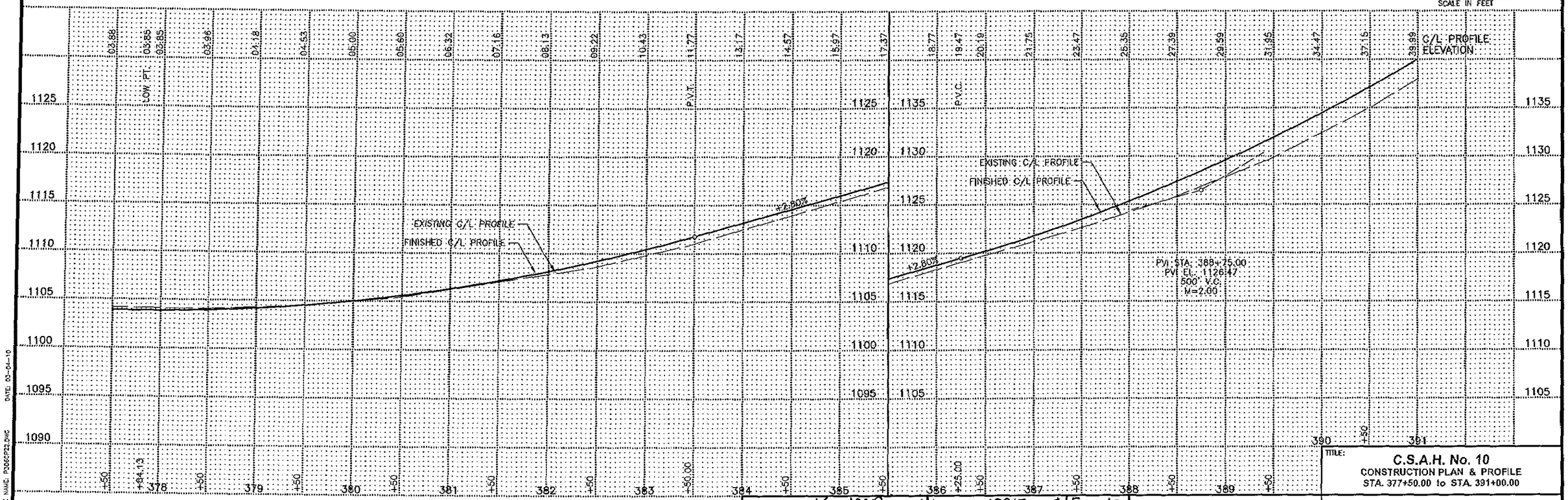
STA. 383+65.00 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 38.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

STA. 390+11.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 390+35.00 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

PI STA. 390+11.21
Δ=00°01'32" RT.
X=704410.0867
Y=182176.3954

0 25 50 100
SCALE IN FEET



DATE: 03-04-10
FILE NAME: P066CP22.DWG

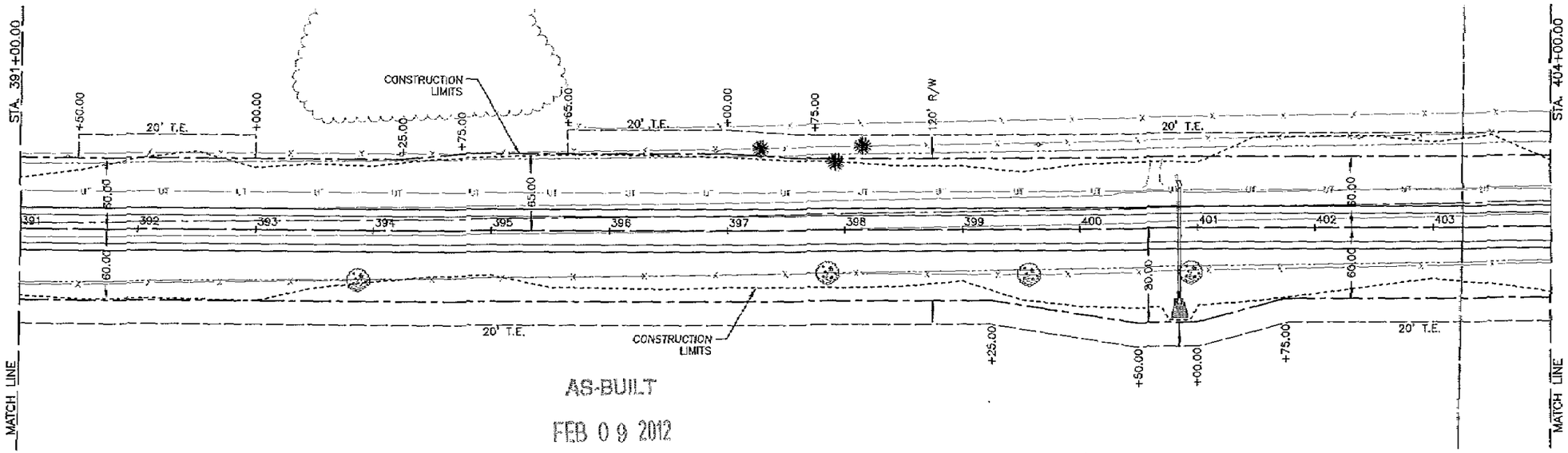
TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 377+50.00 to STA. 391+00.00

CERTIFIED BY Kevin M Barnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 43 of 299 Sheets

STA. 400+63.00 – FIELD ENT. LT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE



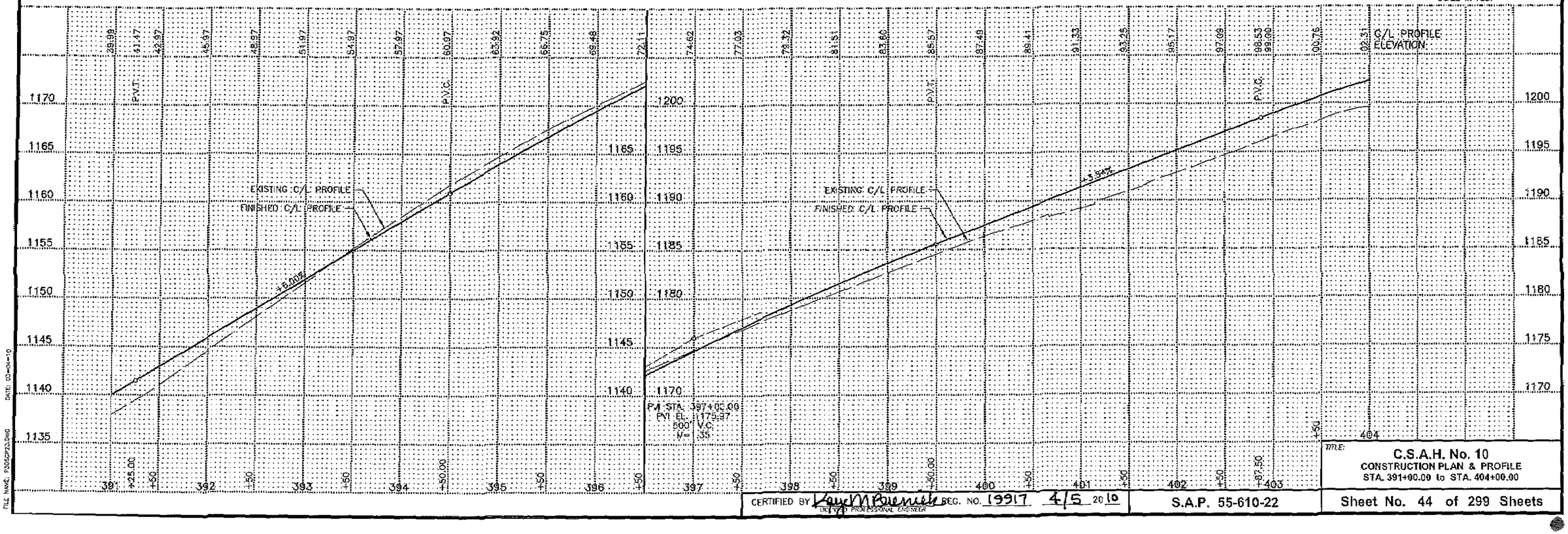
AS-BUILT

FEB 0 9 2012

ENGINEERING

STA. 400+65.00 – C/L
REMOVE INPL. 24" x 78 L.F. CMP
24" x 92.00 L.F. R.C.P.
2 – 24" R.C.P. APRONS
8 C.Y. CL. III RIPRAP AT OUTLET

0 25 50 100
SCALE IN FEET



DATE: 03-JAN-10
FILE NAME: P:\05\CP23.DWG

CERTIFIED BY Lance M Bruemmer REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

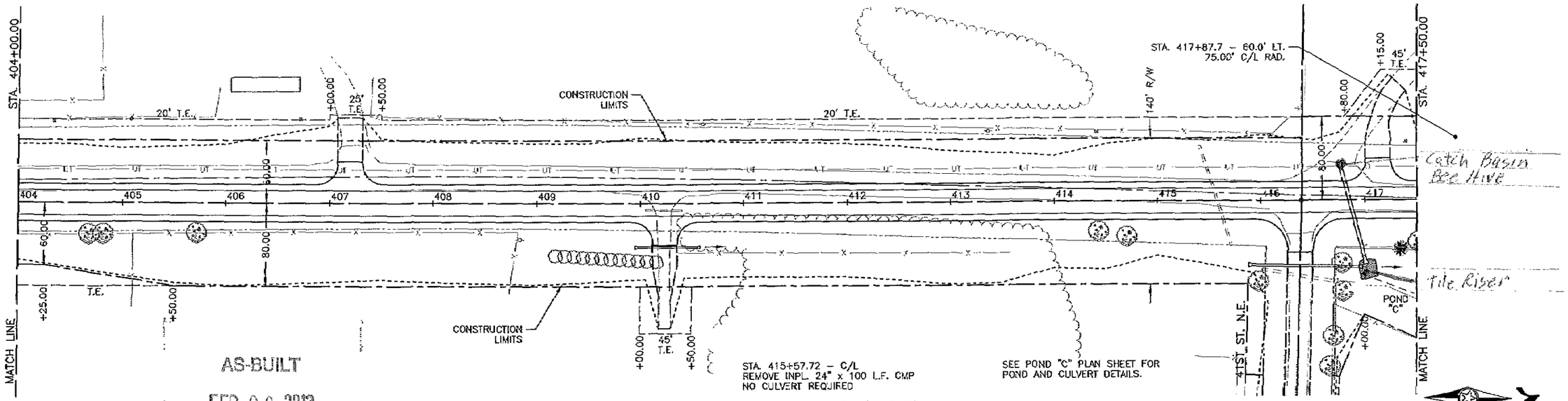
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 391+00.00 to STA. 404+00.00

Sheet No. 44 of 299 Sheets

STA. 407+19.85 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 417+12.56 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED



STA. 410+23.87 – DRIVEWAY RT.
REMOVE INPL. 18" x 36 L.F. CMP
18" x 56.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

STA. 415+57.72 – C/L
REMOVE INPL. 24" x 100 L.F. CMP
NO CULVERT REQUIRED

STA. 416+65.00 – C/L (15° SKEW)
NO INPLACE CULVERT
36" SPAN x 86.00 L.F. RCP-ARCH
2 – 36" SPAN RCP-ARCH APRONS
11 C.Y. CL. III RIPRAP AT OUTLET

SEE POND "C" PLAN SHEET FOR
POND AND CULVERT DETAILS.

STA. 416+39.21 – 41ST ST. N.E.
SEE 41ST ST. N.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES

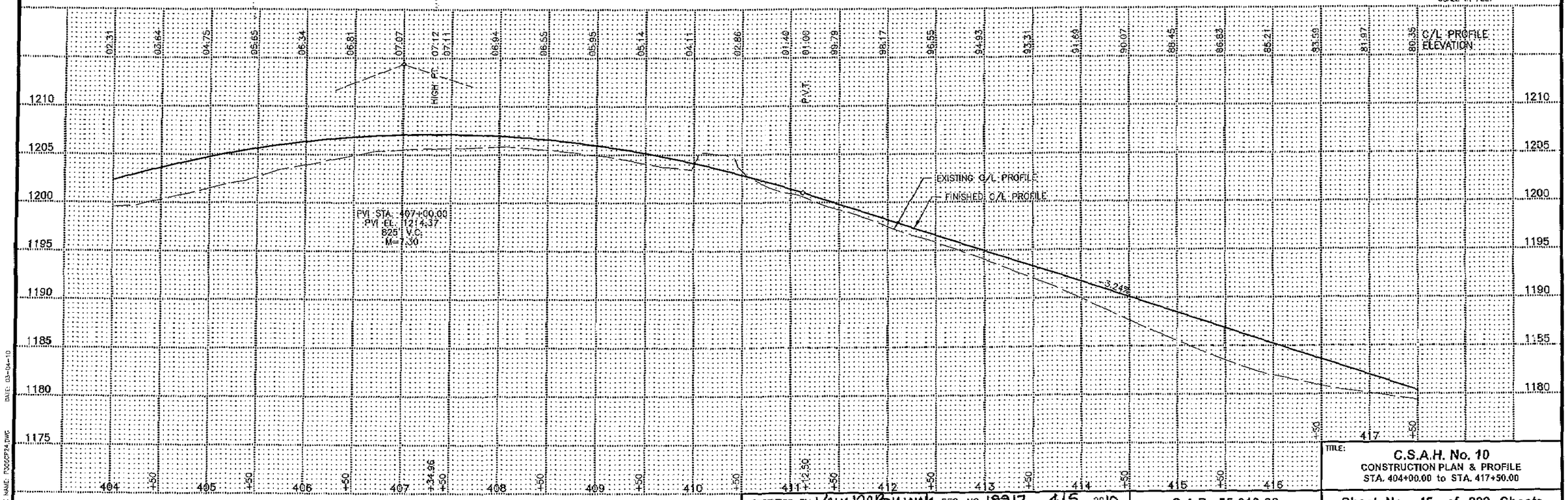
PI STA. 416+39.21
Δ=00°03'39" RT.
X=704373.2287
Y=184804.1369

0 25 50 100
SCALE IN FEET

AS-BUILT

FEB 09 2012

ENGINEERING



DATE: 03-04-10

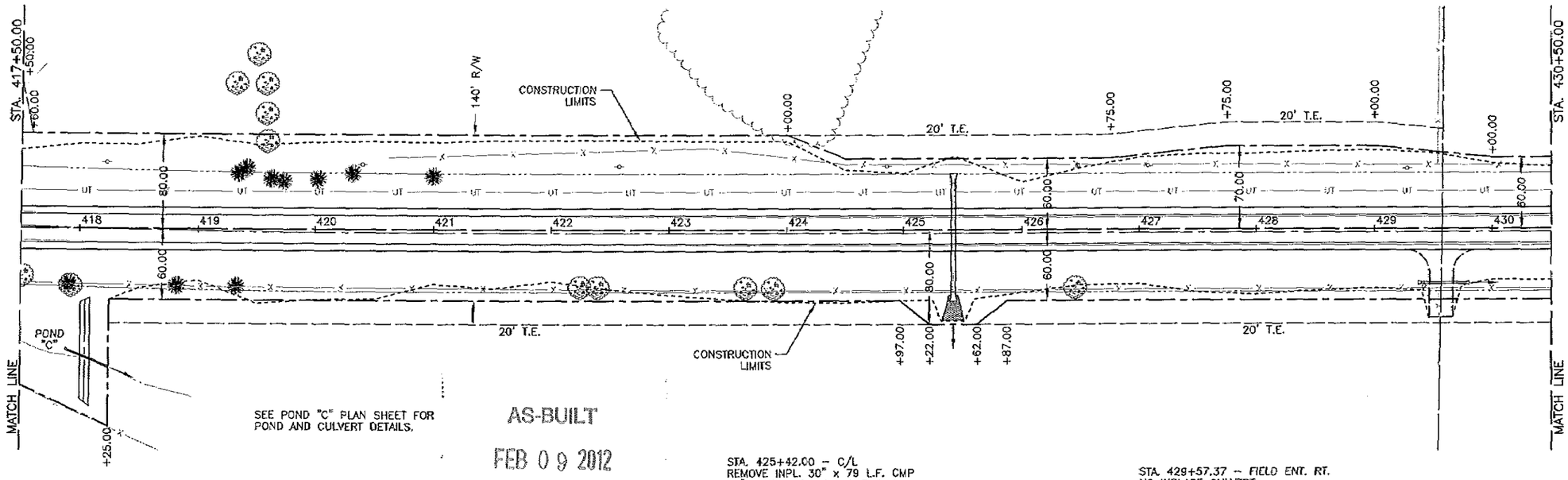
FILE NAME: P0605P24.DWG

CERTIFIED BY Dave M Burmeister REG. NO. 19917 4/5 2010
DULY LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 404+00.00 to STA. 417+50.00

Sheet No. 45 of 299 Sheets



SEE POND "C" PLAN SHEET FOR POND AND CULVERT DETAILS.

AS-BUILT

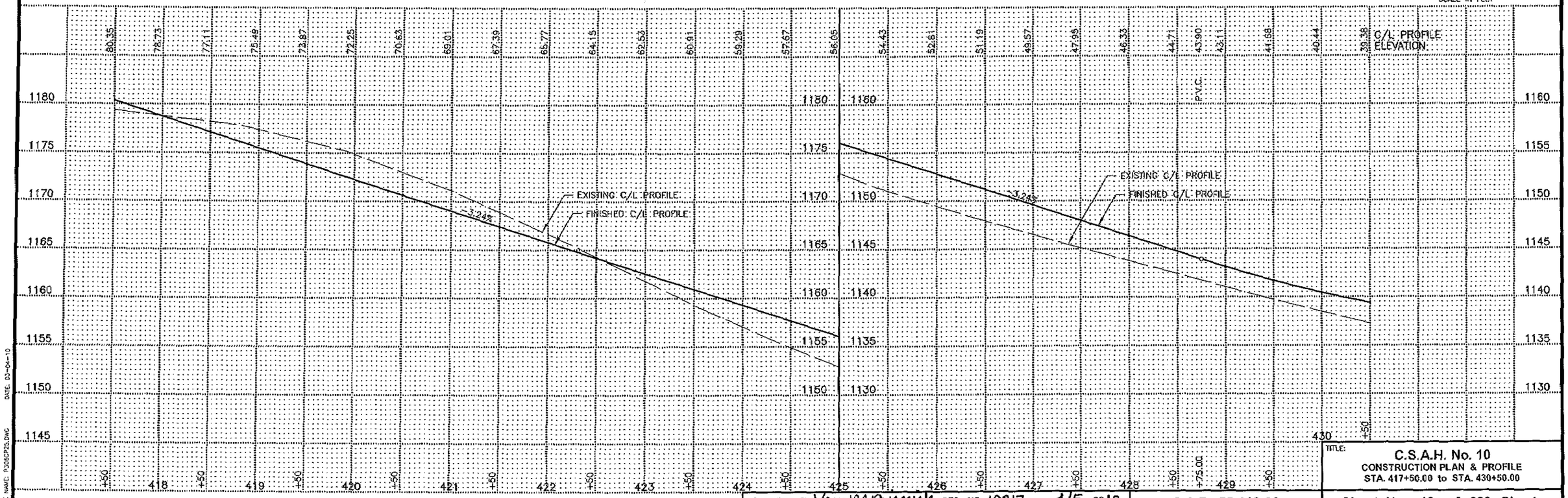
FEB 0 9 2012

ENGINEERING

STA. 425+42.00 – C/L
REMOVE INPL. 30" x 79 L.F. CMP
44" SPAN x 92.00 L.F. RCP-A
2 – 44" SPAN RCP-A APRONS
14 C.Y. CL. III RIPRAP AT OUTLET

STA. 429+57.37 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 38.00 L.F. C.S.P. – 46.00' RT.
2 – 18" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3060P25.DWG

CERTIFIED BY Jay M Bisenius REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 417+50.00 to STA. 430+50.00

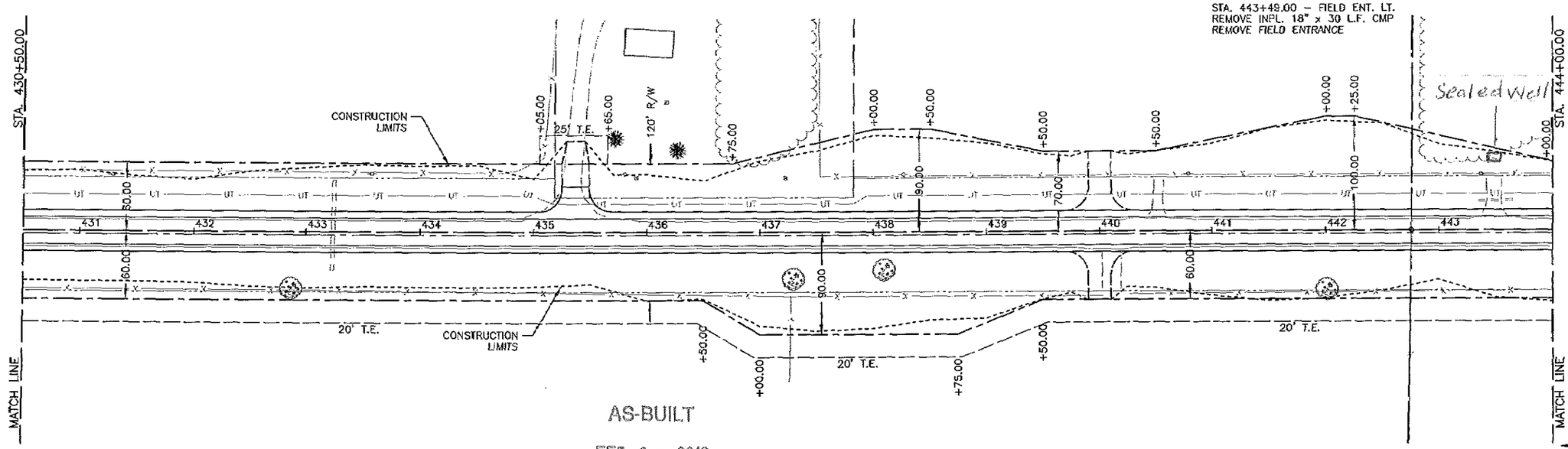
Sheet No. 46 of 299 Sheets

STA. 435+36.91 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 440+00.00 – FIELD ENT. LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 440+52.00 – FIELD ENT. LT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 443+49.00 – FIELD ENT. LT.
REMOVE INPL. 18" x 30 L.F. CMP
REMOVE FIELD ENTRANCE



AS-BUILT

FEB 0 9 2012

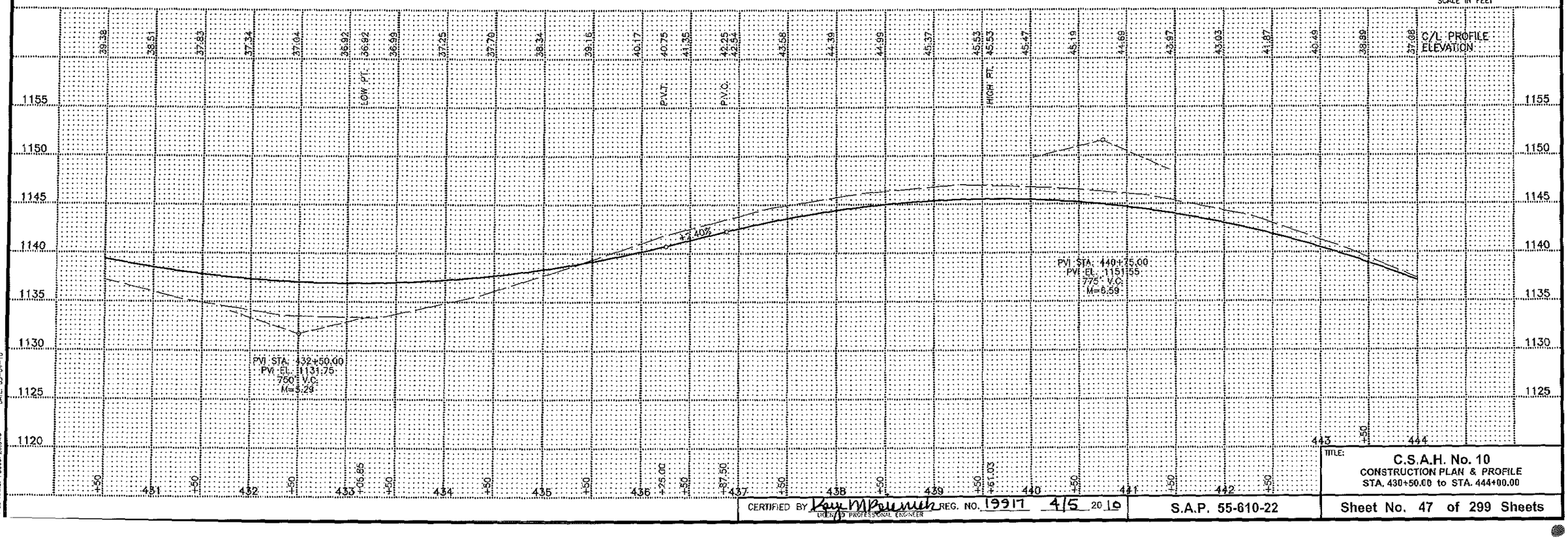
ENGINEERING

STA. 433+23.77 – C/L
REMOVE INPL. 36" x 79 L.F. CMP
NO CULVERT REQUIRED

STA. 440+00.00 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

POT STA. 442+75.53
X=704339.0522
Y=187440.2397

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

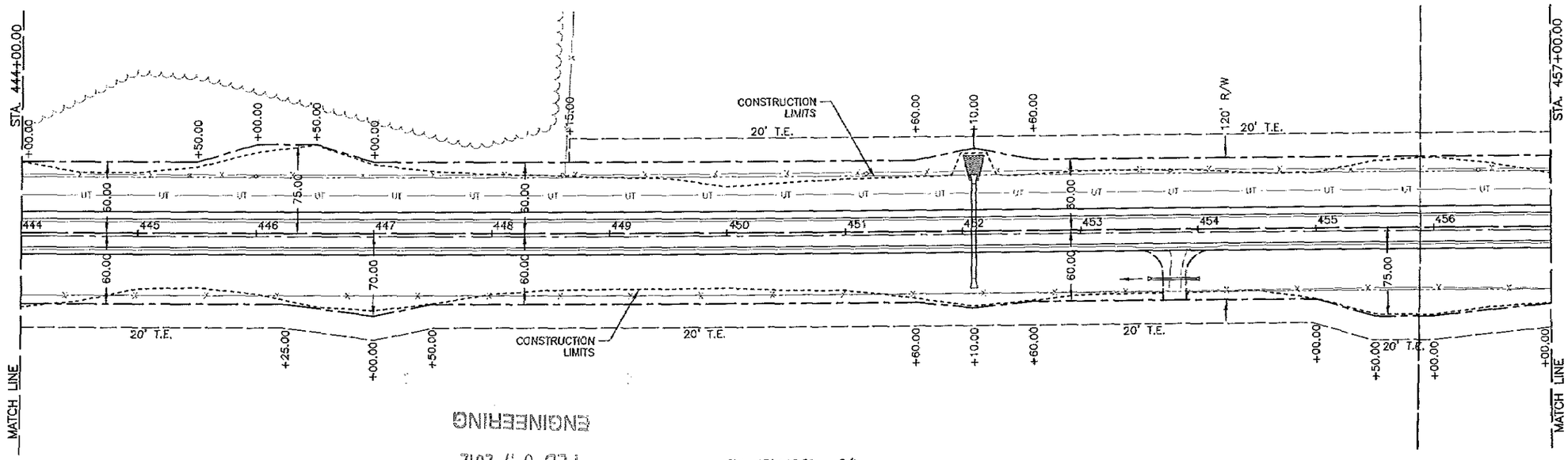
FILE NAME: P30GP20.DWG

CERTIFIED BY Jay M Brunsch REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 430+50.00 to STA. 444+00.00

Sheet No. 47 of 299 Sheets



ENGINEERING

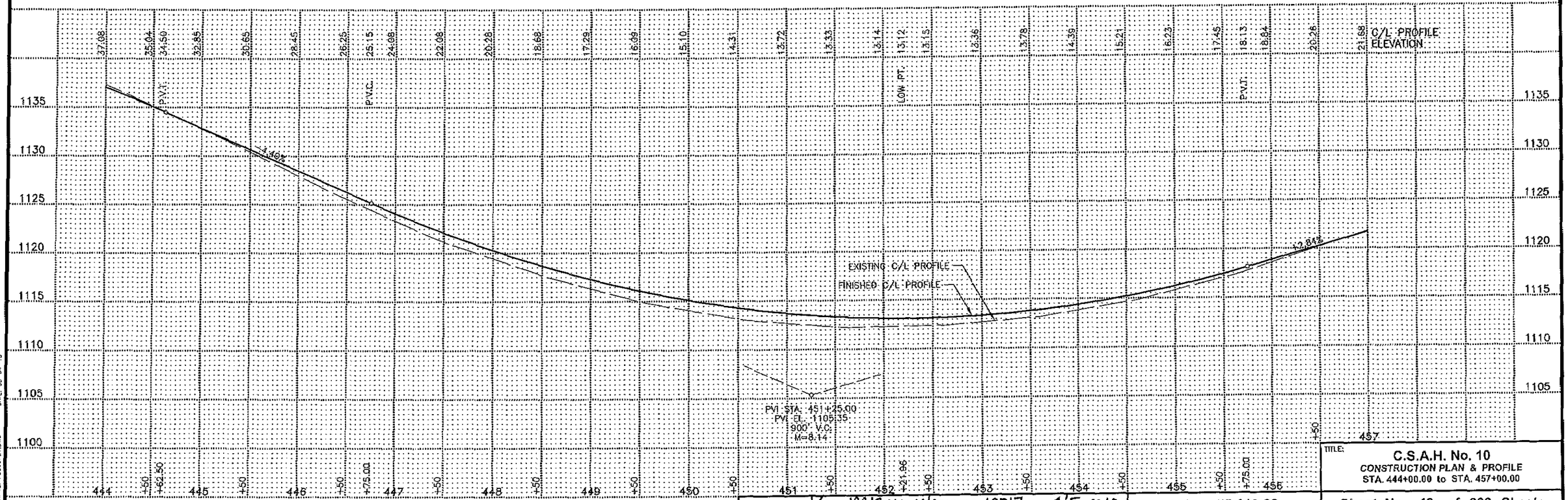
FEB 09 2012

AS-BUILT

STA. 452+10.00 – C/L
REMOVE INPL. 36" x 49 L.F. CMP
44" SPAN x 80.00 L.F. RCP-ARCH
2 – 44" SPAN RCP-ARCH APRONS
14 C.Y. CL. III RIPRAP AT OUTLET

STA. 453+80.00 – FIELD ENT. RT.
NO INPLACE CULVERT
18" x 39.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3056P27.DWG

CERTIFIED BY Kyle M Brennek REG. No. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 444+00.00 to STA. 457+00.00

Sheet No. 48 of 299 Sheets

PI STA. 472.41.41
Δ=98°56'13" LT.
D=05°15'00"
R=1091.35
L=1884.52
T=1276.39
X=704300.6035
Y=190405.8661

STA. 457+00.00

STA. 469+00.00

MATCH LINE

MATCH LINE

20' T.E.

PC STA. 459+65.02

CONSTRUCTION LIMITS

CONSTRUCTION LIMITS

300' RIGHT TURN LANE

C.S.A.H. 2

RIGHT TURN LANE

STA. 462+26.65
BEGIN 12' TURN LANE

STA. 467+18.52 – C.S.A.H. 2
SEE C.S.A.H. 2 PLAN & PROFILE
DRAWING FOR CULVERT NOTES

AS-BUILT

FEB 09 2012

ENGINEERING

0 25 50 100
SCALE IN FEET

G/L PROFILE ELEVATION

P.V.C.

P.C.

HIGH PT.

P.V.T.

EXISTING G/L PROFILE

FINISHED G/L PROFILE

+2.84%

-1.44%

PVI STA. 460+00.00
PVI EL. 1130.20
500' V.C.
M=2.68

CERTIFIED BY Kaye M Brenick REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 457+00.00 to STA. 469+00.00

Sheet No. 49 of 299 Sheets

FILE NAME: P306P28.DWG DATE: 03-04-10

PI STA. 472.41.41
Δ=98°56'13" LT.
D=05°15'00"
R=1091.35
L=1884.52
T=1276.39
X=704300.6035
Y=190405.8661

STA. 469+81.00 – DRIVEWAY LT.
NO INPLACE CULVERT
18" x 44.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

STA. 470+60.00 – DRIVEWAY LT.
REMOVE INPL. 18" x 37 L.F. CMP
REMOVE DRIVEWAY

STA. 479+18.13 – FIELD ENT. LT.
NO INPLACE CULVERT
12" x 59.00 L.F. C.S.P. – 52.00' LT.
2 – 12" G.S. APRONS

STA. 469+00.00

MATCH LINE

CONSTRUCTION LIMITS

SEE POND "D" PLAN SHEET FOR POND DETAILS.

POND "D"

STA. 482+00.00

MATCH LINE

CONSTRUCTION LIMITS

STA. 477+35.3 – 66.3' RT.
175.00' C/L RAD.

STA. 479+03.62 – DRIVEWAY RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 481+10.00 – C/L (15° SKEW)
REMOVE INPL. 4x6 x 50 L.F. RCP
6x5 x 88.00 L.F. P.C. BOX CULVERT
2 – 6x5 P.C. BOX CULVERT END SECTIONS
7 C.Y. CL. III RIPRAP AT INLET
20 C.Y. CL. III RIPRAP AT OUTLET

AS-BUILT
FEB 09 2012
ENGINEERING

SCALE IN FEET
0 25 50 100

C/L PROFILE ELEVATION

EXISTING C/L PROFILE
FINISHED C/L PROFILE

P.V.C.
P.T.
LOW PT.

1115
1110
1105
1100
1095
1090
1085
1080

469 470 471 472 473 474 475 476 477 478 479 480 481 482

CERTIFIED BY Dave M Buesch REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 469+00.00 to STA. 482+00.00

Sheet No. 50 of 299 Sheets

DATE: 03-04-10
FILE NAME: P306DP29.DWG

STA. 485+55.42 – DRIVEWAY LT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 61.00 L.F. C.S.P. – 52.00' LT.
2 – 18" C.S. APRONS

PI STA. 485+46.08
Δ=22°54'43" RT.
D=03°30'00"
R=1637.02
L=654.62
T=331.74
X=702355.7614
Y=190074.1331

PI STA. 495+62.50
Δ=33°31'37" LT.
D=05°15'00"
R=1091.35
L=638.61
T=328.74
X=701357.6993
Y=190308.8163

AS-BUILT

FEB 09 2012

ENGINEERING

SCALE IN FEET 0 25 50 100

EXISTING C/L PROFILE
FINISHED C/L PROFILE
+2.90%
PVI STA. 482+50.00
PVI EL. 1097.80
600' V.C.
M=3.26

C/L PROFILE ELEVATION

CERTIFIED BY Kay M Zuenick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 482+00.00 to STA. 495+00.00

Sheet No. 51 of 299 Sheets

DATE: 03-04-10
FILE NAME: P:\DGN\P2\2\2.DWG

PI STA. 495+62.50
Δ=33°31'37" LT.
D=05°15'00"
R=1091.35
L=638.61
T=328.74
X=701357.6993
Y=190308.8163

STA. 503+66.00 – DRIVEWAY LT.
REMOVE INPL. 18" x 38 L.F. CMP
18" x 44.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS

STA. 505+97.73 – 163RD AVE. N.E.
SEE 163RD AVE. N.E. PLAN & PROFILE
DRAWING FOR CULVERT NOTES

STA. 499+70.00 – FIELD ENT. RT.
REMOVE INPL. 18" x 34 L.F. CMP
18" x 41.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

STA. 503+15.50 – FIELD ENT. RT.
REMOVE INPL. 18" x 55 L.F. CMP
REMOVE FIELD ENTRANCE

STA. 503+84.00 – DRIVEWAY RT.
REMOVE INPL. 18" x 55 L.F. CMP
18" x 42.00 L.F. C.S.P. – 40.00' RT.
2 – 18" G.S. APRONS

STA. 504+83.00 – DRIVEWAY RT.
REMOVE INPL. 18" x 37 L.F. CMP
18" x 48.00 L.F. C.S.P. – 42.00' RT.
2 – 18" G.S. APRONS

PI STA. 503+15.43
Δ=19°54'07" RT.
D=03°30'00"
R=1637.02
L=568.63
T=287.21
X=700633.8441
Y=190041.1220

AS-BUILT
FEB 0 9 2012
ENGINEERING

SCALE IN FEET 0 25 50 100

C/L PROFILE ELEVATION

EXISTING C/L PROFILE
FINISHED C/L PROFILE

PVI STA. 497+50.00
PVI EL. 1141.30
1100' V.C.
M=12.46

-6.16%

DATE: 02-04-10
FILE NAME: P2006P31.DWG

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 495+00.00 to STA. 508+00.00

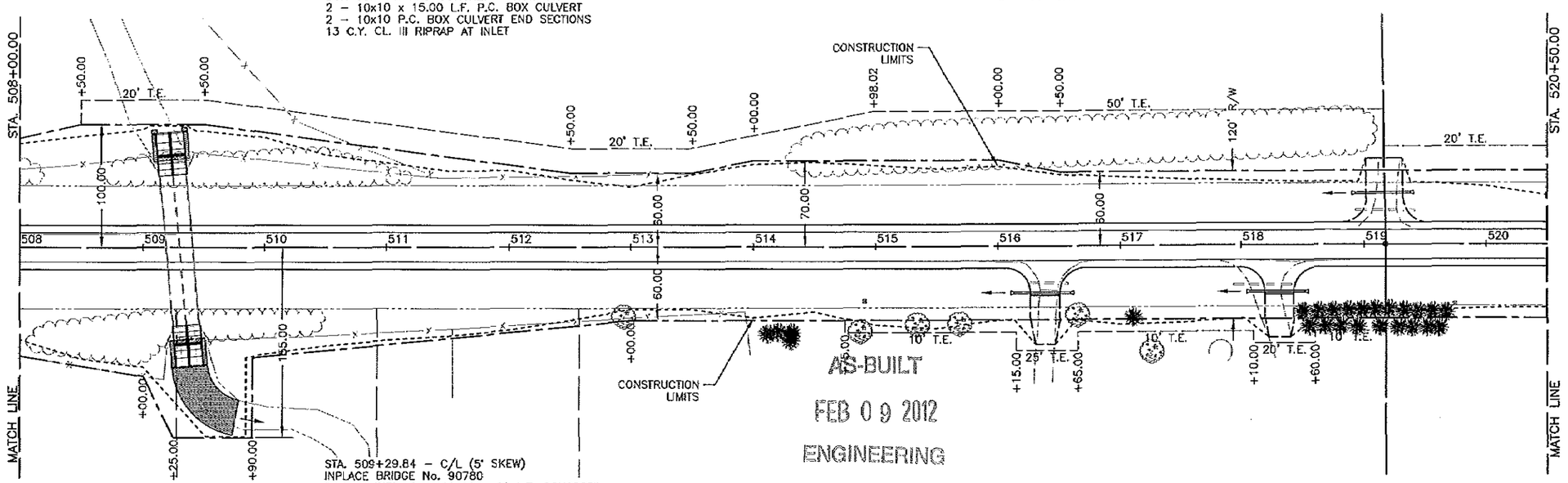
CERTIFIED BY Kaye M Bruemmer REG. NO. 19317 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 52 of 299 Sheets

STA. 509+29.84 – C/L (5° SKEW)
INPLACE BRIDGE No. 90780
REMOVE INPL. 2 – 10x10 x 11 L.F. CONCRETE
BOX CULVERT AND CONCRETE WINGWALLS
2 – 10x10 x 15.00 L.F. P.C. BOX CULVERT
2 – 10x10 P.C. BOX CULVERT END SECTIONS
13 C.Y. CL. III RIPRAP AT INLET

STA. 519+17.37 – SHARED FIELD ENT. LT.
REMOVE INPL. 18" x 49 L.F. CMP
18" x 45.00 L.F. C.S.P. – 42.00' LT.
2 – 18" G.S. APRONS



AS-BUILT

FEB 0 9 2012

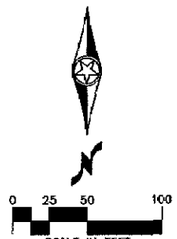
ENGINEERING

STA. 509+29.84 – C/L (5° SKEW)
INPLACE BRIDGE No. 90780
REMOVE INPL. 2 – 10x10 x 11 L.F. CONCRETE
BOX CULVERT AND CONCRETE WINGWALLS
2 – 10x10 x 14.00 L.F. P.C. BOX CULVERT
2 – 10x10 P.C. BOX CULVERT END SECTIONS
110 C.Y. CL. III RIPRAP AT OUTLET

STA. 516+38.46 – DRIVEWAY RT.
REMOVE INPL. 18" x 30 L.F. CMP
18" x 46.00 L.F. C.S.P. – 38.00' RT.
2 – 18" G.S. APRONS

STA. 518+31.39 – DRIVEWAY RT.
REMOVE INPL. 18" x 48 L.F. CMP
18" x 45.00 L.F. C.S.P. – 38.00' RT.
2 – 18" G.S. APRONS

PI STA. 519+17.37
Δ=00°07'52" RT.
X=699026.1228
Y=190030.1027





DATE: 03-04-10

FILE NAME: P326P32.DWG

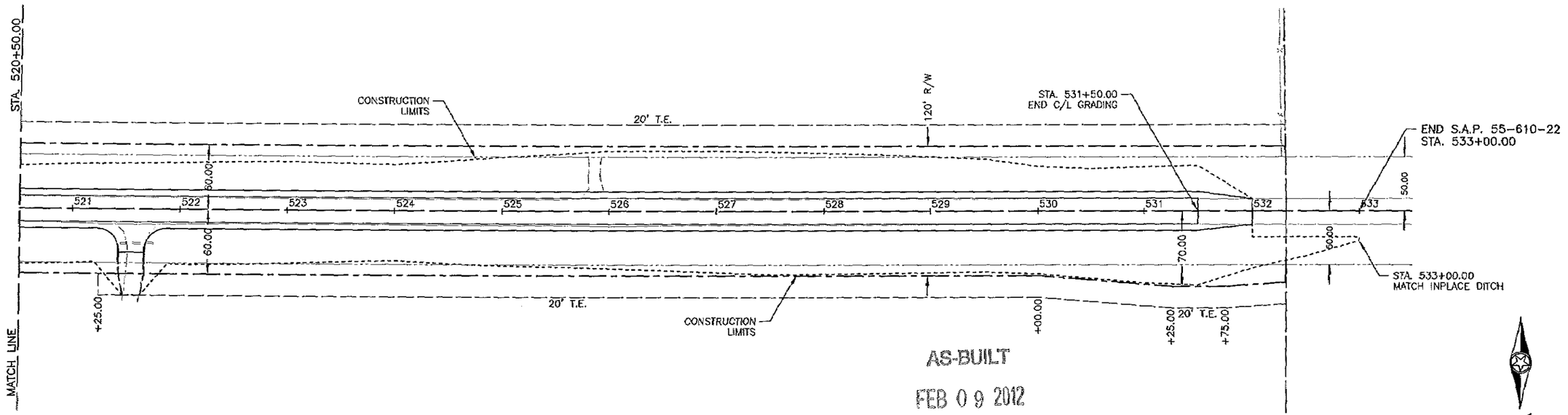
CERTIFIED BY Kay M Baumiche REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 508+00.00 to STA. 520+50.00

Sheet No. 53 of 299 Sheets

STA. 525+86.00 – FIELD ENT. LT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

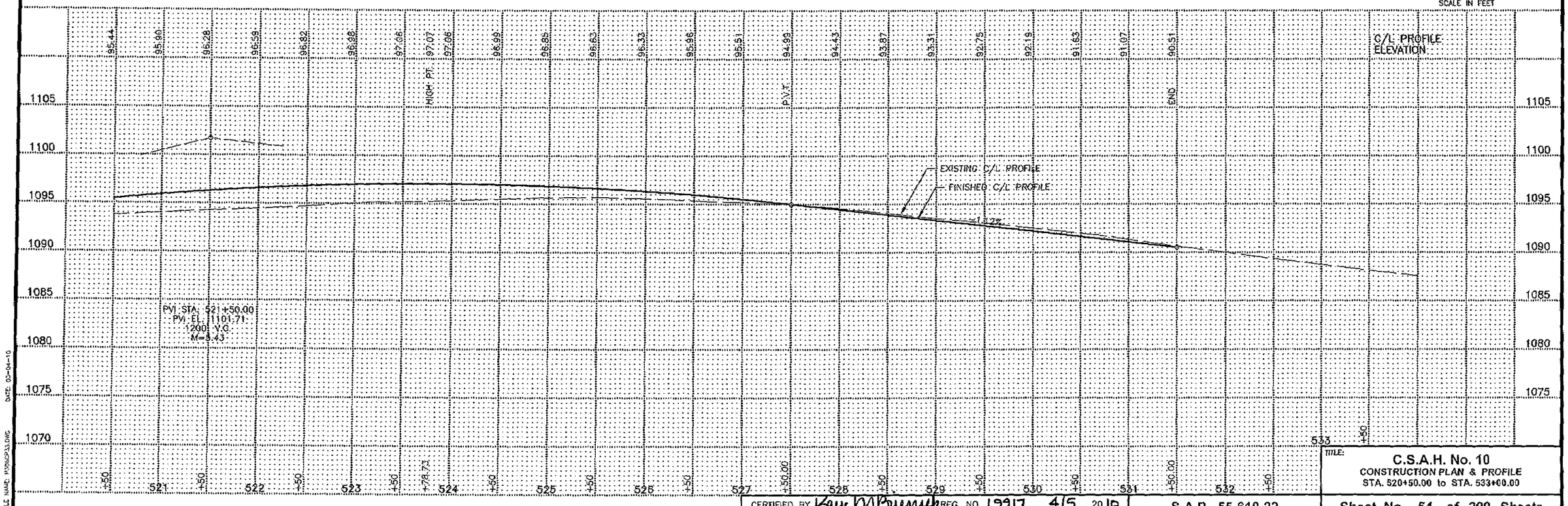


AS-BUILT

FEB 0 9 2012

ENGINEERING

STA. 521+55.19 – DRIVEWAY RT.
REMOVE INPL. 18" x 30 L.F. CMP
NO CULVERT REQUIRED



0 25 50 100
SCALE IN FEET

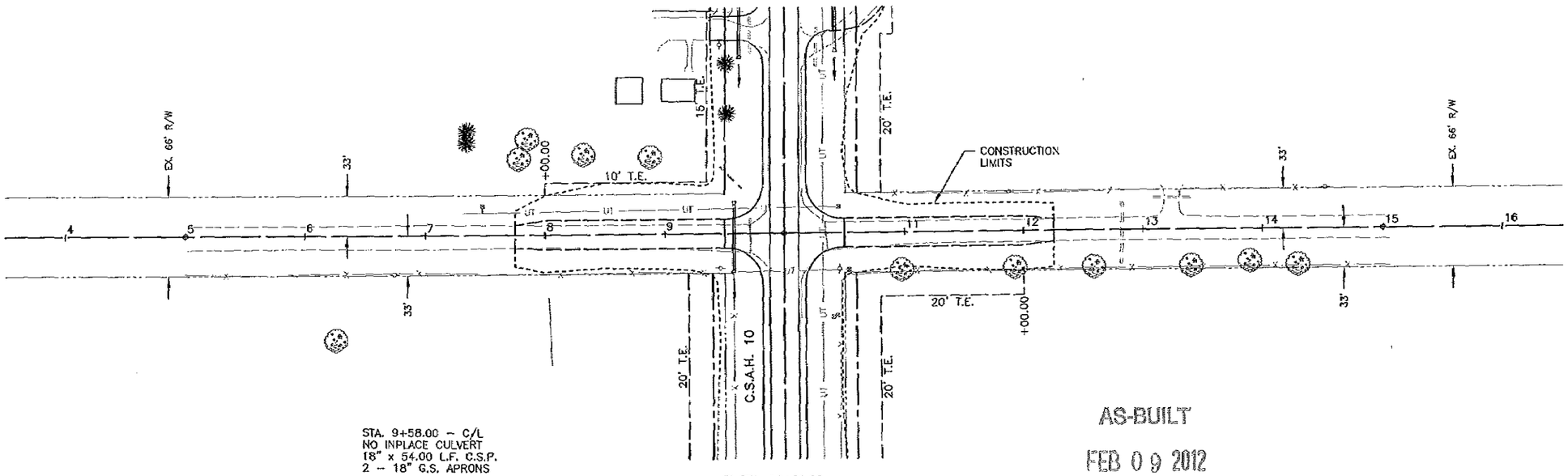
CERTIFIED BY Dave M Peterson REG. NO. 19917 4/5 20 10
DAVID M. PETERSON PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN & PROFILE
STA. 520+50.00 to STA. 533+00.00

Sheet No. 54 of 299 Sheets

FILE NAME: P:\55C\P33.DWG DATE: 03-04-10



STA. 9+58.00 – C/L
NO INPLACE CULVERT
18" x 54.00 L.F. C.S.P.
2 – 18" G.S. APRONS

STA. 9+71.50 – C/L
REMOVE INPL. 18" x 33 L.F. CMP
NO CULVERT REQUIRED

POT STA. 5+00.00
X=704171.3305
Y=155796.6766

PI STA. 10+00.00
Δ=00°03'56" RT.
X=704671.3048
Y=155801.7452

POT STA. 15+00.00
X=705171.2846
Y=155806.2408

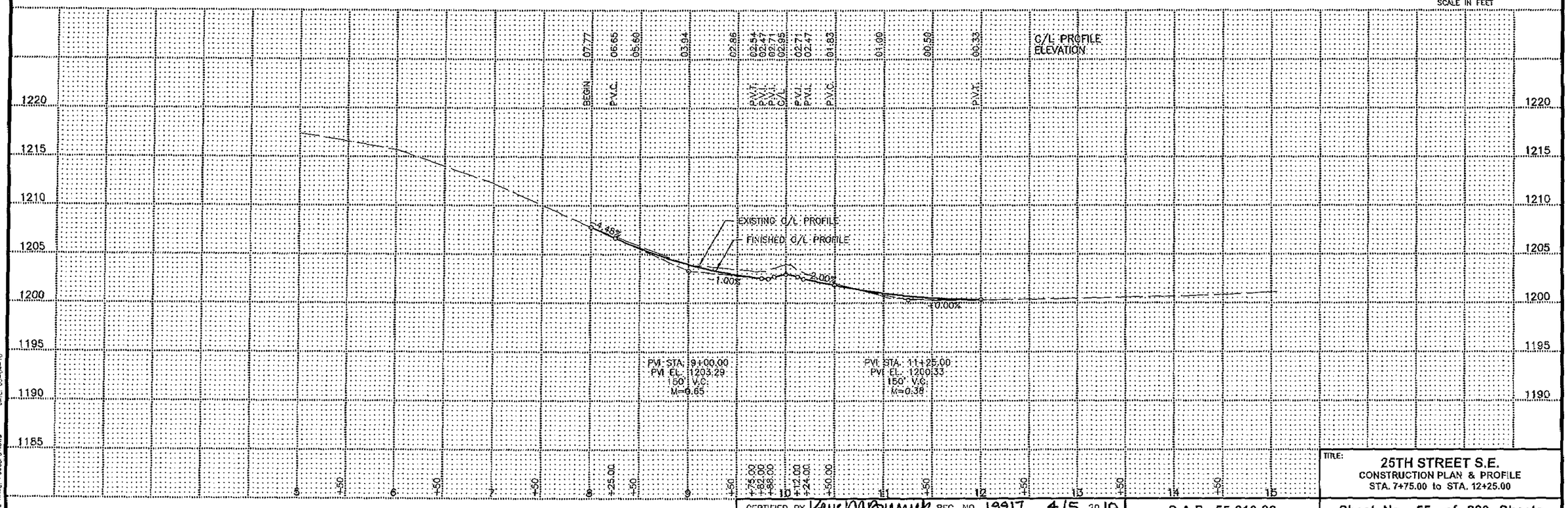
AS-BUILT

FEB 0 9 2012

ENGINEERING

0 25 50 100
SCALE IN FEET

C/L PROFILE ELEVATION



CERTIFIED BY Louis M Bruemmer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
25TH STREET S.E.
CONSTRUCTION PLAN & PROFILE
STA. 7+75.00 to STA. 12+25.00

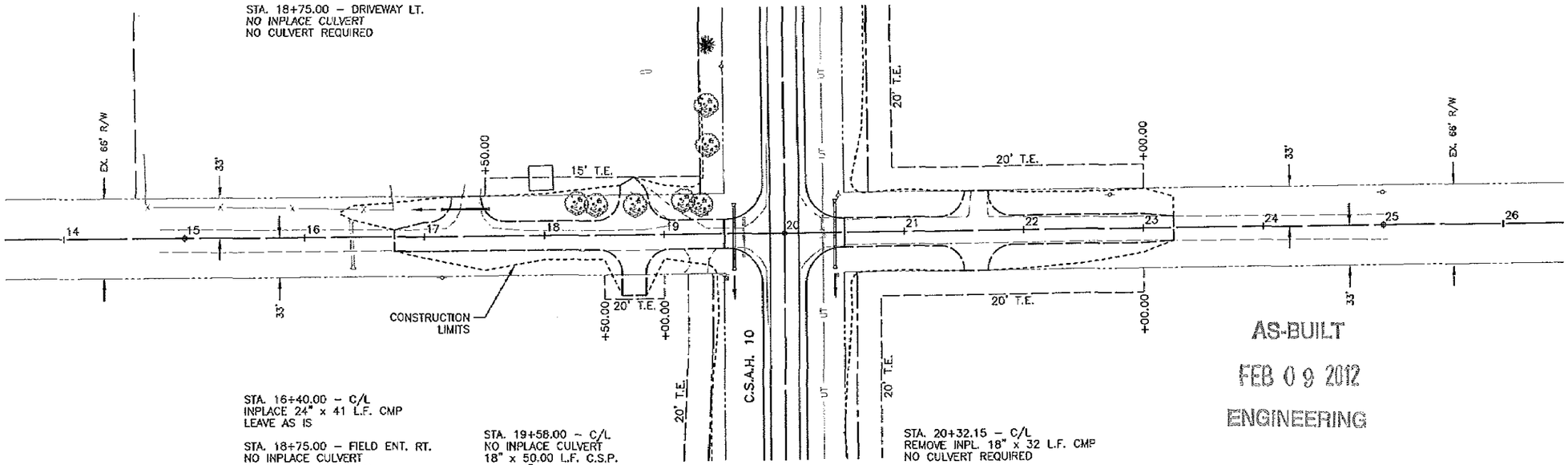
Sheet No. 55 of 299 Sheets

DATE: 03-04-10
FILE NAME: P306GP54.DWG

STA. 17+35.00 – DRIVEWAY LT.
NO INPLACE CULVERT
12" x 36.00 L.F. C.S.P. – 22.50' LT.
2 – 12" G.S. APRONS

STA. 18+75.00 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 21+60.00 – FIELD ENT. LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED



AS-BUILT

FEB 09 2012

ENGINEERING

STA. 16+40.00 – C/L
INPLACE 24" x 41 L.F. CMP
LEAVE AS IS

STA. 18+75.00 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

STA. 19+58.00 – C/L
NO INPLACE CULVERT
18" x 50.00 L.F. C.S.P.
2 – 18" G.S. APRONS

STA. 19+29.00 – FIELD ENT. RT.
NO INPLACE CULVERT
REMOVE FIELD ENTRANCE

STA. 19+66.50 – C/L
REMOVE INPL. 18" x 33 L.F. CMP
NO CULVERT REQUIRED

PI STA. 20+00.00
Δ=00°03'10" RT.
X=704630.0703
Y=161081.6113

STA. 20+32.15 – C/L
REMOVE INPL. 18" x 32 L.F. CMP
NO CULVERT REQUIRED

STA. 20+42.00 – C/L
NO INPLACE CULVERT
18" x 52.00 L.F. C.S.P.
2 – 18" G.S. APRONS

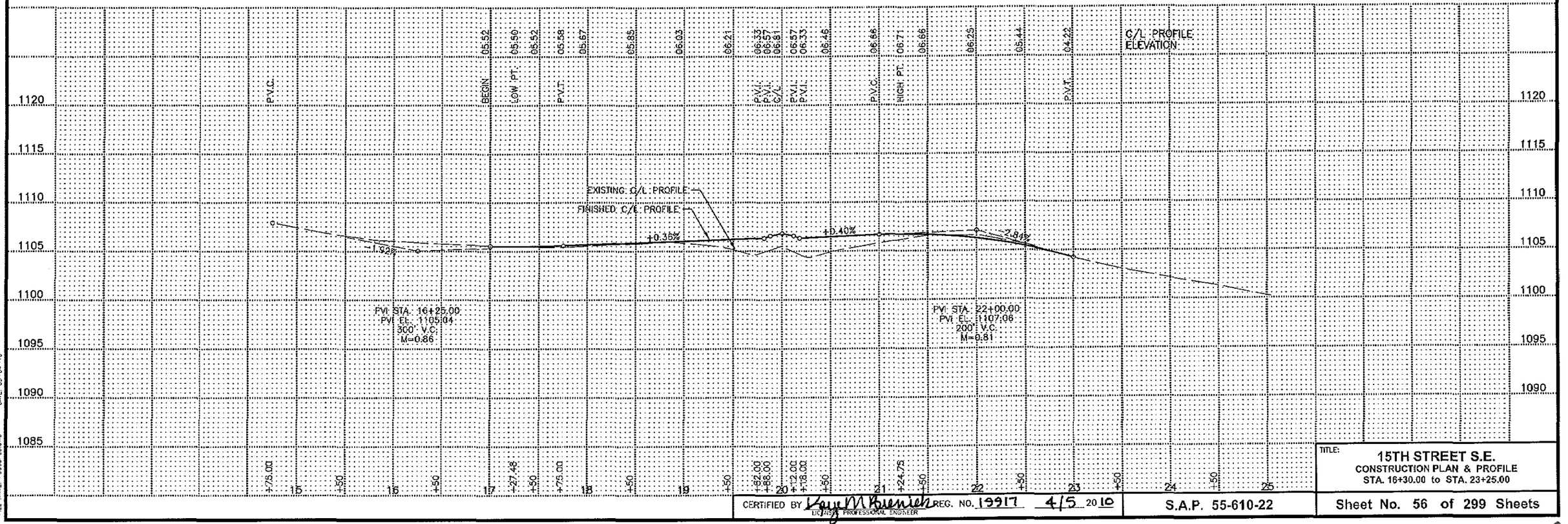
STA. 21+60.00 – FIELD ENT. RT.
NO INPLACE CULVERT
NO CULVERT REQUIRED

POT STA. 15+00.00
X=704130.0894
Y=161077.2410

POT STA. 25+00.00
X=705130.0550
Y=161085.5202

N

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3086P35.DWG

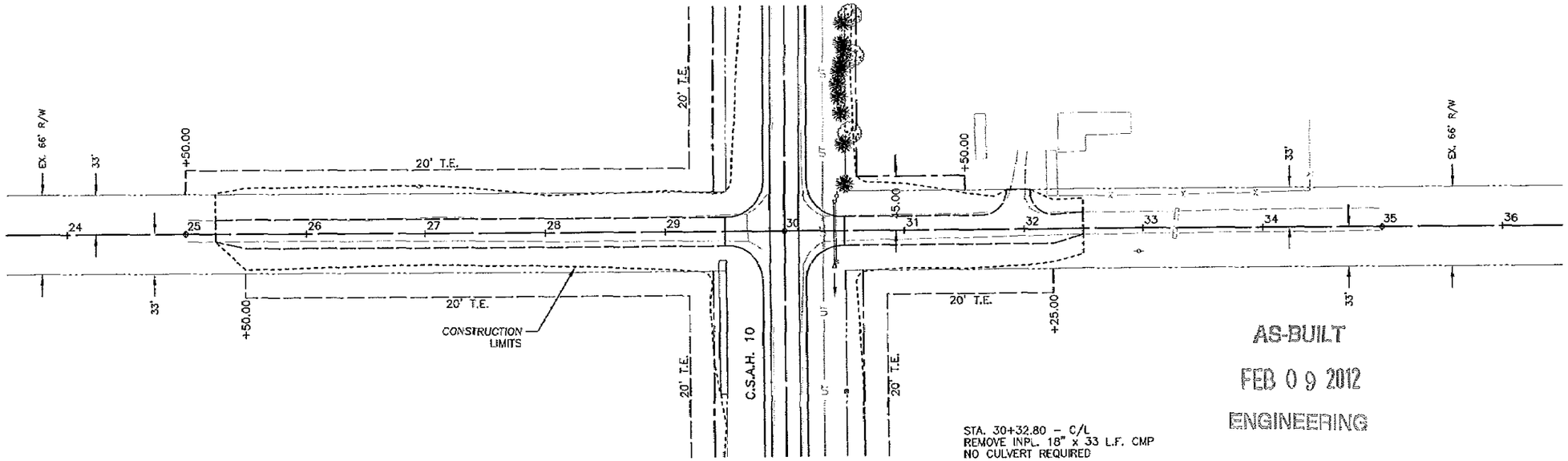
CERTIFIED BY Dave M Buenich LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

TITLE:
15TH STREET S.E.
CONSTRUCTION PLAN & PROFILE
STA. 16+30.00 to STA. 23+25.00

Sheet No. 56 of 299 Sheets

STA. 31+95.00 – DRIVEWAY LT.
NO INPLACE CULVERT
NO CULVERT REQUIRED



AS-BUILT

FEB 0 9 2012

ENGINEERING

POT STA. 25+00.00
X=704088.3843
Y=163722.6823

PI STA. 30+00.00
Δ=00°12'15" RT.
X=704588.3644
Y=163727.1419

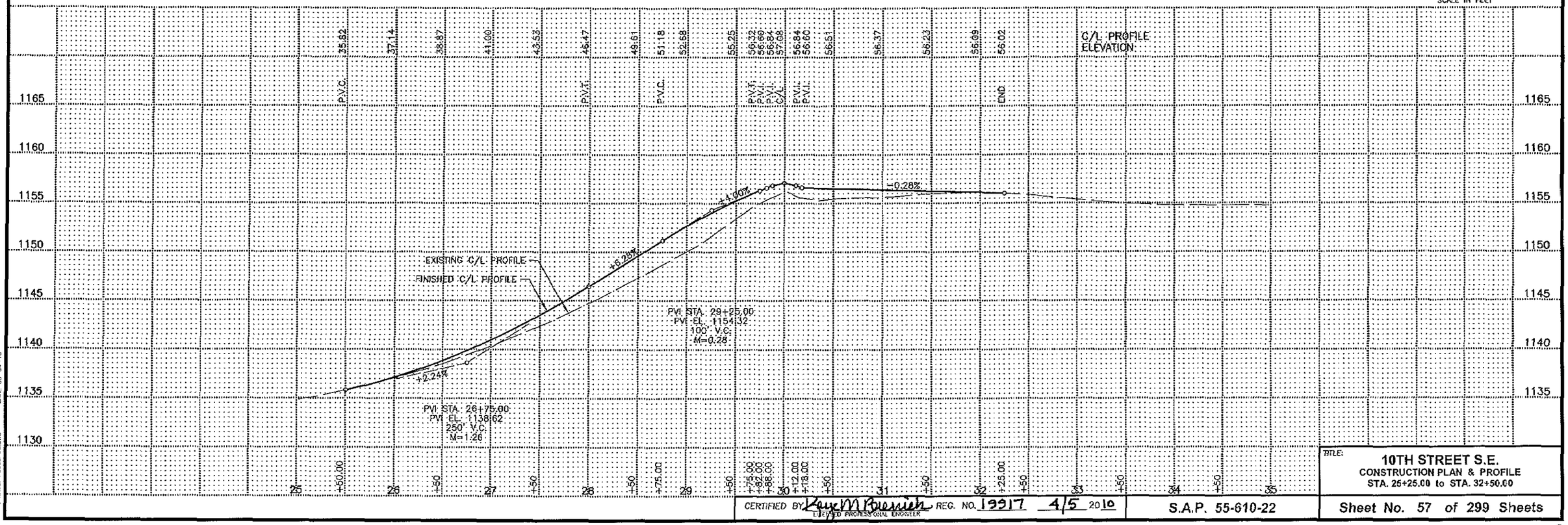
STA. 30+32.80 – C/L
REMOVE INPL. 18" x 33 L.F. CMP
NO CULVERT REQUIRED

STA. 30+42.00 – C/L
NO INPLACE CULVERT
18" x 51.00 L.F. C.S.P.
2 – 18" G.S. APRONS

POT STA. 35+00.00
X=705088.3572
Y=163729.8205

N

0 25 50 100
SCALE IN FEET



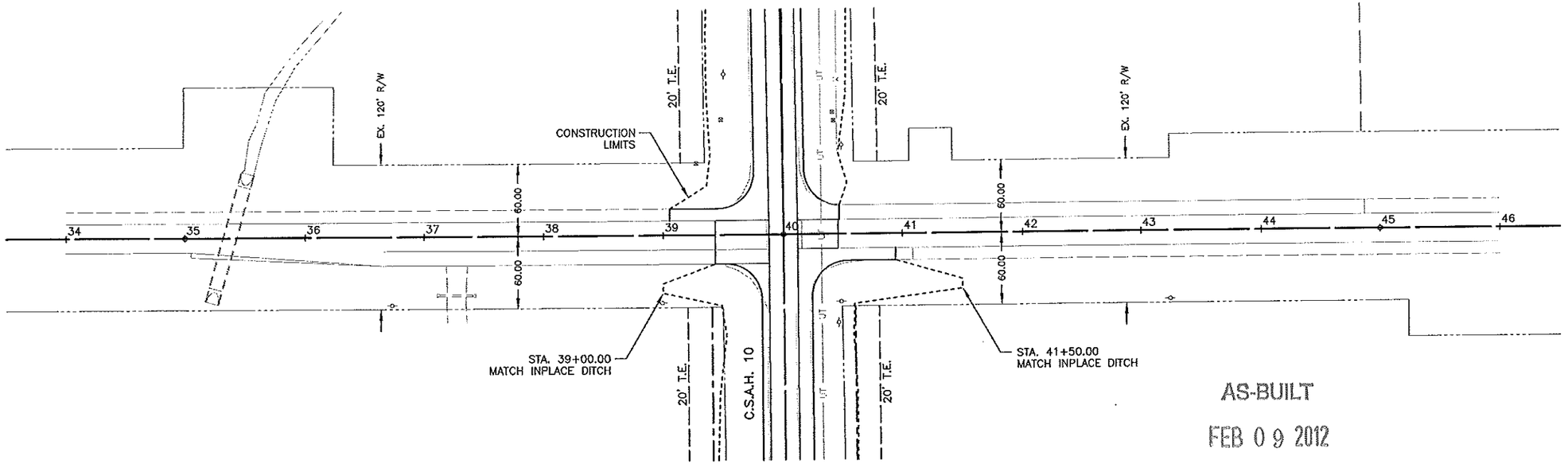
TITLE:
10TH STREET S.E.
CONSTRUCTION PLAN & PROFILE
STA. 25+25.00 to STA. 32+50.00

CERTIFIED BY Kayc M Buesich REG. NO. 19317 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 57 of 299 Sheets

FILE NAME: P30sCP36.DWG DATE: 03-04-10



AS-BUILT

FEB 0 9 2012

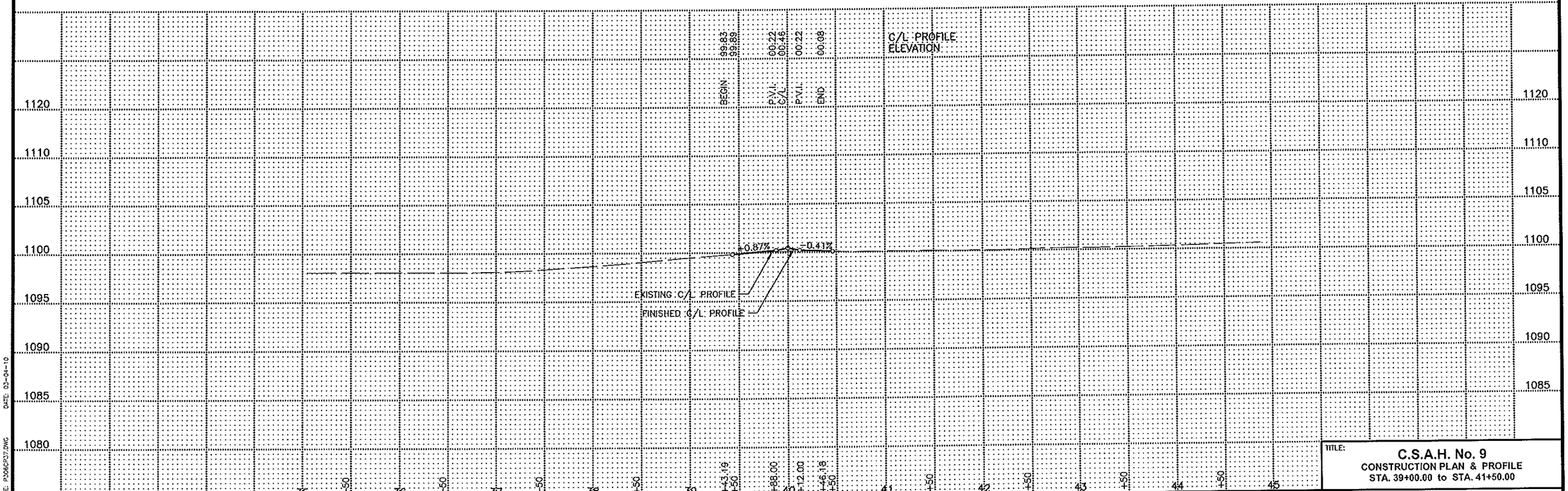
ENGINEERING

POT STA. 35+00.00
X=704045.8430
Y=168997.5294

PI STA. 40+00.00
Δ=00°08'07" RT.
X=704545.8398
Y=168999.3072

POT STA. 45+00.00
X=705045.8394
Y=168999.9039

0 25 50 100
SCALE IN FEET



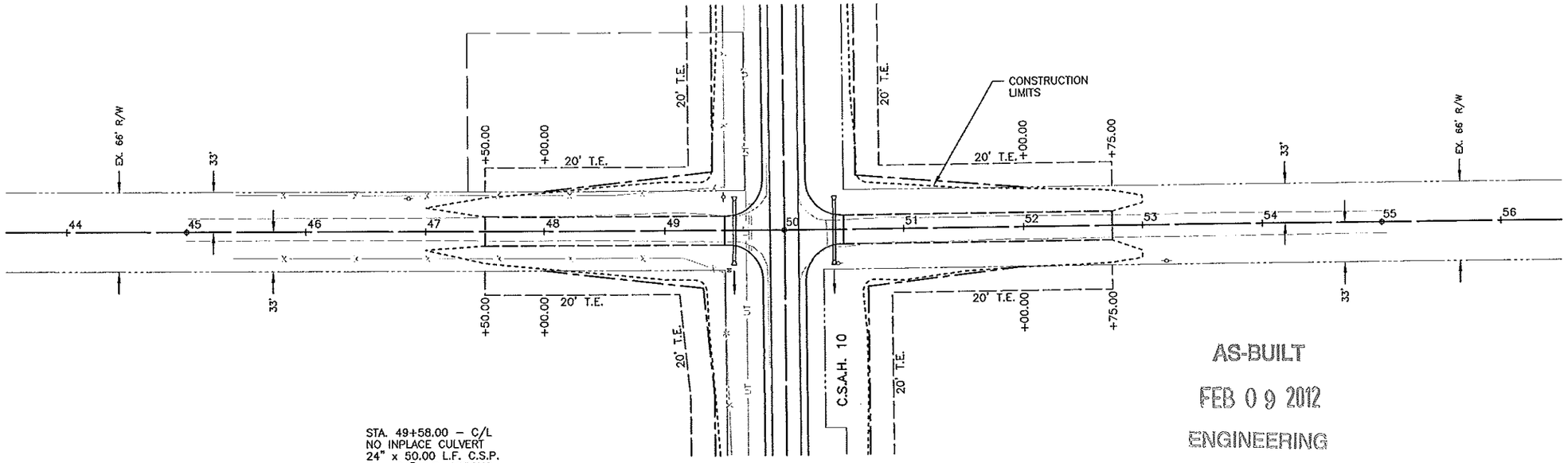
CERTIFIED BY Kay M Brunnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 9
CONSTRUCTION PLAN & PROFILE
STA. 39+00.00 to STA. 41+50.00

Sheet No. 58 of 299 Sheets

FILE NAME: P3062P37.DWG DATE: 03-04-10



STA. 49+58.00 – C/L
NO INPLACE CULVERT
24" x 50.00 L.F. C.S.P.
2 – 24" G.S. APRONS

STA. 49+71.55 – C/L
REMOVE INPL. 24" x 39 L.F. CMP
NO CULVERT REQUIRED

PI STA. 50+00.00
Δ=00°17'31" LT.
X=704498.9768
Y=174252.4378

STA. 50+42.00 – C/L
NO INPLACE CULVERT
24" x 50.00 L.F. C.S.P.
2 – 24" G.S. APRONS

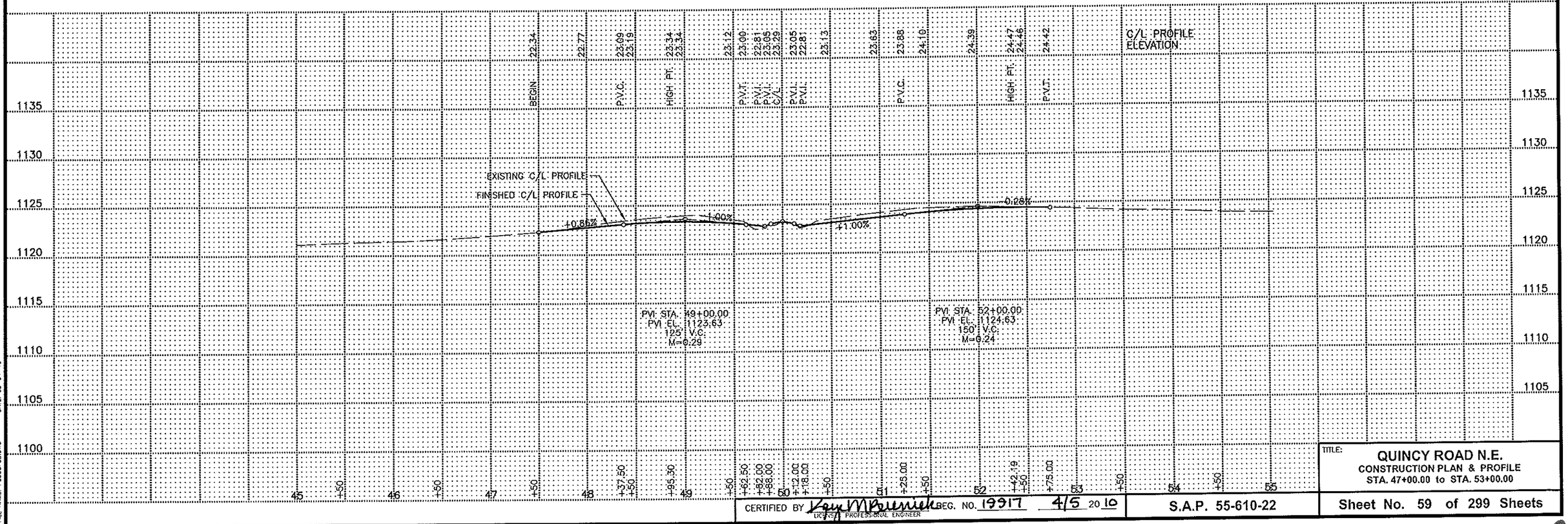
POT STA. 45+00.00
X=703998.9777
Y=174253.3875

POT STA. 55+00.00
X=704998.9742
Y=174254.0348

AS-BUILT
FEB 09 2012
ENGINEERING

N

0 25 50 100
SCALE IN FEET



DATE: 03-04-10
FILE NAME: P206CP38.DWG

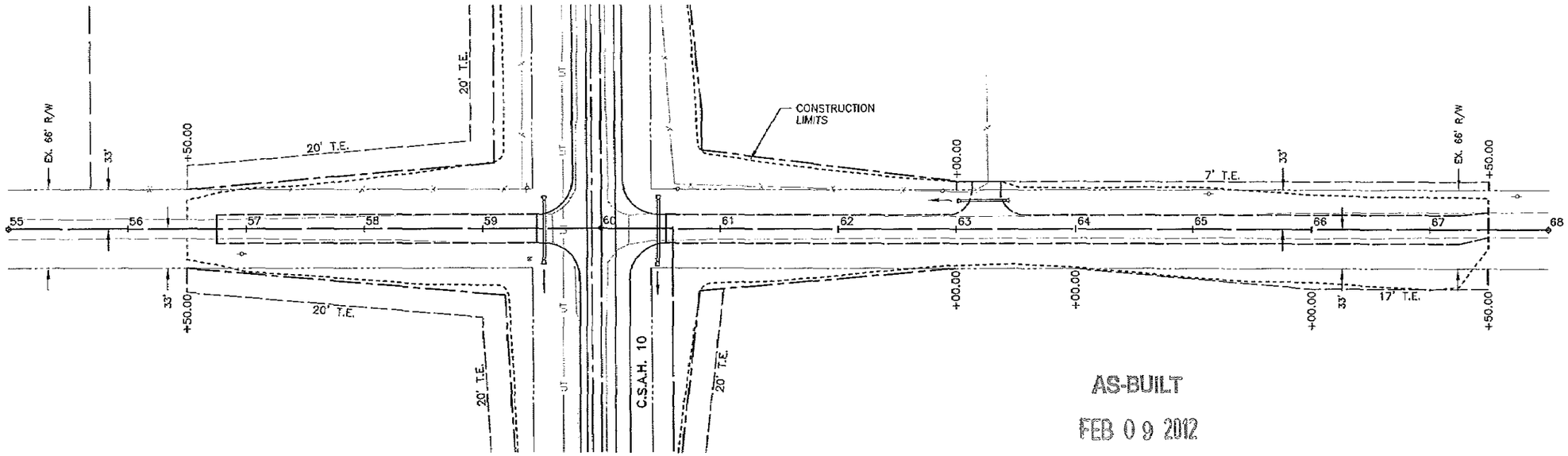
CERTIFIED BY Kevin M Brunick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE: QUINCY ROAD N.E.
CONSTRUCTION PLAN & PROFILE
STA. 47+00.00 to STA. 53+00.00

S.A.P. 55-610-22

Sheet No. 59 of 299 Sheets

STA. 63+25.00 – DRIVEWAY LT.
NO INPLACE CULVERT
18" x 38.00 L.F. C.S.P. – 24.00' LT.
2 – 18" G.S. APRONS



POT STA. 55+00.00
X=703948.2322
Y=179536.8618

STA. 59+52.00 – C/L
NO INPLACE CULVERT
24" x 50.00 L.F. C.S.P.
2 – 24" G.S. APRONS

PI STA. 60+00.00
Δ=00°33'38" RT.
X=704448.2271
Y=179541.1310

STA. 60+48.00 – C/L
NO INPLACE CULVERT
24" x 52.00 L.F. C.S.P.
2 – 24" G.S. APRONS

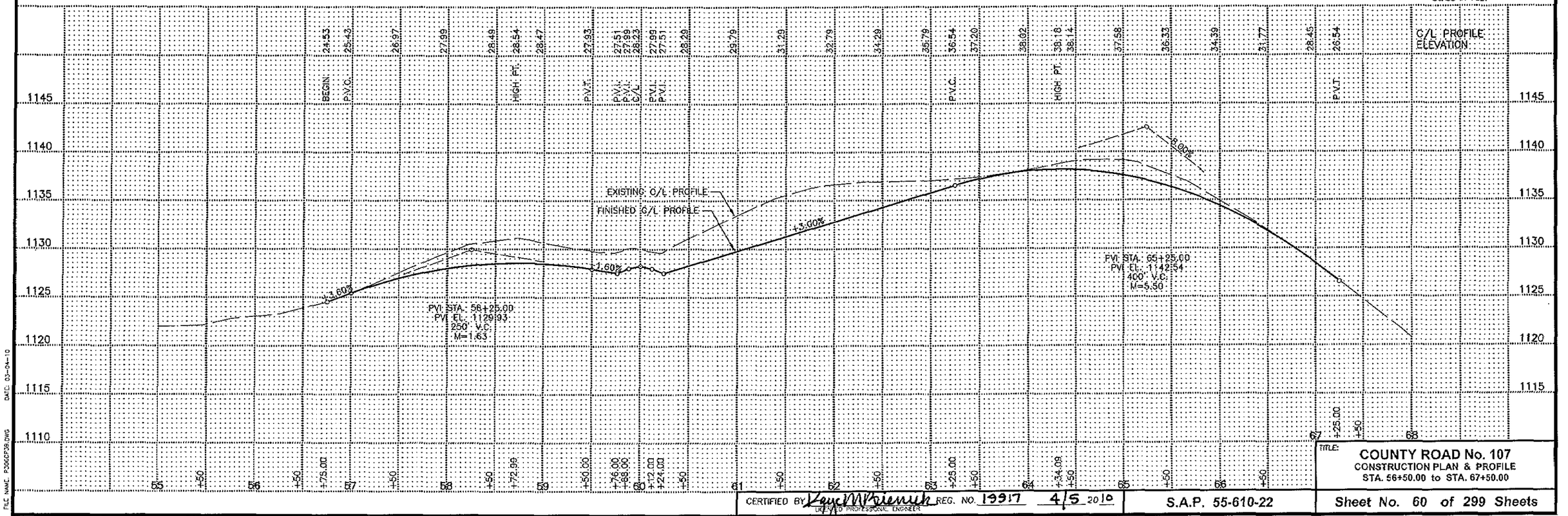
AS-BUILT

FEB 0 9 2012

ENGINEERING

POT STA. 68+00.00
X=705248.2161
Y=179536.9331

0 25 50 100
SCALE IN FEET



DATE: 03-24-10

FILE NAME: P30GCP38.DWG

CERTIFIED BY Lloyd M Brenneis REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

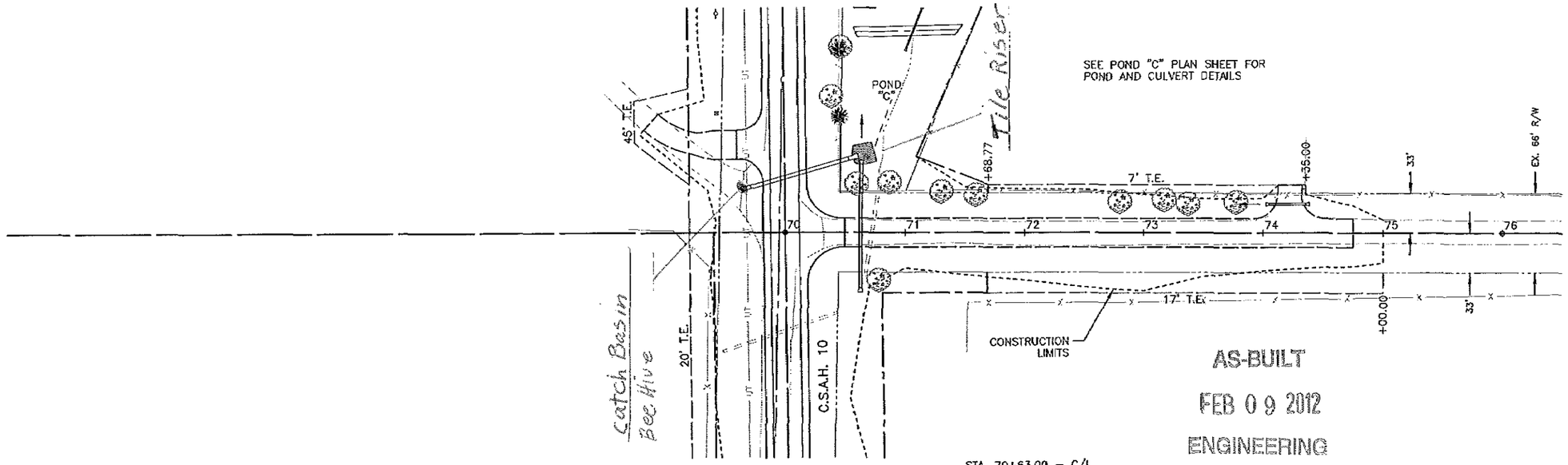
TITLE:
COUNTY ROAD No. 107
CONSTRUCTION PLAN & PROFILE
STA. 56+50.00 to STA. 67+50.00

S.A.P. 55-610-22

Sheet No. 60 of 299 Sheets

STA. 74+22.00 – FIELD ENT. LT.
NO INPLACE CULVERT
18" x 31.00 L.F. C.S.P. – 24.00' LT.
2 – 18" G.S. APRONS

SEE POND "C" PLAN SHEET FOR
POND AND CULVERT DETAILS



AS-BUILT

FEB 0 9 2012

ENGINEERING

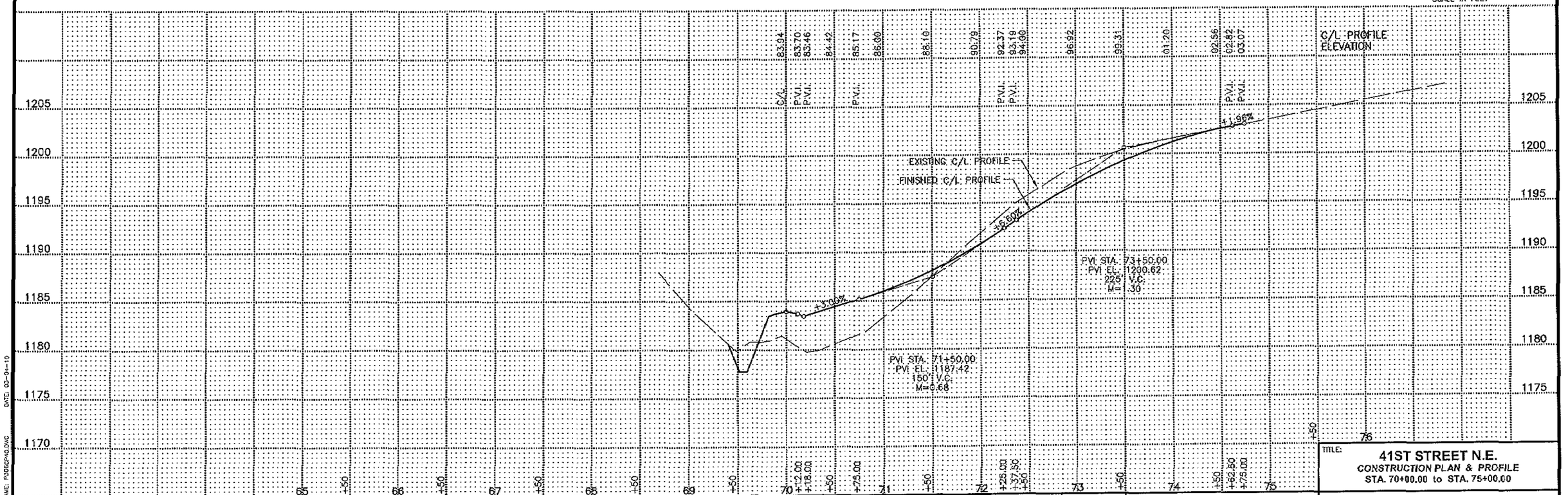
PI STA. 70+00.00
Δ=00°43'18" RT.
X=704373.2287
Y=184804.1369

STA. 70+63.00 – C/L
REMOVE INPL. 30" x 78 L.F. CMP
24" x 103.00 L.F. C.S.P.
2 – 24" G.S. APRONS
10 C.Y. CL. III RIPRAP AT OUTLET

POT STA. 76+00.00
X=704973.2022
Y=184798.4913

N

0 25 50 100
SCALE IN FEET



DATE: 03-01-10

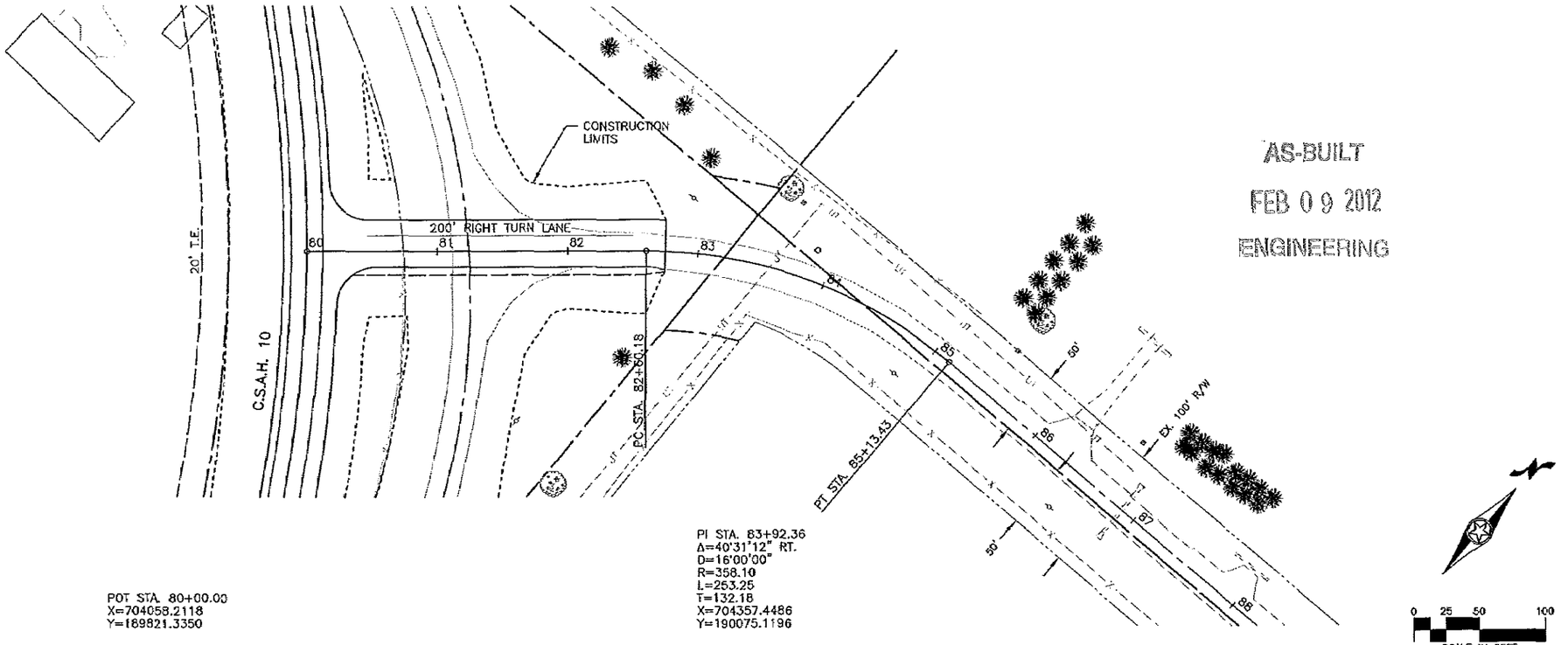
FILE NAME: P2052P40.DWG

CERTIFIED BY Paul M Bourrie REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: **41ST STREET N.E.**
CONSTRUCTION PLAN & PROFILE
STA. 70+00.00 to STA. 75+00.00

Sheet No. 61 of 299 Sheets



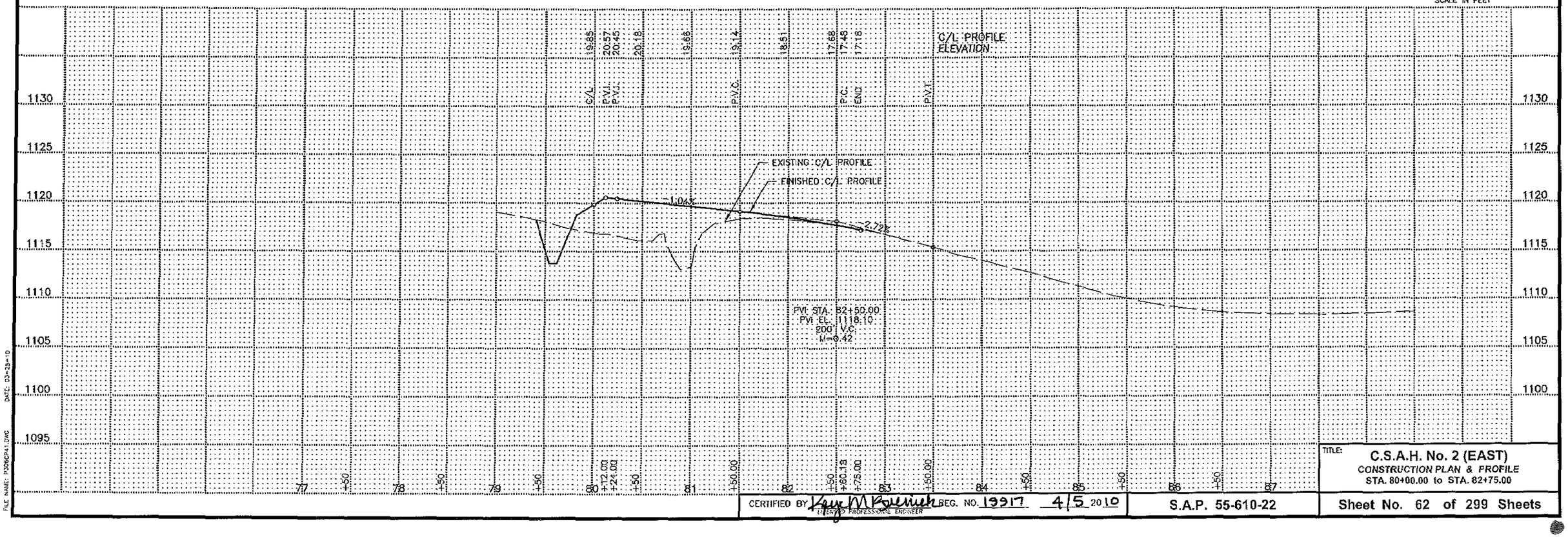
AS-BUILT

FEB 09 2012

ENGINEERING

POT STA. 80+00.00
X=704958.2118
Y=189821.3350

PI STA. 83+92.36
Δ=40°31'12" RT.
D=16°00'00"
R=358.10
L=253.25
T=132.18
X=704357.4486
Y=190075.1196



DATE: 03-25-10

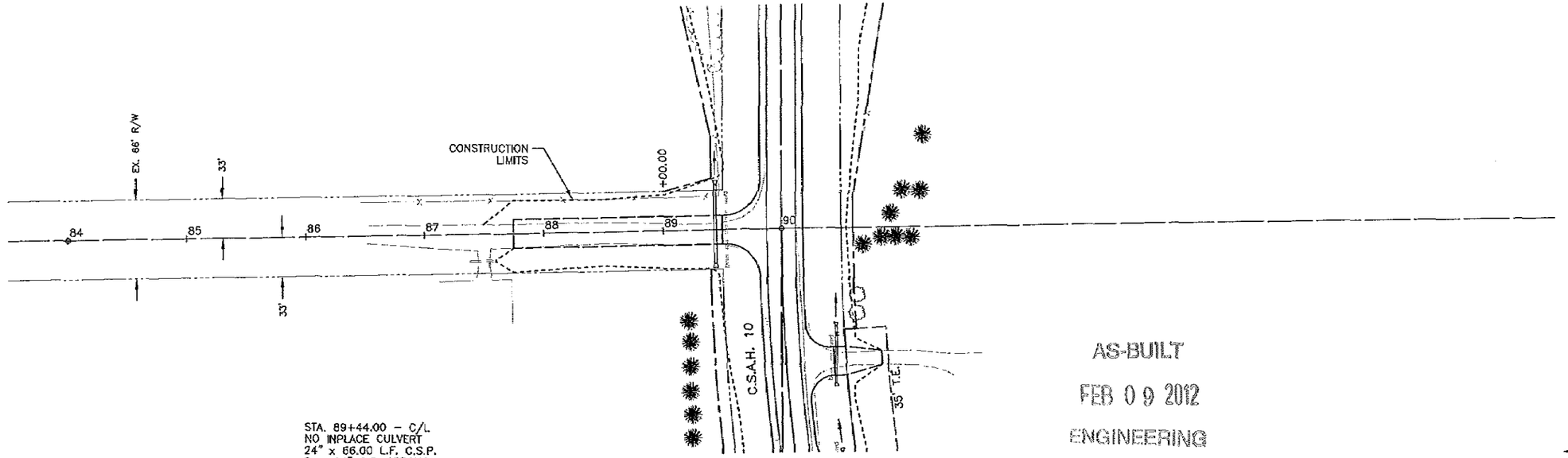
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TITLE: C.S.A.H. No. 2 (EAST)
CONSTRUCTION PLAN & PROFILE
STA. 80+00.00 to STA. 82+75.00

CERTIFIED BY Gary M Boehnen REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 62 of 299 Sheets



POT STA. 84+00.00
X=700356.5951
Y=189439.2457

STA. 89+44.00 – C/L
NO INPLACE CULVERT
24" x 66.00 L.F. C.S.P.
2 – 24" G.S. APRONS

STA. 89+53.50 – C/L
REMOVE INPL. 18" x 63 L.F. CMP
NO CULVERT REQUIRED

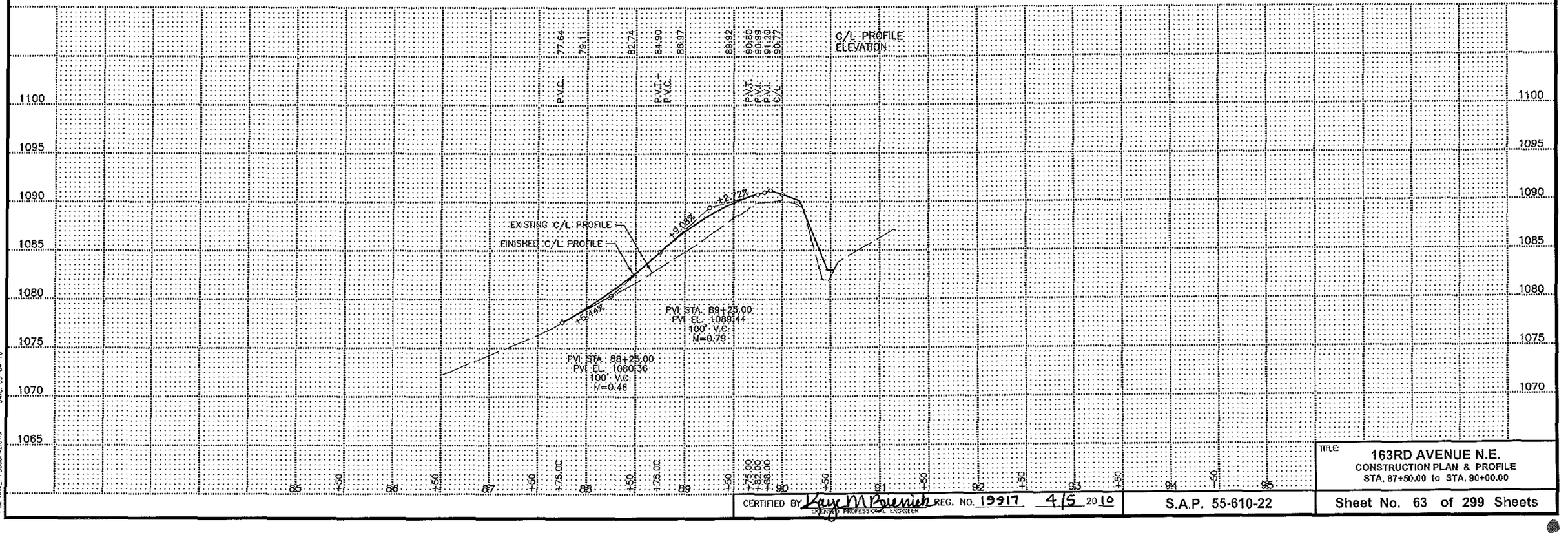
PI STA. 90+00.00
Δ=00°35'54" RT.
X=700345.7342
Y=190039.1474

AS-BUILT

FEB 0 9 2012

ENGINEERING

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P3060P42.DWG

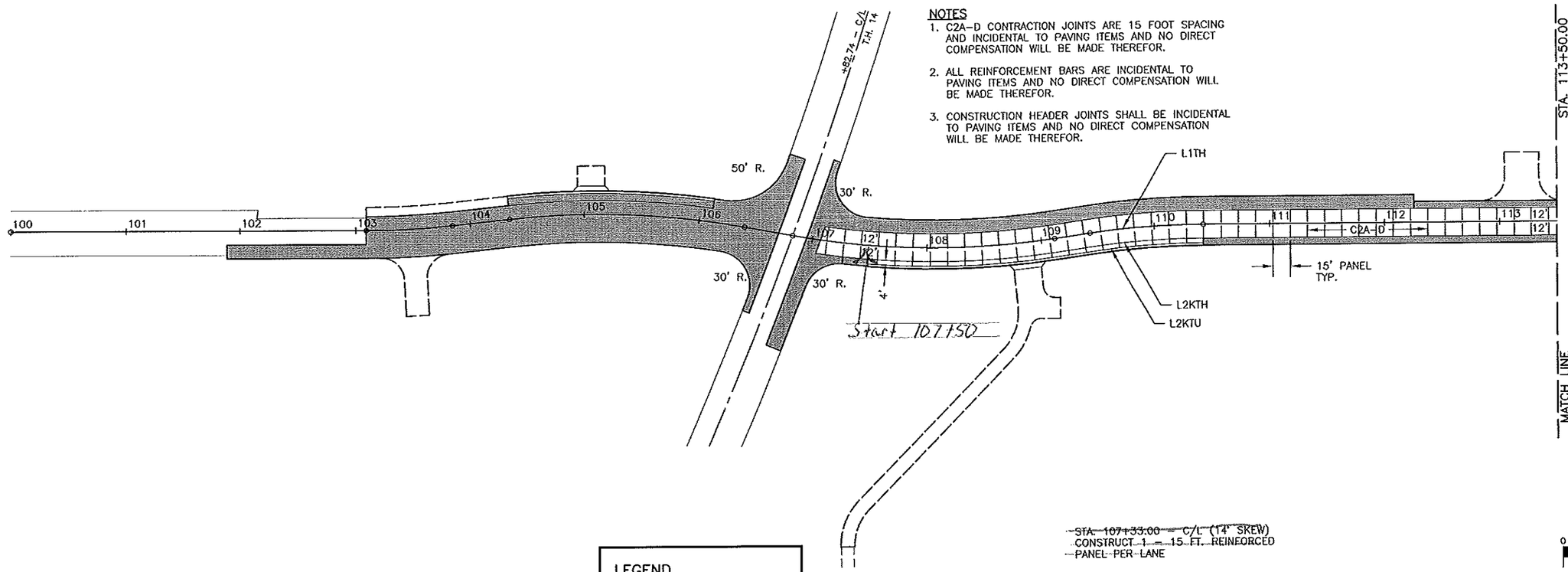
CERTIFIED BY Kaye M Buesch REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
163RD AVENUE N.E.
CONSTRUCTION PLAN & PROFILE
STA. 87+50.00 to STA. 90+00.00

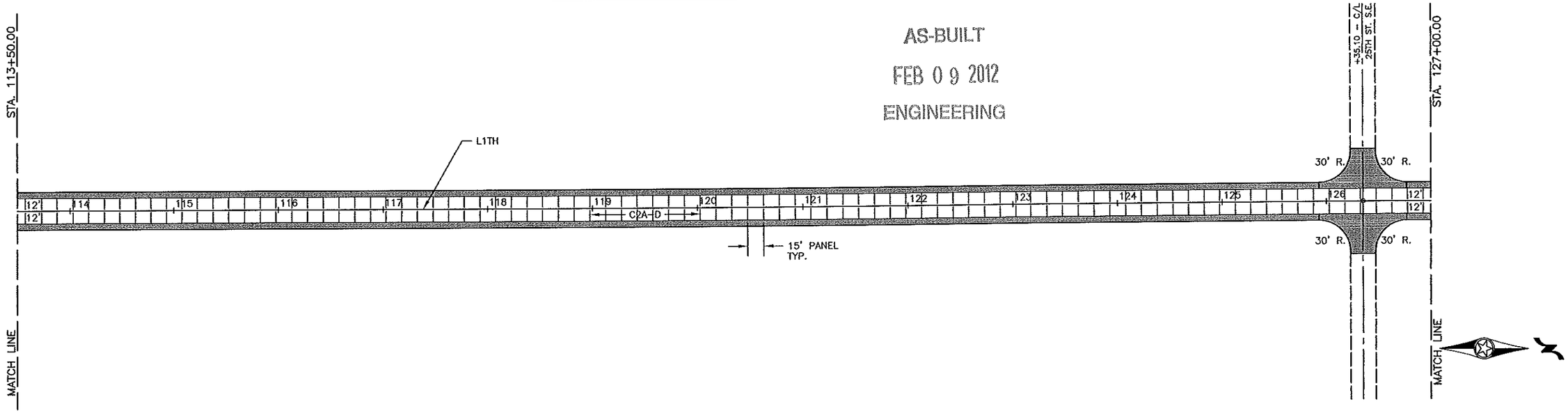
Sheet No. 63 of 299 Sheets

NOTES
1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



LEGEND
BITUMINOUS SURFACING

AS-BUILT
FEB 0 9 2012
ENGINEERING



CERTIFIED BY Gary M Pennick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE: C.S.A.H. No. 10
SURFACING PLAN
STA. 100+00.00 to STA. 127+00.00

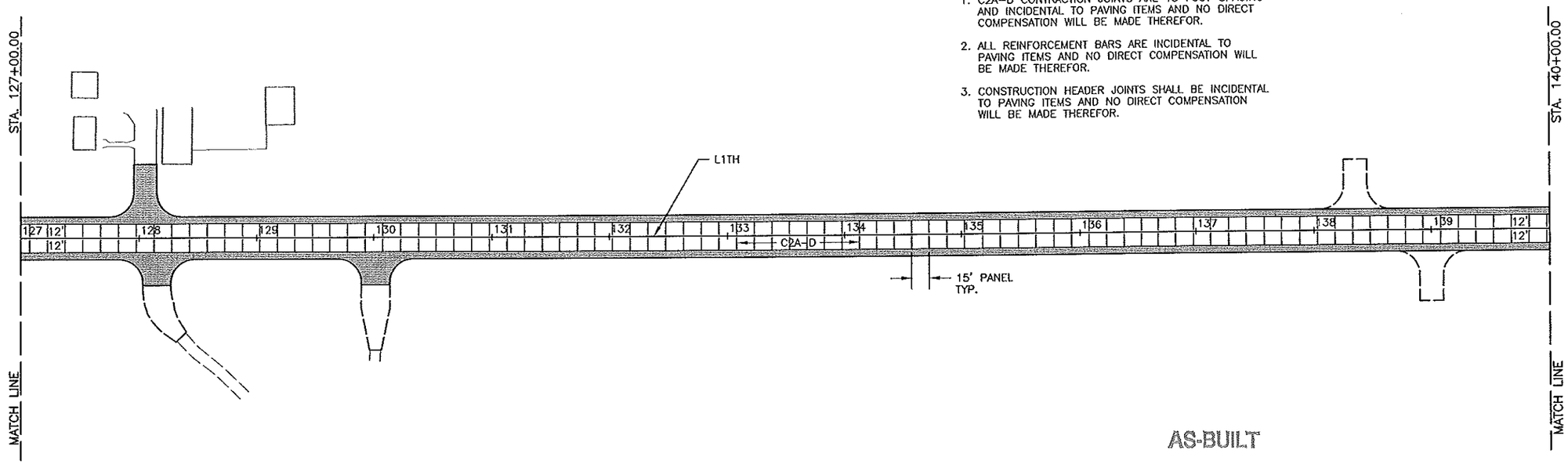
S.A.P. 55-610-22

Sheet No. 64 of 299 Sheets

FILE NAME: P3064001.DWG DATE: 03-04-10

NOTES

1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT

FEB 0 9 2012

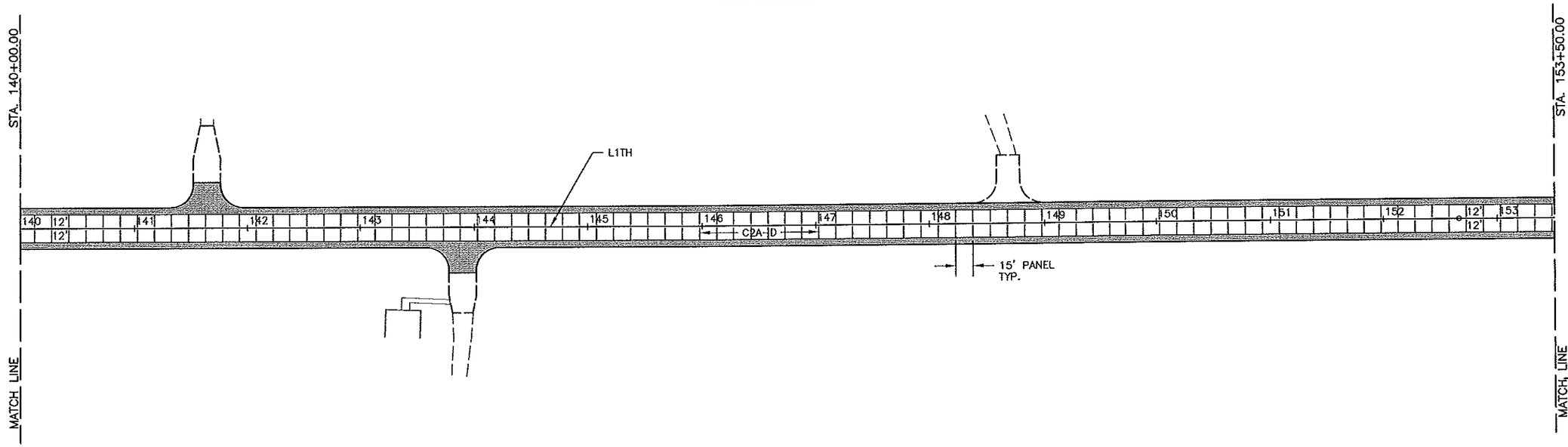
ENGINEERING

LEGEND

BITUMINOUS SURFACING

0 25 50 100

SCALE IN FEET



STA. 148+00.00 – C/L
CONSTRUCT 2 – 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Kayc M Bonnett REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

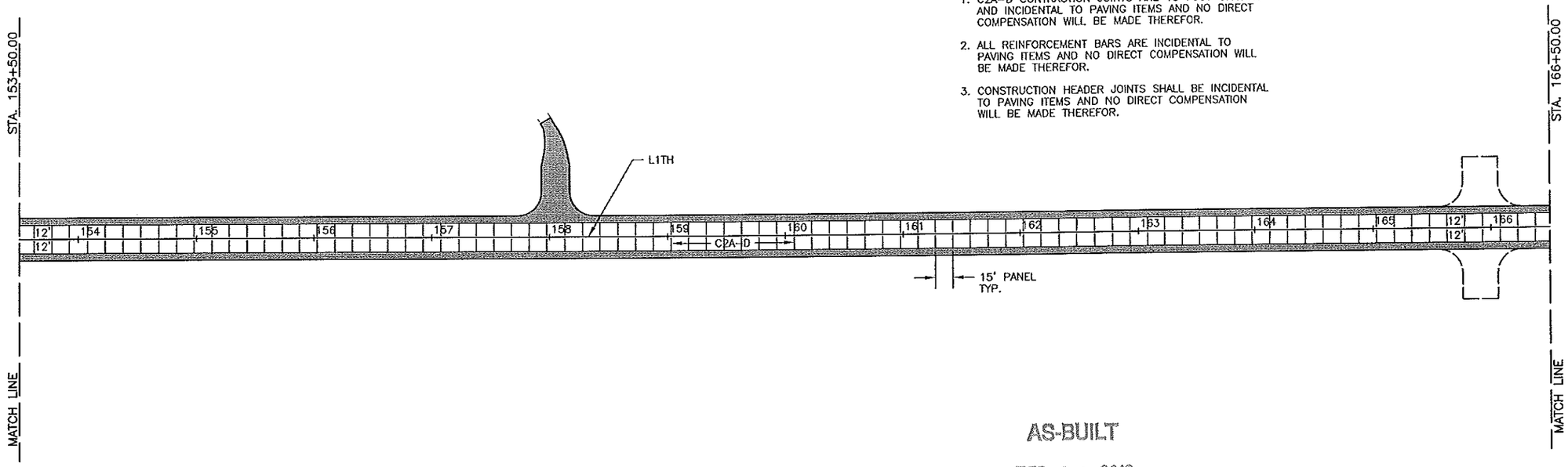
S.A.P. 55-610-22

TITLE: C.S.A.H. No. 10
SURFACING PLAN
STA. 127+00.00 to STA. 153+50.00

Sheet No. 65 of 299 Sheets

FILE NAME: P306L02.DWG DATE: 03-04-10

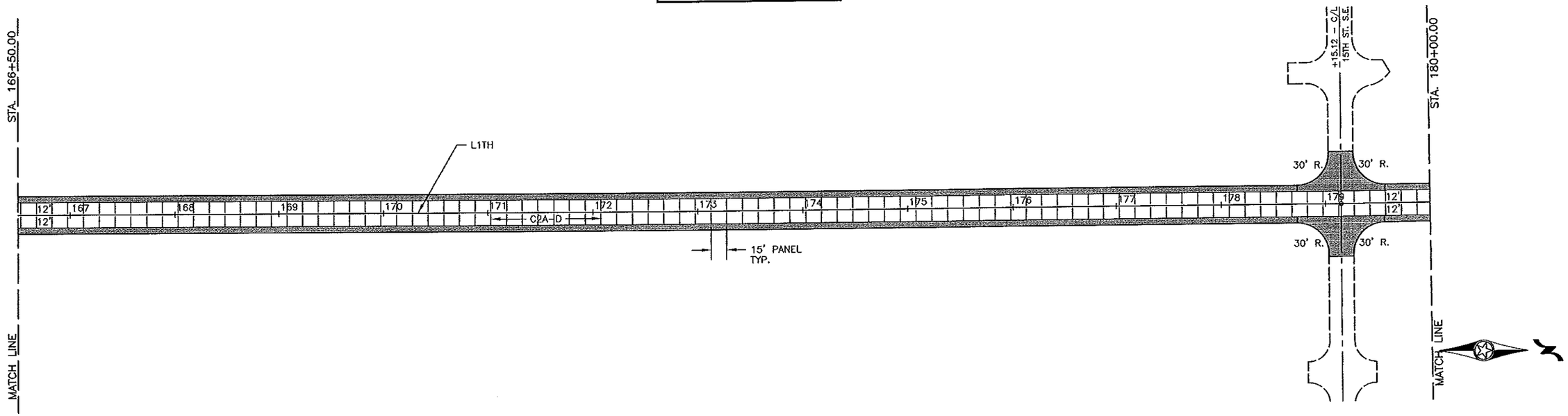
NOTES
1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT
FEB 0 9 2012
ENGINEERING

LEGEND
BITUMINOUS SURFACING

0 25 50 100
SCALE IN FEET



STA. 174+35.00 – C/L (8° SKEW)
CONSTRUCT 4 – 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Gary M. Roiemeier REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

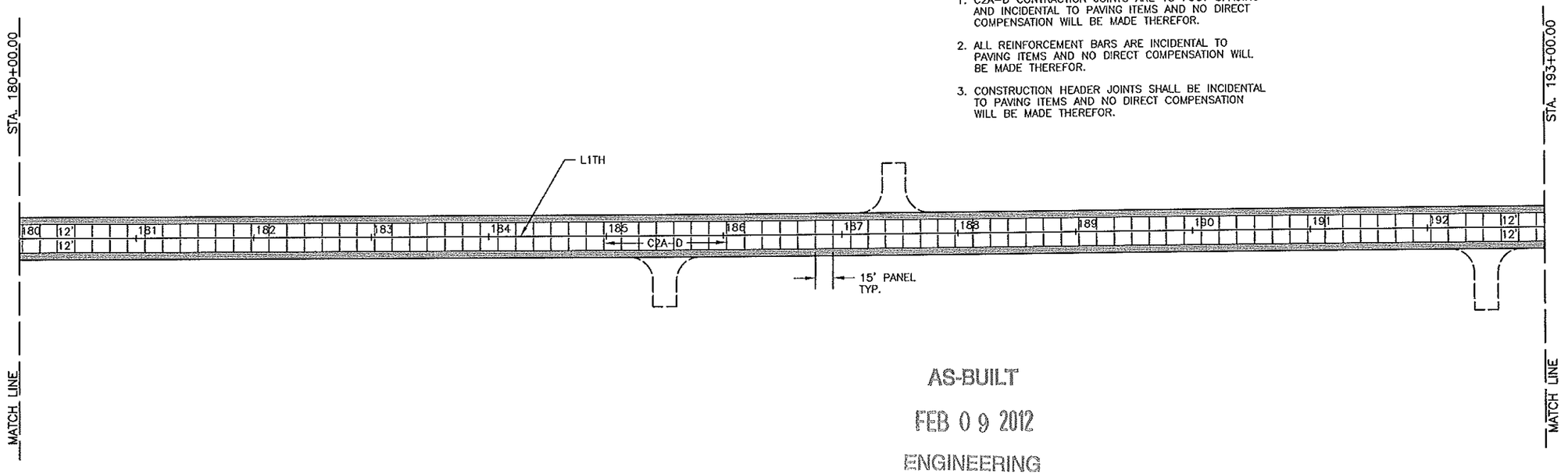
TITLE: C.S.A.H. No. 10
SURFACING PLAN
STA. 153+50.00 to STA. 180+00.00

S.A.P. 55-610-22

Sheet No. 66 of 299 Sheets

FILE NAME: P306JL03.DWG DATE: 03-04-10

NOTES
1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

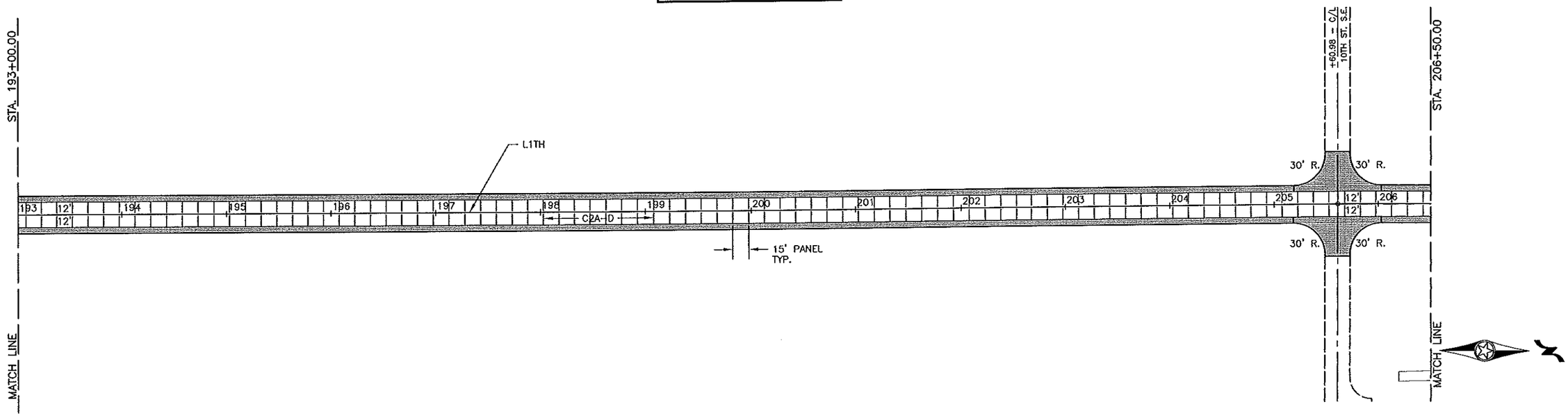


AS-BUILT
FEB 0 9 2012
ENGINEERING

STA. 192+25.00 – C/L (15° SKEW)
CONSTRUCT 3 – 15 FT. REINFORCED PANELS PER LANE

0 25 50 100
SCALE IN FEET

LEGEND
BITUMINOUS SURFACING



CERTIFIED BY Kayen M Pieniek REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

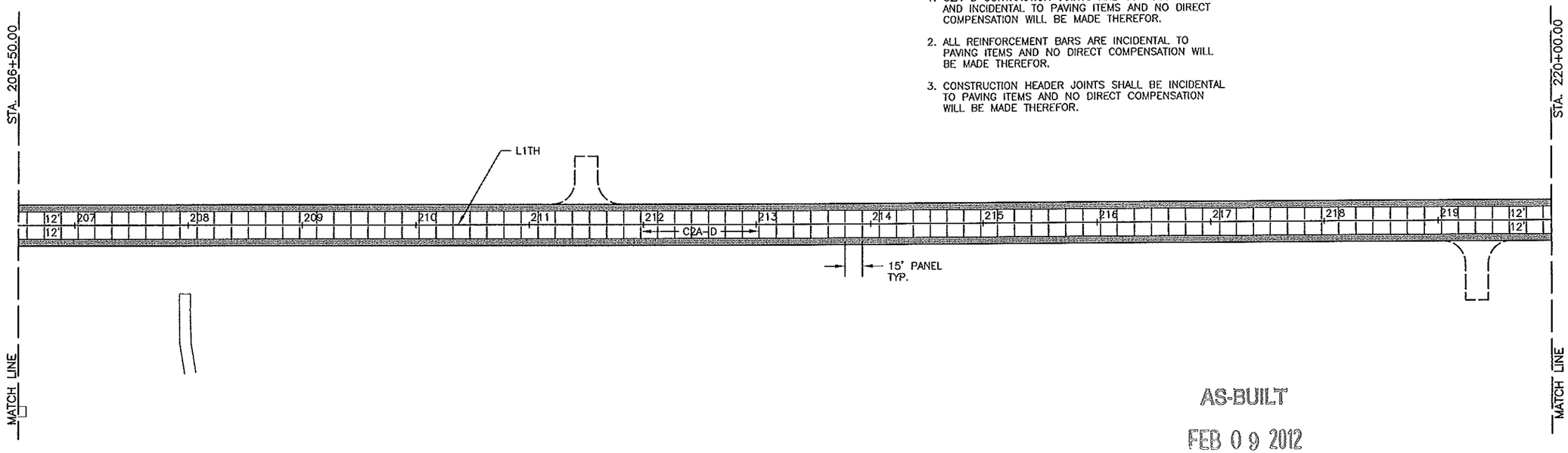
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 180+00.00 to STA. 206+50.00

Sheet No. 67 of 299 Sheets

FILE NAME: P206A04.DWG DATE: 03-04-10

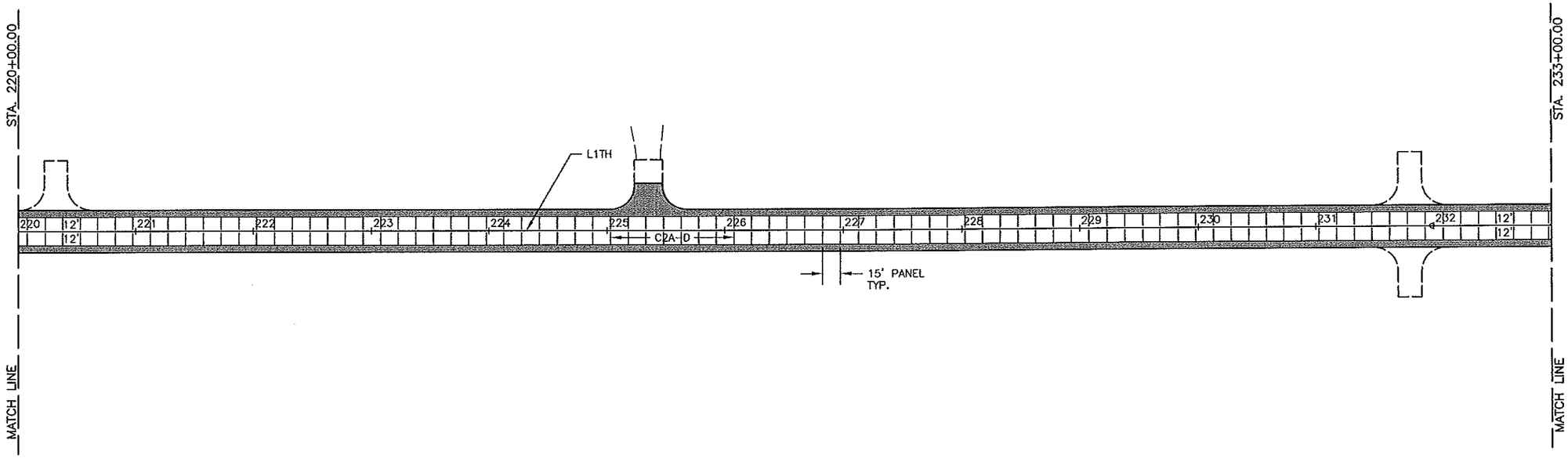
NOTES
1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT
FEB 0 9 2012
ENGINEERING

0 25 50 100
SCALE IN FEET

LEGEND
BITUMINOUS SURFACING



STA. 222+13.00 – C/L
CONSTRUCT 2 – 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Kayd N Bierwith REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

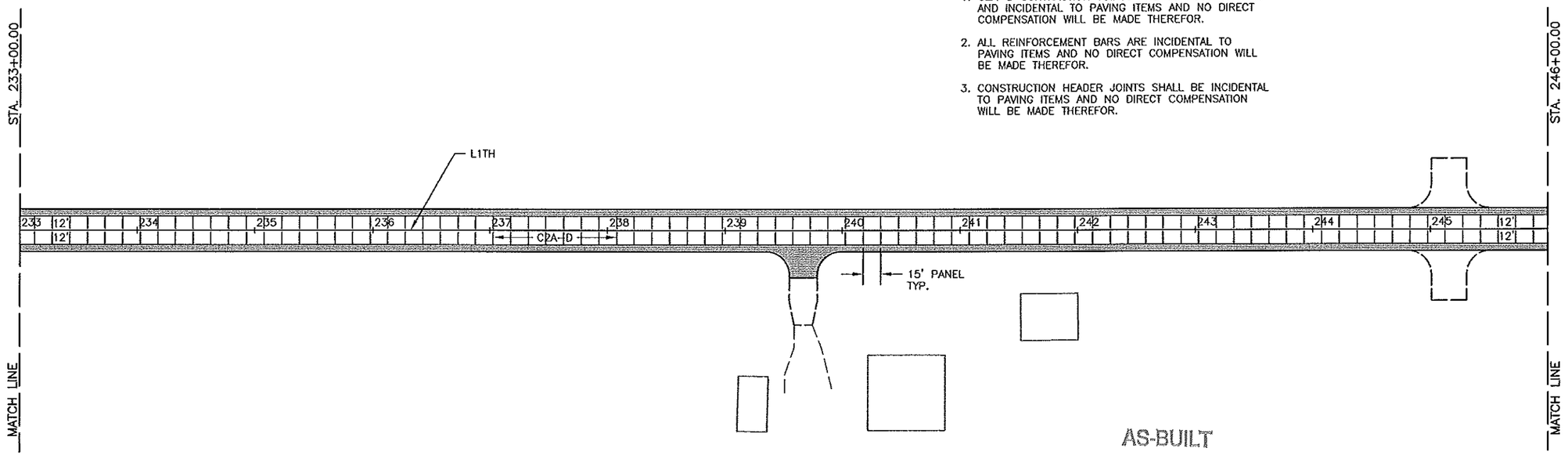
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 206+50.00 to STA. 233+00.00

Sheet No. 68 of 299 Sheets

DATE: 03-04-10
FILE NAME: P306JL05.DWG

NOTES

1. C2A--D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT

FEB 0 9 2012

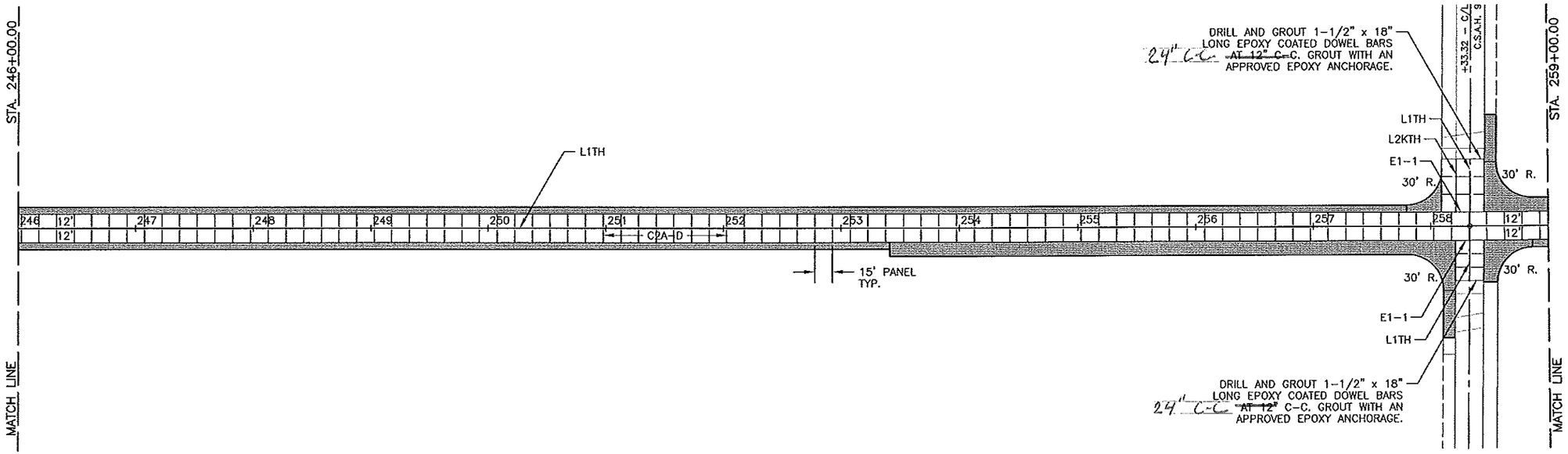
ENGINEERING

STA. 239+00.00 – C/L
CONSTRUCT 2 -- 15 FT. REINFORCED PANELS PER LANE

LEGEND

BITUMINOUS SURFACING

0 25 50 100
SCALE IN FEET



DATE: 03-04-10

FILE NAME: P306L06.DWG

CERTIFIED BY Gary M Brunsell LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

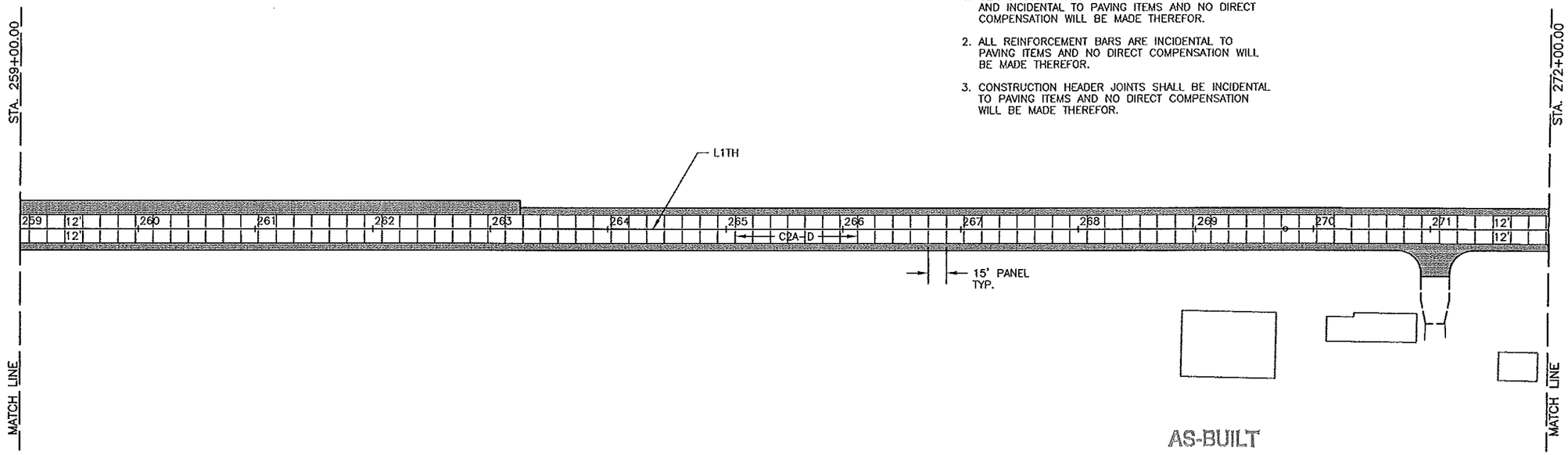
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 233+00.00 to STA. 259+00.00

Sheet No. 69 of 299 Sheets

NOTES

1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT

FEB 09 2012

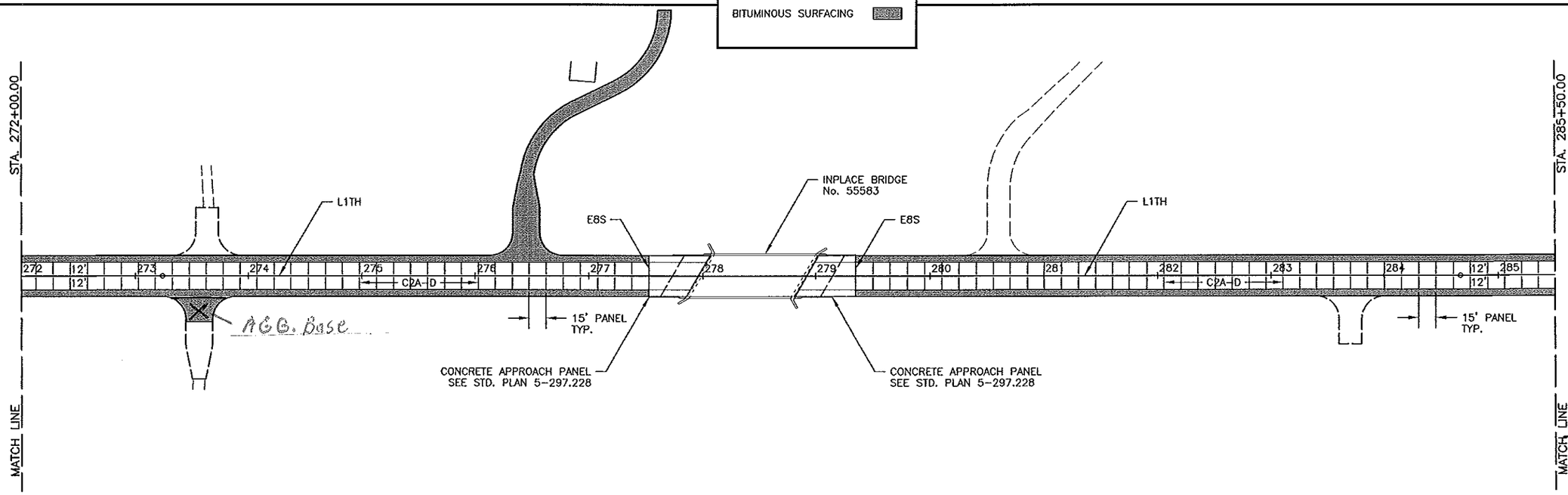
ENGINEERING

STA. 263+52.00 – C/L (15° SKEW)
CONSTRUCT 3 – 15 FT. REINFORCED PANELS PER LANE

LEGEND

BITUMINOUS SURFACING

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kaye M Brenneke REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

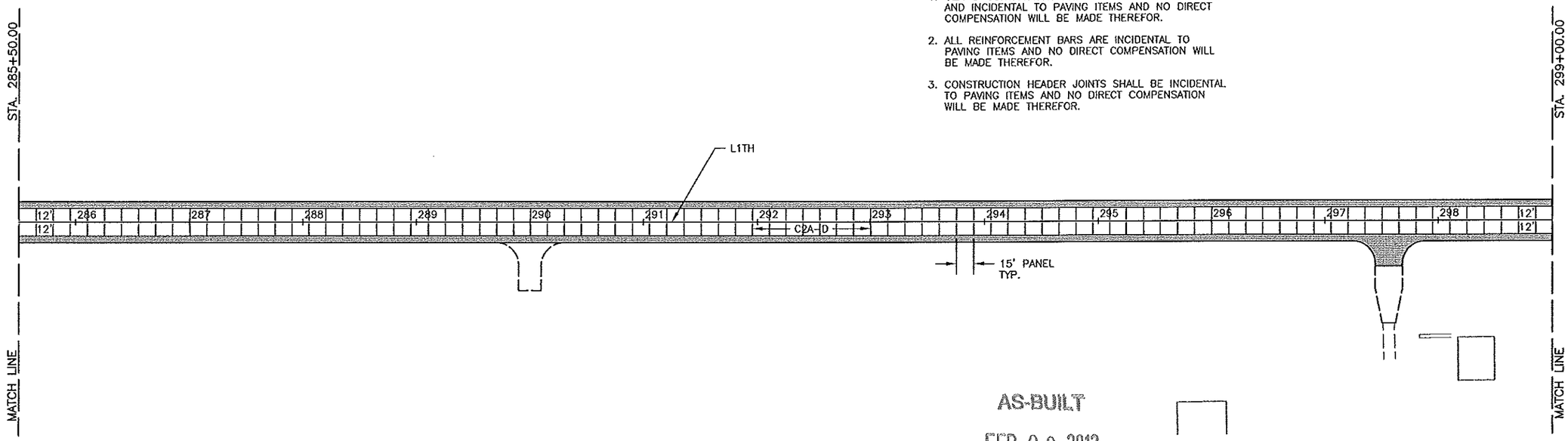
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 259+00.00 to STA. 285+50.00

Sheet No. 70 of 299 Sheets

DATE: 03-04-10
FILE NAME: P306L07.DWG

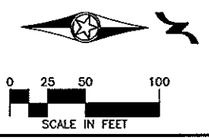
NOTES
1. C2A--D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

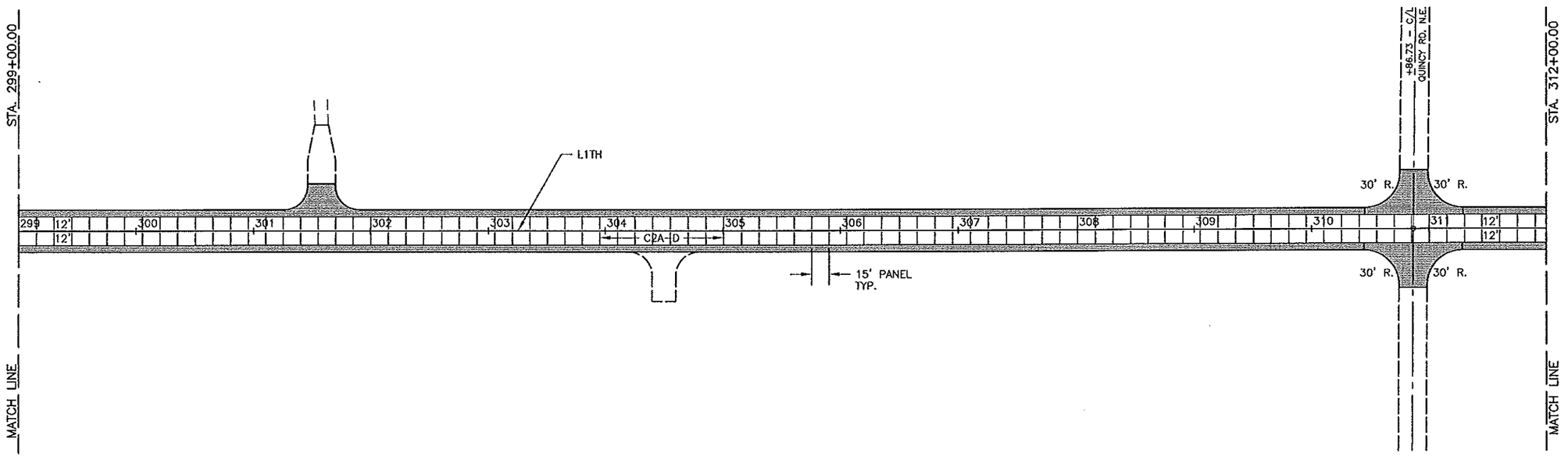


AS-BUILT
FEB 0 9 2012
ENGINEERING

STA. 288+05.00 -- C/L (30° SKEW)
CONSTRUCT 3 - 15 FT. REINFORCED PANELS PER LANE

LEGEND
BITUMINOUS SURFACING







CERTIFIED BY Kaye M Bruinsma DULY LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

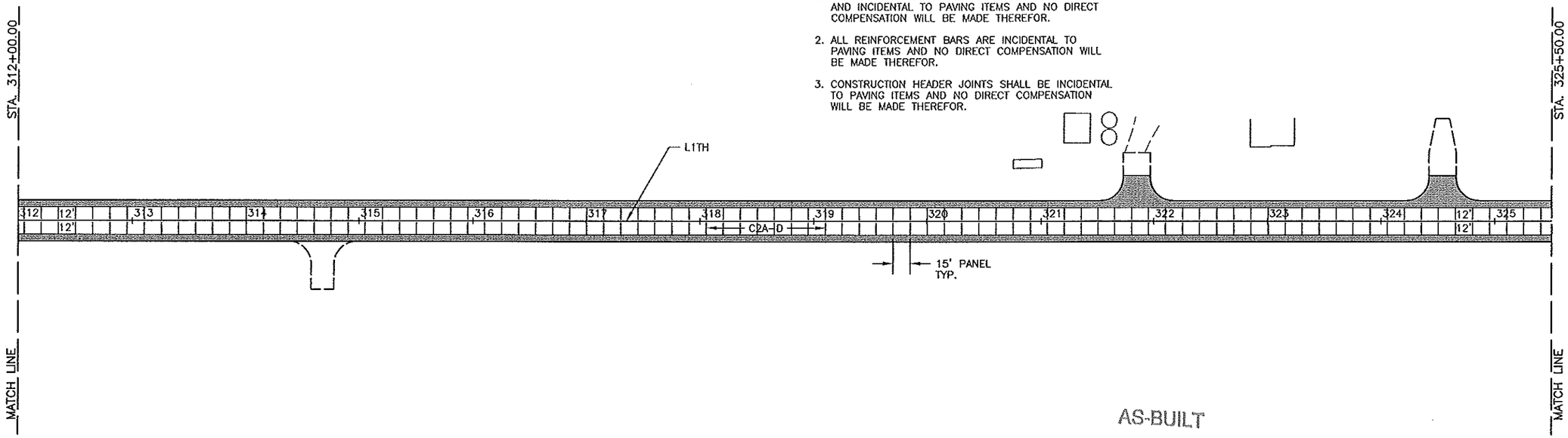
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 285+50.00 to STA. 312+00.00

Sheet No. 71 of 299 Sheets

FILE NAME: P3054J08.DWG DATE: 03-04-10

NOTES

1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
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3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



AS-BUILT

FEB 0 9 2012

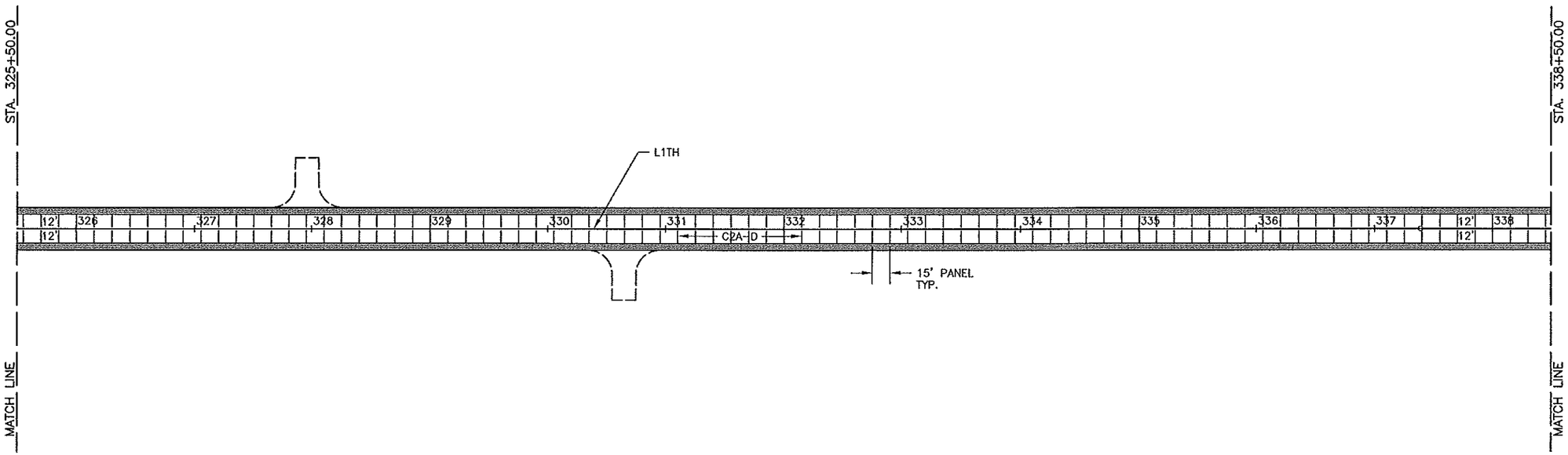
ENGINEERING

LEGEND

BITUMINOUS SURFACING

0 25 50 100

SCALE IN FEET



FILE NAME: P206J109.DWG DATE: 03-04-10

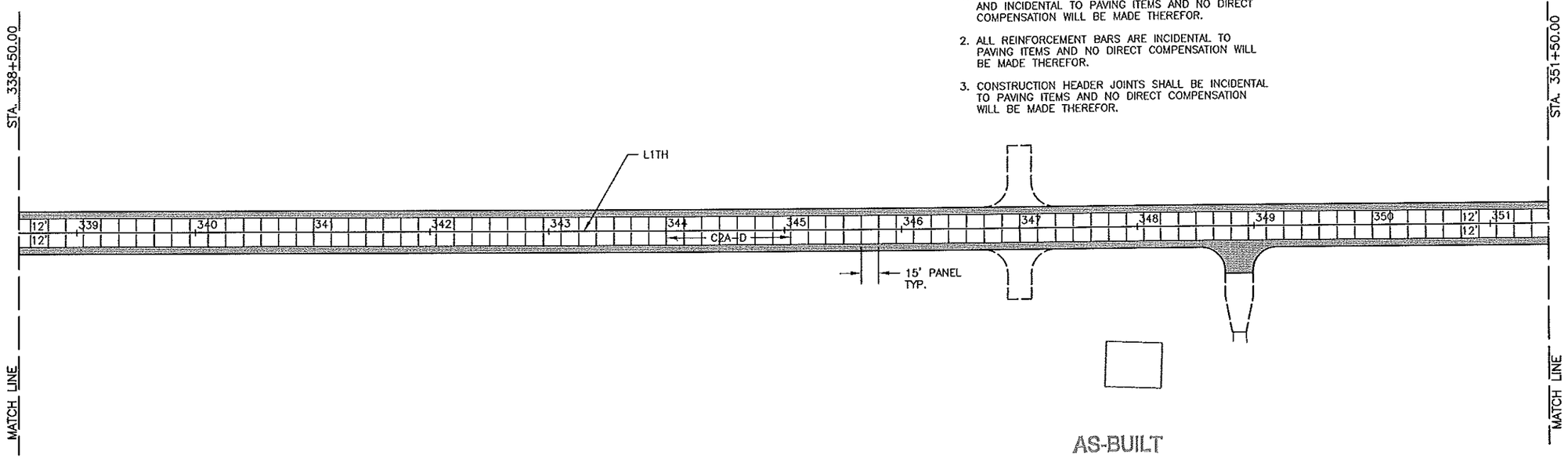
CERTIFIED BY Kayer M Poirier REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 312+00.00 to STA. 338+50.00

Sheet No. 72 of 299 Sheets

NOTES
1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

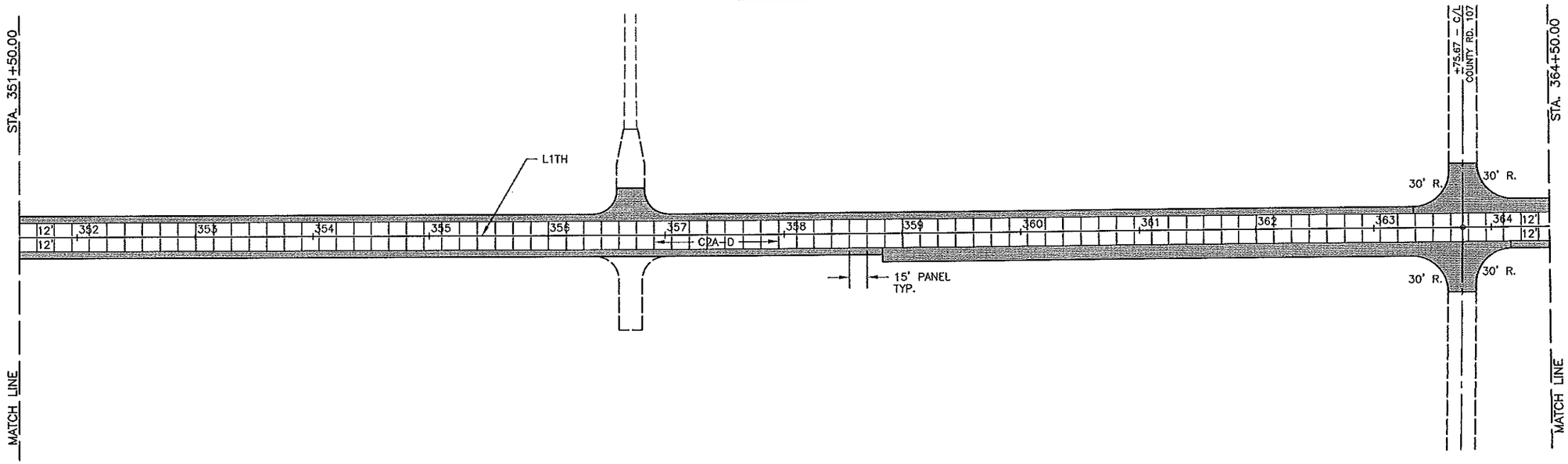


AS-BUILT
FEB 0 9 2012
ENGINEERING

5 Panels Per Lane STA. 339+85.00 – C/L (45° SKEW)
CONSTRUCT ← 15 FT. REINFORCED PANELS PER LANE

LEGEND
BITUMINOUS SURFACING

0 25 50 100
SCALE IN FEET



STA. 352+55.00 – C/L
CONSTRUCT 2 – 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Lance M Bruenig REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

TITLE: C.S.A.H. No. 10
SURFACING PLAN
STA. 338+50.00 to STA. 364+50.00

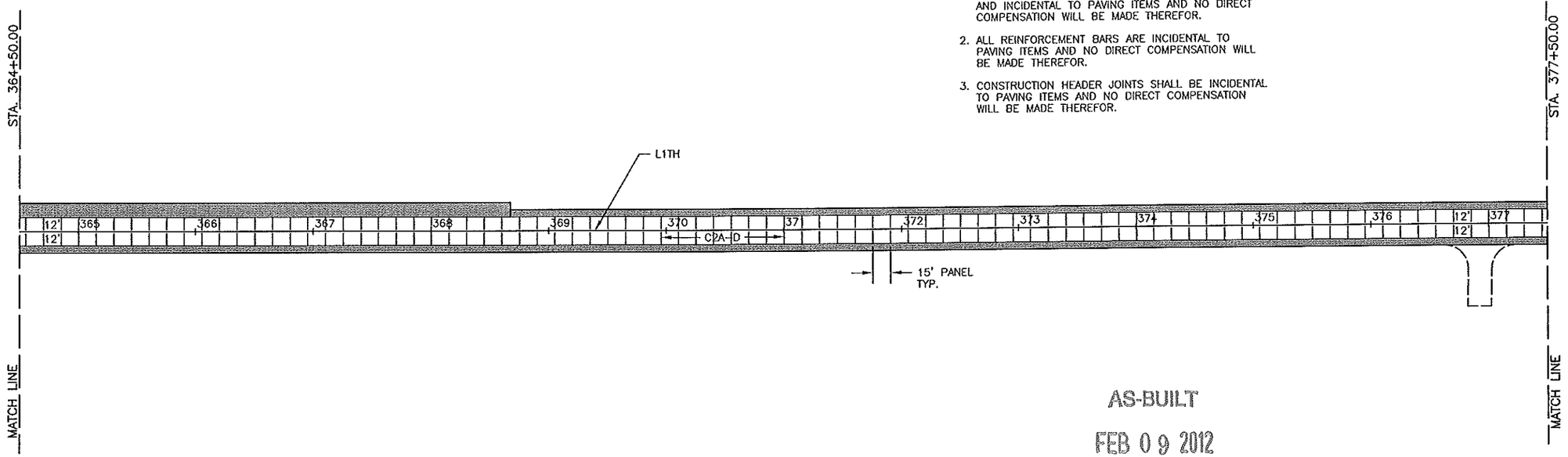
S.A.P. 55-610-22

Sheet No. 73 of 299 Sheets

FILE NAME: P306LL10.DWG DATE: 03-04-10

NOTES

1. C2A--D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
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AS-BUILT

FEB 0 9 2012

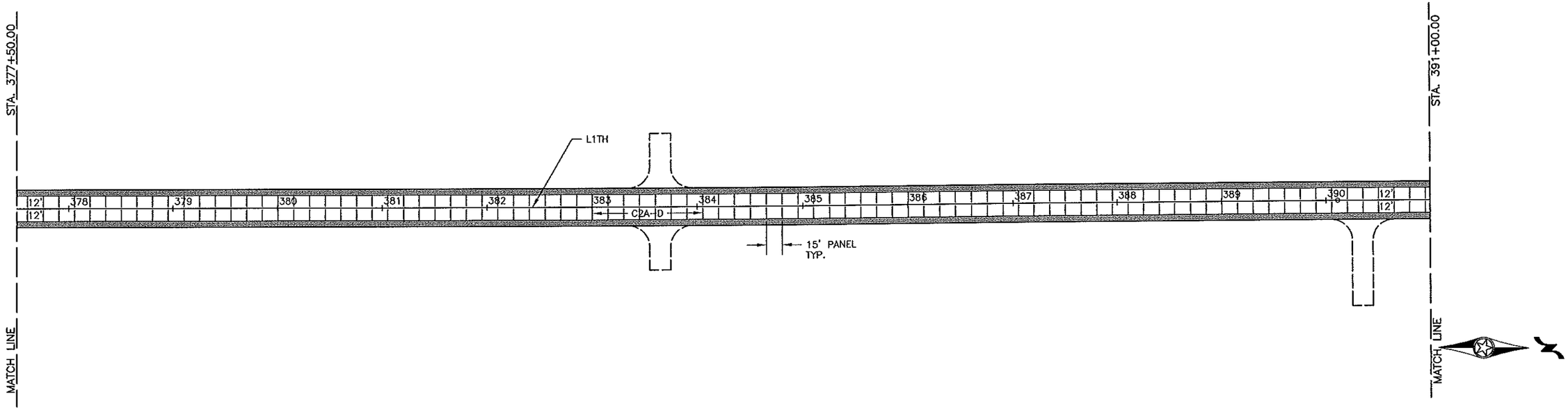
ENGINEERING

0 25 50 100

SCALE IN FEET

LEGEND

BITUMINOUS SURFACING



STA. 378+91.00 – C/L
CONSTRUCT 2 -- 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Kaye M Bruemmer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

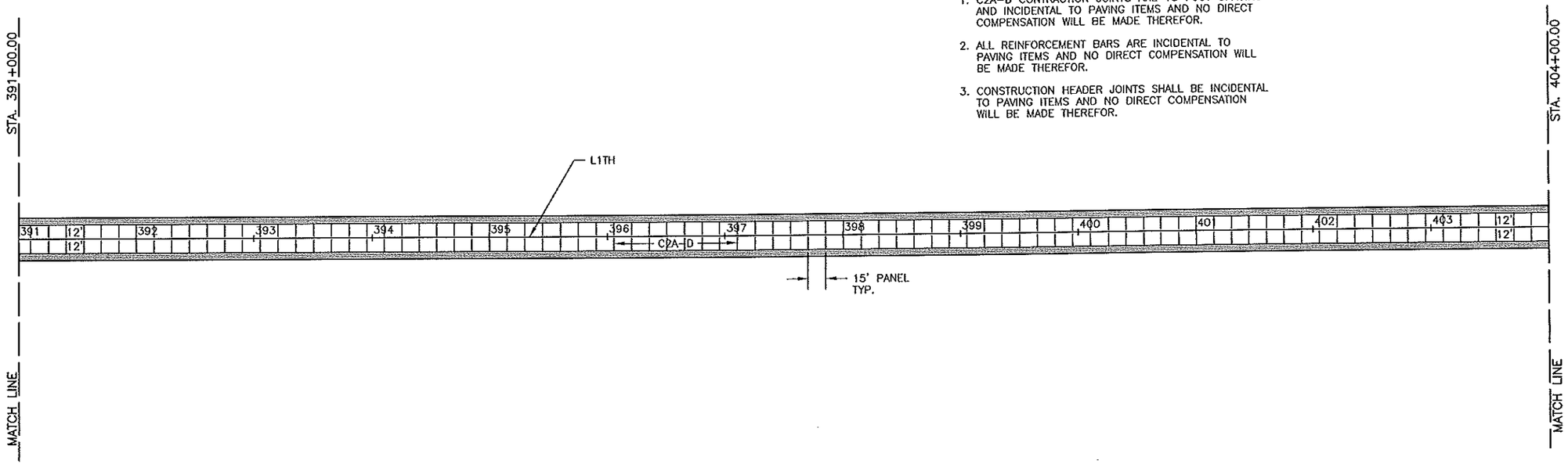
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 364+50.00 to STA. 391+00.00

S.A.P. 55-610-22

Sheet No. 74 of 299 Sheets

FILE NAME: P30BAL11.DWG DATE: 03-04-10

NOTES
1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
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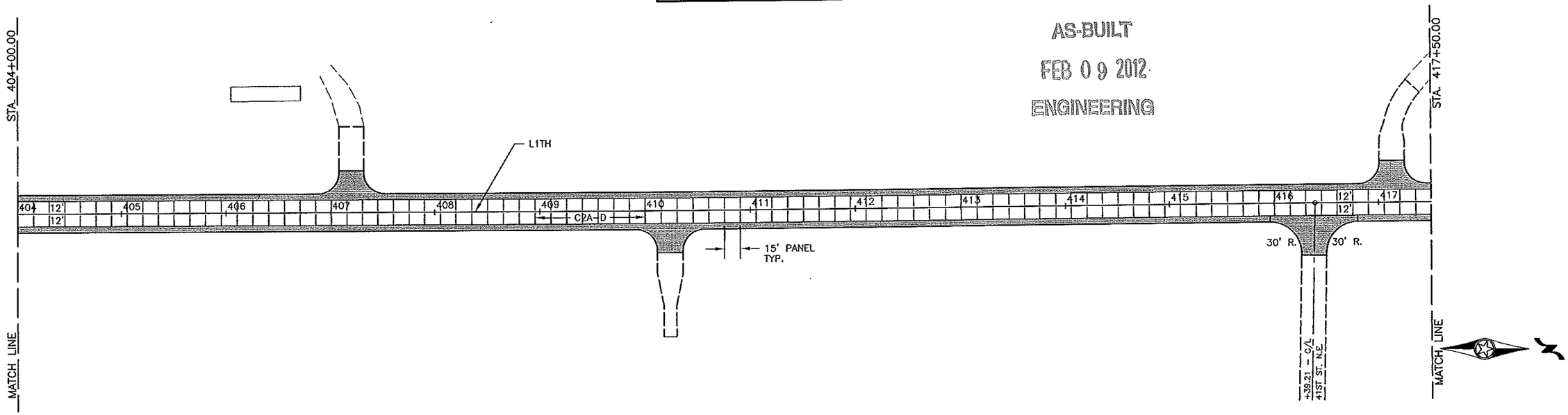


STA. 400+85.00 -- C/L
CONSTRUCT 2 - 15 FT. REINFORCED PANELS PER LANE

0 25 50 100
SCALE IN FEET

LEGEND
BITUMINOUS SURFACING

AS-BUILT
FEB 09 2012
ENGINEERING



STA. 416+85.00 - C/L (15° SKEW)
CONSTRUCT 2 -- 15 FT. REINFORCED PANELS PER LANE

CERTIFIED BY Kayd M Bonnick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 391+00.00 to STA. 417+50.00

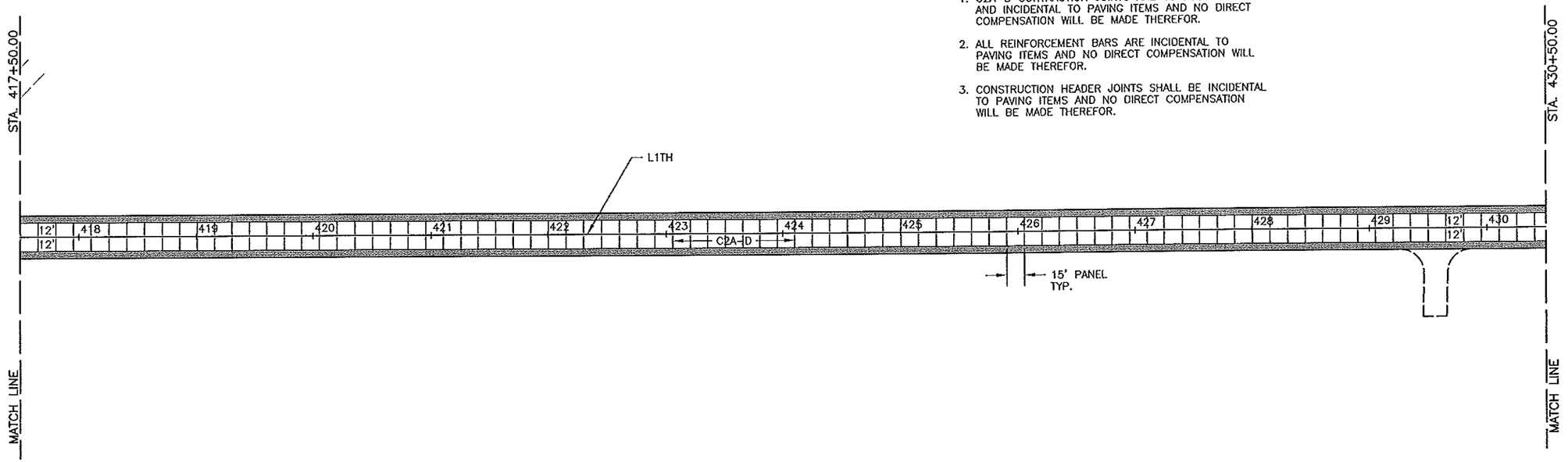
S.A.P. 55-610-22

Sheet No. 75 of 299 Sheets

FILE NAME: P2066L12.DWG DATE: 03-04-10

NOTES

1. C2A--D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



STA. 425+42.00 – C/L
CONSTRUCT 2 – 15 FT. REINFORCED PANELS PER LANE

LEGEND

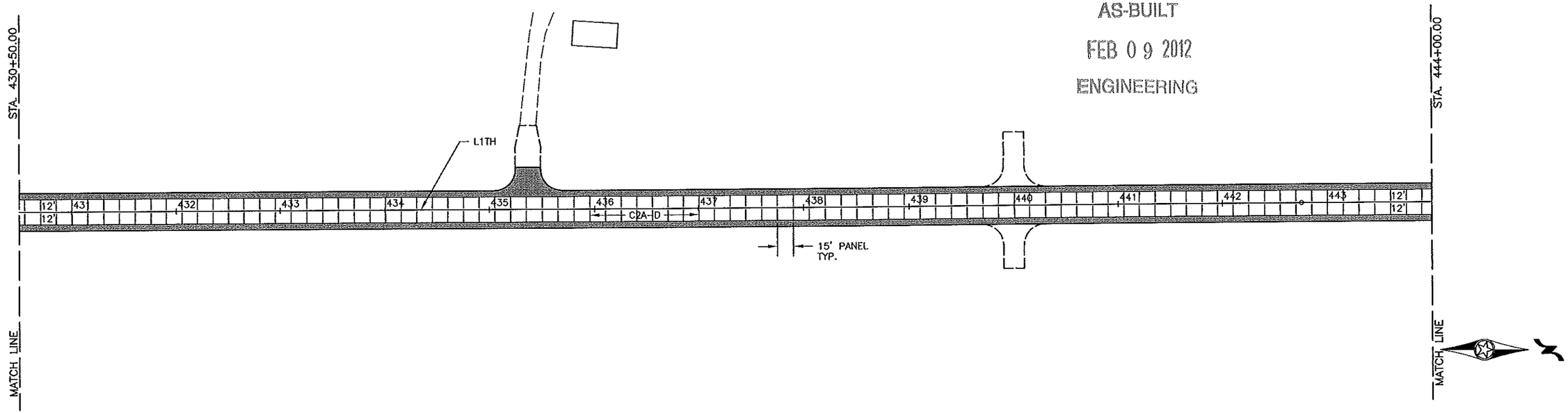
BITUMINOUS SURFACING

0 25 50 100
SCALE IN FEET

AS-BUILT

FEB 0 9 2012

ENGINEERING



CERTIFIED BY Kaye M Poirier REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

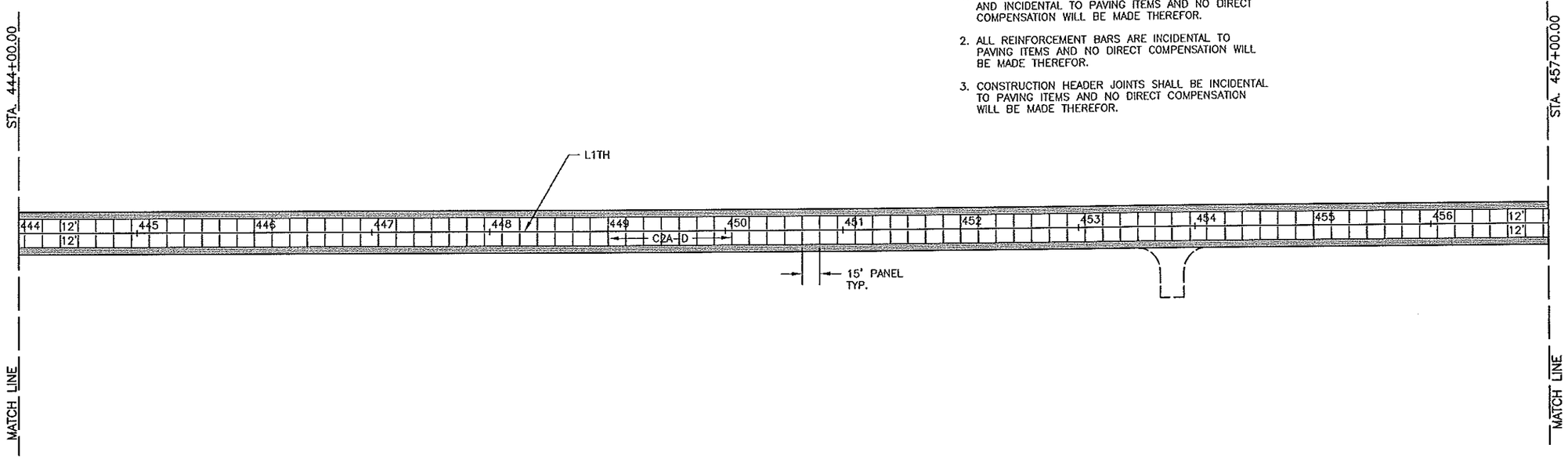
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 417+50.00 to STA. 444+00.00

Sheet No. 76 of 299 Sheets

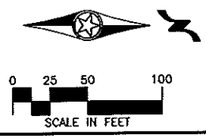
FILE NAME: P3206L13.DWG DATE: 03-04-10

NOTES

1. C2A--D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



STA. 452+10.00 – C/L
CONSTRUCT 2 – 15 FT. REINFORCED PANELS PER LANE



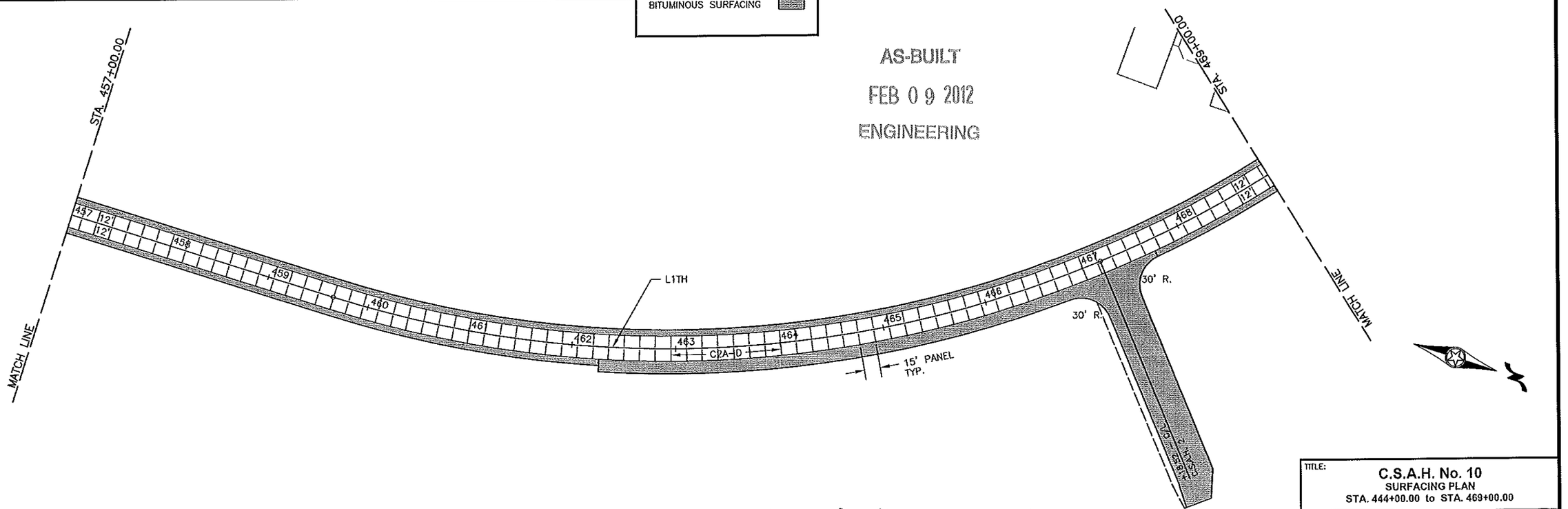
LEGEND

BITUMINOUS SURFACING

AS-BUILT

FEB 0 9 2012

ENGINEERING



CERTIFIED BY Gary M Brenneis REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

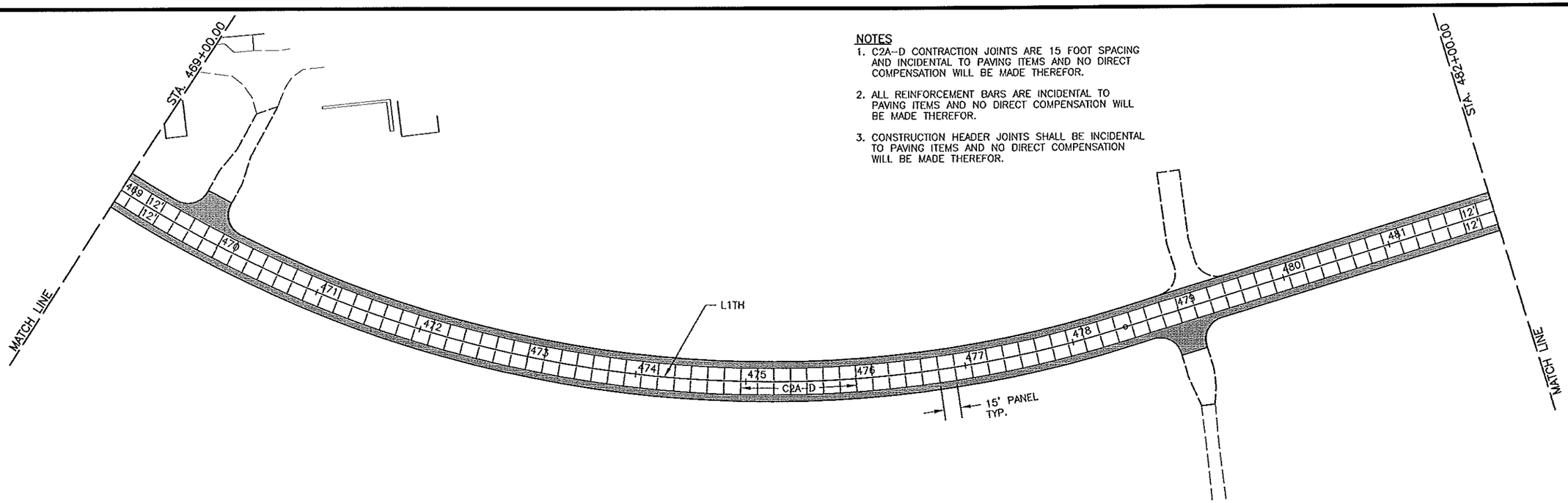
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 444+00.00 to STA. 469+00.00

Sheet No. 77 of 299 Sheets

FILE NAME: P:\06\14.DWG DATE: 03-24-10

NOTES

1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

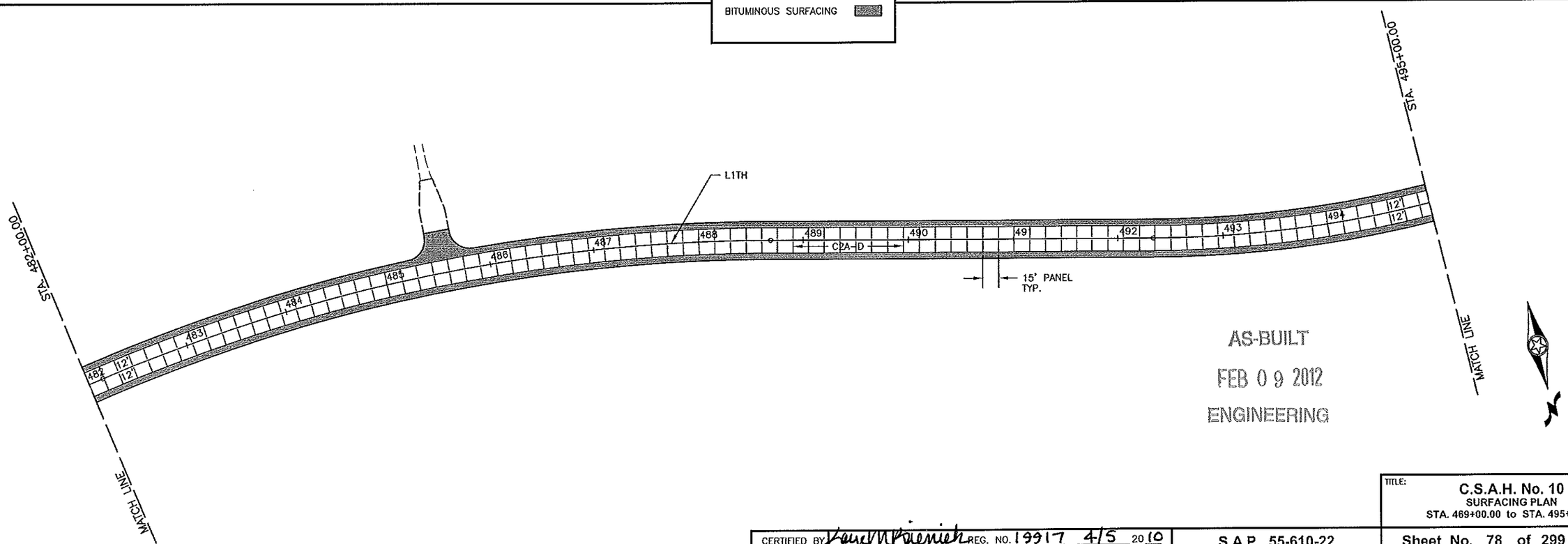


STA. 481+10.00 -- C/L (15' SKEW)
CONSTRUCT 3 – 15 FT. REINFORCED PANELS PER LANE

0 25 50 100
SCALE IN FEET

LEGEND

BITUMINOUS SURFACING



AS-BUILT
FEB 0 9 2012
ENGINEERING

CERTIFIED BY Lyle W Bierenbach REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 469+00.00 to STA. 495+00.00

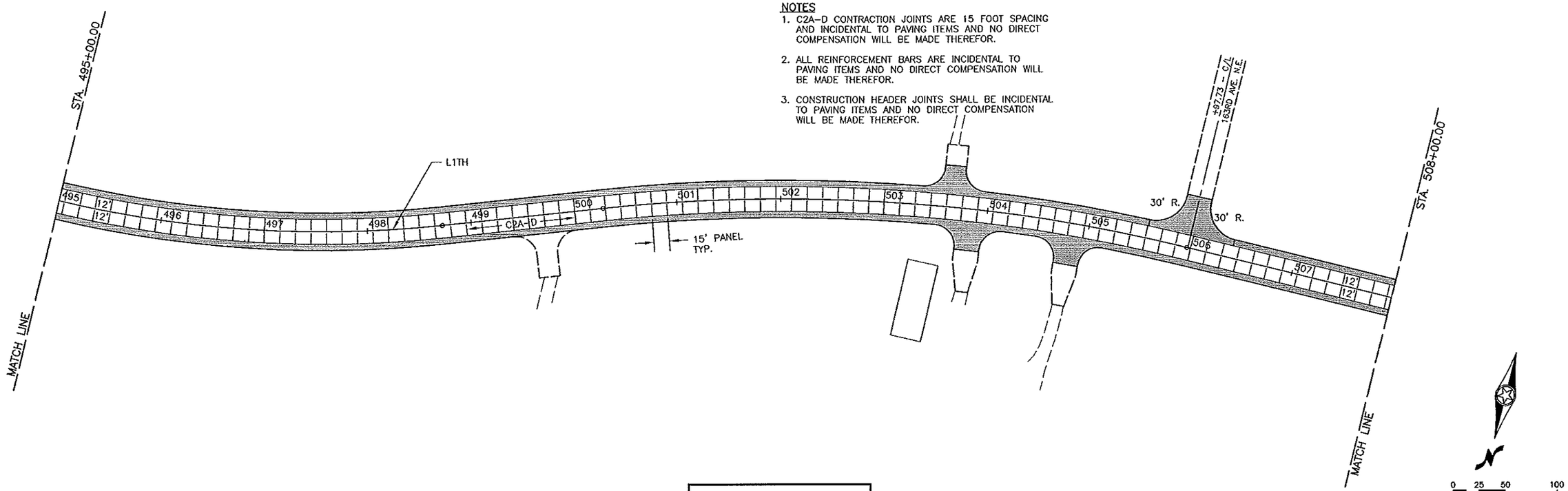
S.A.P. 55-610-22

Sheet No. 78 of 299 Sheets

FILE NAME: P206L115.DWG DATE: 03-04-10

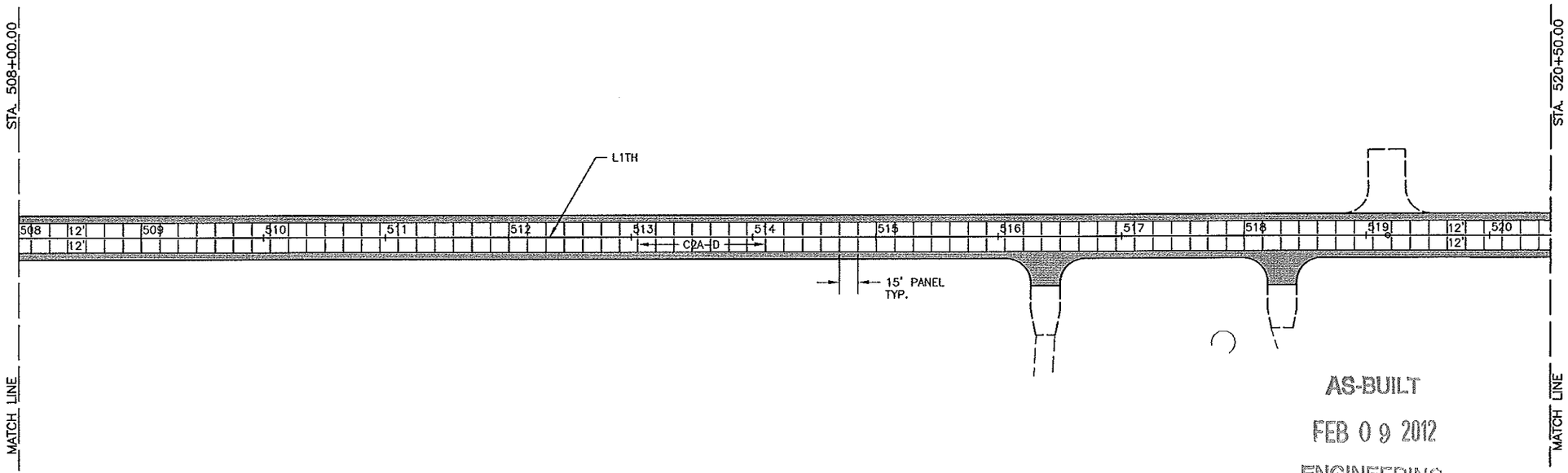
NOTES

1. C2A–D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.



LEGEND

BITUMINOUS SURFACING



STA. 509+29.84 – C/L (5° SKEW)
NO REINFORCED PANELS REQUIRED

AS-BUILT
FEB 0 9 2012
ENGINEERING

CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

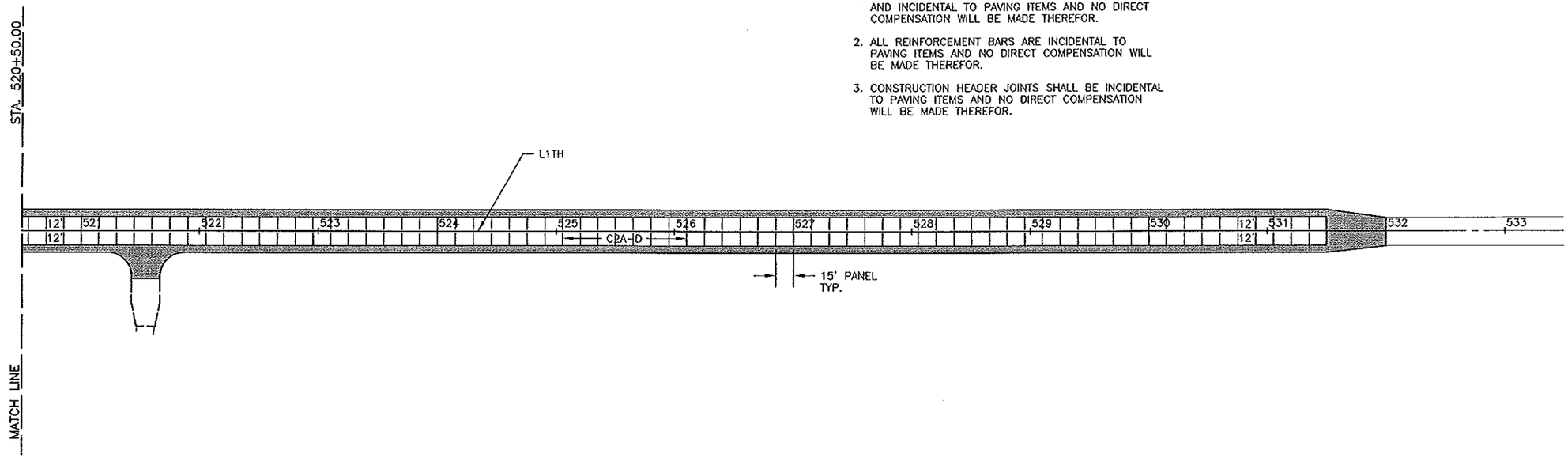
TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 495+00.00 to STA. 520+50.00

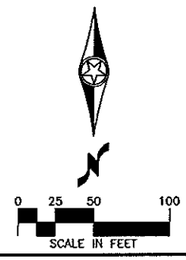
Sheet No. 79 of 299 Sheets

FILE NAME: P306U116.DWG DATE: 03-04-10

NOTES

1. C2A-D CONTRACTION JOINTS ARE 15 FOOT SPACING AND INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
2. ALL REINFORCEMENT BARS ARE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. CONSTRUCTION HEADER JOINTS SHALL BE INCIDENTAL TO PAVING ITEMS AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.





LEGEND

BITUMINOUS SURFACING

AS-BUILT

FEB 09 2012

ENGINEERING

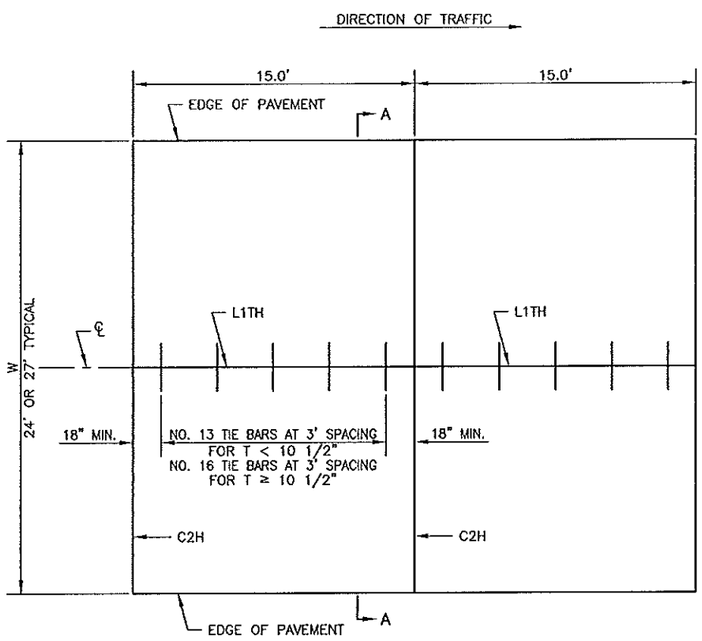
FILE NAME: P30SUL17.DWG DATE: 03-04-10

CERTIFIED BY Kaye M Bierwirth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

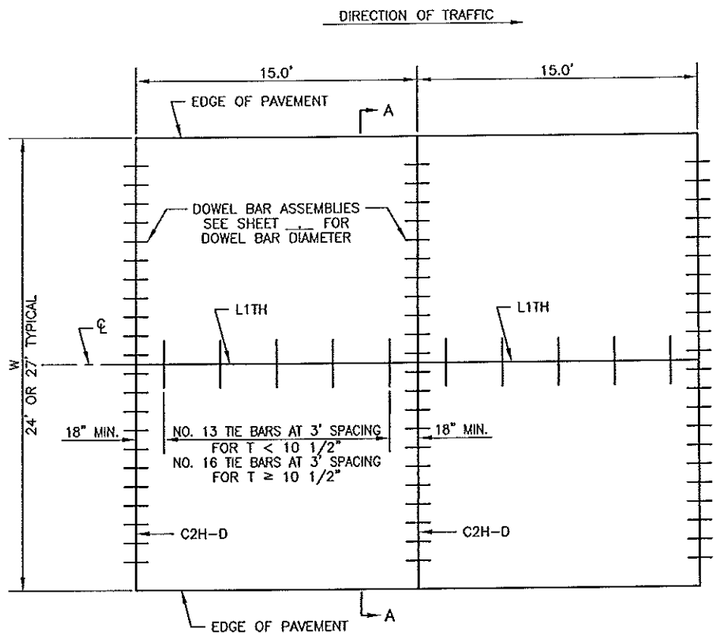
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
SURFACING PLAN
STA. 520+50.00 to STA. 532+00.00

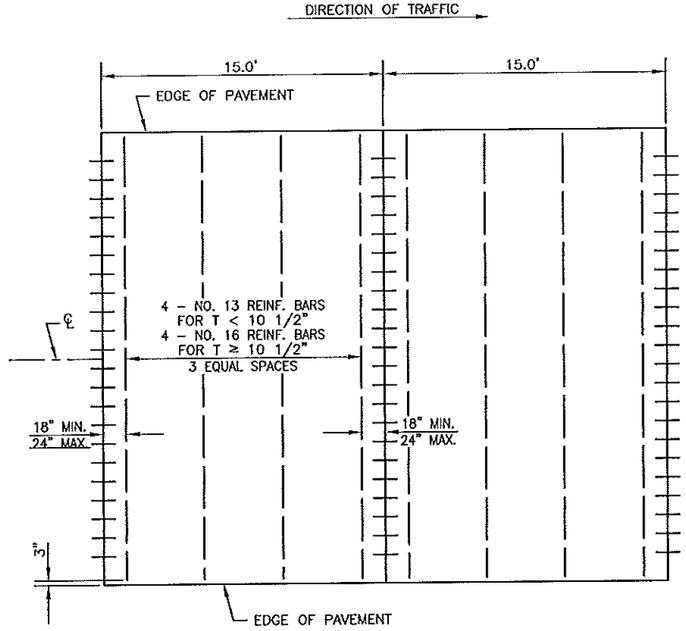
Sheet No. 80 of 299 Sheets



MAINLINE PAVEMENT
UNDOWELED



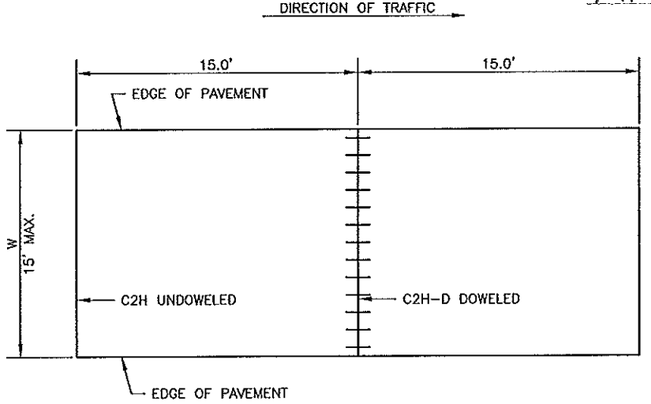
MAINLINE PAVEMENT
DOWELED



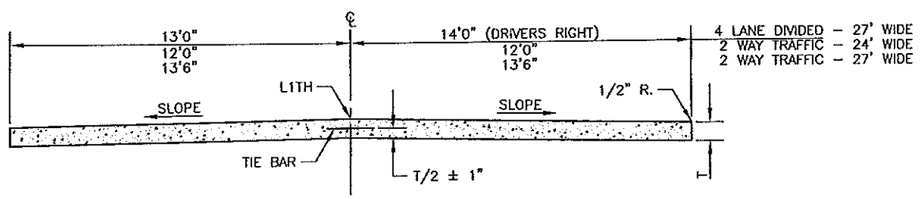
PANEL REINFORCEMENT

USE 11 Bar Baskets
STA 258+34 TO
STA 295+50 Only
All Other Joints 12 Bar

AS-BUILT
FEB 09 2012
ENGINEERING



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A-A

GENERAL NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

SEE TYPICAL SECTIONS AND PLAN SHEETS FOR CROSS SLOPES AND PAVEMENT THICKNESS, T.

DOWEL BAR ASSEMBLIES, WHEN REQUIRED, SHALL BE SIMILAR TO THOSE SHOWN ON STANDARD PLATE 1103.

ALL REINFORCING BARS SHALL BE EPOXY COATED AND COMPLY WITH SPEC. 3301.

FOR SUPPLEMENTAL PAVEMENT REINFORCEMENT, SEE STANDARD PLATE 1070.

PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT. PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1". IT IS PREFERRED TO ADD A LONGITUDINAL JOINT RATHER THAN PAVE GREATER THAN 15' IN WIDTH.

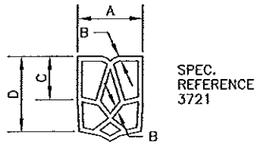
FILE NAME: P206-217A.DWG DATE: 03-04-10

REFERENCE DATE
01--05--2010

CERTIFIED BY Kevin M Brunick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

STANDARD SHEET NO. 5-297.217 (1 OF 2)	TITLE: CONCRETE MAINLINE PAVEMENT 15.0 FT. PANEL LENGTH RURAL
STANDARD APPROVED: NOT APPROVED	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 81 of 299 Sheets

REQUIRED DIMENSIONS	
JOINT TYPE	TRANSVERSE
NOMINAL SEALER SIZE	11/16" USE IN ALL 3/8" JOINTS
A	0.69" ±0.13" −0.05"
B	0.08" ±0.02"
C	0.25" MIN.
D	0.63" MIN.



SPEC. REFERENCE 3721

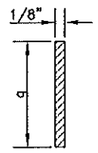
TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

NOTES:

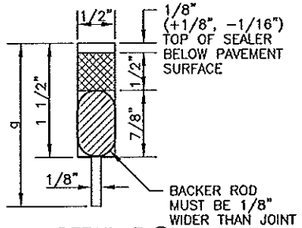
"A" DIMENSION SHALL APPLY AT ANY POINT THROUGHOUT "C" DEPTH. IN ITS FINAL POSITION, THE TOP CORNERS OF THE PREFORMED JOINT SEALER SHALL BE PLACED NOT LESS THAN 1/8 IN., NOR MORE THAN 5/16 IN. BELOW THE PAVEMENT SURFACE.

SHARP INTERNAL CORNERS WILL NOT BE PERMITTED. ALL CORNERS SHALL BE PROVIDED WITH SUITABLE FILLET. CURRENTLY APPROVED CONFIGURATIONS ARE ON FILE IN THE MATERIALS ENGINEERING SECTION, MINNESOTA DEPARTMENT OF TRANSPORTATION.

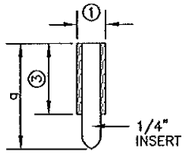
CONTRACTION JOINT SEALER
PREFORMED ELASTIC TYPE



DETAIL A
FORMED & SAWED



DETAIL B ②
SAWED



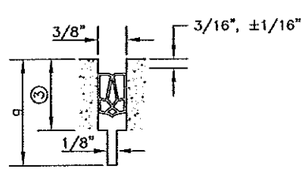
DETAIL C
FORMED
(INSERT TO BE REMOVED)

CONTRACTION JOINT CLASS DESIGNATION, DETAIL & SEALER SPEC. TABLE

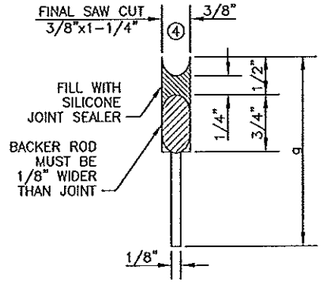
CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1A	C1A-D	A	UNSEALED
C2A	C2A-D	A	3725
C2B	C2B-D	B	3725
C2X	C2X-D	B OR C	3725
C3D	C3D-D	D	3721
C3X	C3X-D	C OR D	3721
C4E	C4E-D	E	3722

DOWEL BAR DIAMETER TABLE

PAVEMENT THICKNESS T	DOWEL BAR DIAMETER
6" – 6-1/2"	1"
7" – 10"	1-1/4"
10-1/2" – 14"	1-1/2"



DETAIL D
SAWED

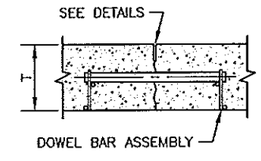


DETAIL E
SAWED

LEGEND

C = CONTRACTION JOINT
NO. = SEALANT TYPE
1 = UNSEALED
2 = 3725
3 = 3721
4 = 3722
LETTER = DETAIL
X = MORE THAN 1 DETAIL
−D = DOWEL BARS

EXAMPLE C2B−D



SECTION AT JOINT

NOTES:

① **DESIGN C3X OR C3X-D** – PRIOR TO INSTALLING PREFORMED JOINT SEALER IN THE FORMED JOINT (DETAIL C), THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 3/8" BY SAWING ALONG THE FULL LENGTH OF THE FORMED JOINT.

DESIGN C2X OR C2X-D – PRIOR TO SEALING FORMED JOINT (DETAIL C) WITH HOT POUR SEALER, THE JOINT SHALL BE WIDENED TO A NOMINAL WIDTH OF 1/2". SAW ALONG THE FULL LENGTH OF THE FORMED JOINT TO DEPTH OF 3/4" (+1/8", −1/16"). THE SEALER SHALL BE FILLED TO THE SAME DEPTH AS SHOWN IN DETAIL B.

② **DESIGN C2B OR C2B-D** – PRIOR TO SEALING JOINT (DETAIL B) WITH HOT POUR JOINT SEALER, A 5/8" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 5/8" BELOW THE SURFACE OF THE PAVEMENT.

③ WHEN USING PREFORMED JOINT SEALER, THE DEPTH SHALL BE 1/4" MORE THAN THE PREFORMED SEALER, WHEN COMPRESSED, TO FIT THE JOINT DESIGN WIDTH.

④ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2" DIA. CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2" BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4".

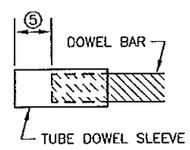
GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY.
SEE STANDARD PLATE 1150, CONSTRUCTION OF HEADER JOINTS. SEE STANDARD PLANS 5-297.217 AND 5-297.219, CONCRETE MAINLINE/RAMP PAVEMENT.

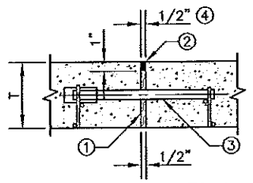
SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATION TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

FOR UNBONDED OVERLAYS, THE JOINT DEPTH "g" SHALL BE T/3.
FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE T/4.

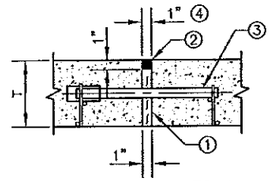
CONTRACTION JOINTS
DESIGN C



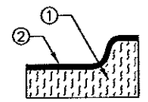
DOWEL BAR SLEEVE DETAIL



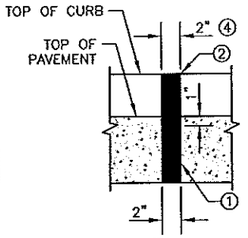
E1D−1 (W/DOWELS) E1−1 (WO/DOWELS)
DETAIL A



E2D−1 (W/DOWELS) E2−1 (WO/DOWELS)
DETAIL C



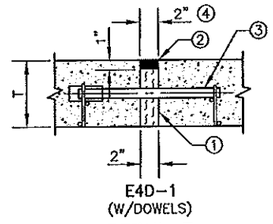
SECTION THRU CURB E2−1



E4−1 (WO/DOWELS)
DETAIL D



SECTION THRU CURB E4−1



E4D−1 (W/DOWELS)
DETAIL E

AS-BUILT
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ENGINEERING

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D−1	E1−1	A	3723
E2D−1	E2−1	C	3723
	E4−1	D	3723
E4D−1		E	3723
	E8S−1	⑥	3725

LEGEND
E = EXPANSION JOINT
NO. = JOINT REFERENCE ④
D = DOWEL BARS
S = CONCRETE SILL
−1 = HOT POURED SEAL

EXAMPLE
E1D−1
HOT POURED SEAL
DOWEL BARS
JOINT REFERENCE
EXPANSION JOINT

NOTES:

① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.

② JOINT SEALER SPEC. 3723. TOP OF SEALER, FLUSH TO 1/8" BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E JOINTS FLUSH WITH SURFACE ±1/8".

③ DOWEL BAR ASSEMBLY, SEE STANDARD PLATE 1103.

④ THE FIRST NUMBER IN THE JOINT DESIGNATION IS EQUAL TO HALF OF THE JOINT NUMBER IN 1/2" INTERVALS (i.e. E1=1/2", E2=1", E4=2", AND E8=4")

⑤ SPACE FROM END OF DOWEL BAR TO END OF SLEEVE TO BE EQUAL TO EXPANSION JOINT WIDTH.

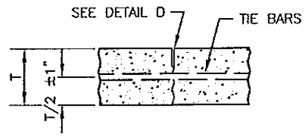
⑥ SEE STANDARD PLAN 5-297.223 FOR E8S JOINT DETAIL.

EXPANSION JOINTS
DESIGN E

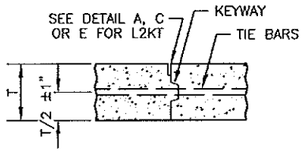
STANDARD SHEET NO. 5-297.221 (1 OF 2)	TITLE: PAVEMENT JOINTS
STANDARD APPROVED: JUNE 6, 2005	CONTRACTION (DESIGN C) AND EXPANSION (DESIGN E)

~~State Proj. No.~~ S.A.P. 55-610-22 Sheet No. 82 of 299 Sheets

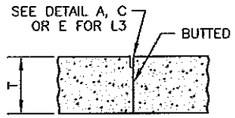
FILE NAME: P206-221A.DWG DATE: 03-04-10



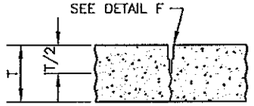
L1& L1T



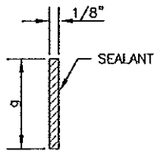
L2KT



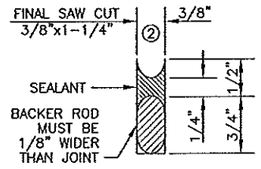
L3



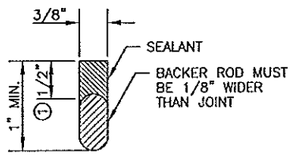
L4



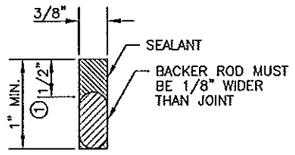
DETAIL B
(SAWED & SEALED
WITH SPEC. 3723)



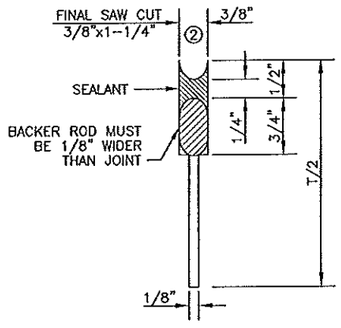
DETAIL C
(SAWED & SEALED
WITH SPEC. 3722)



DETAIL D
(FORMED & SEALED
WITH SPEC. 3723)



DETAIL E
(SAWED & SEALED
WITH SPEC. 3723)



DETAIL F
(SAWED & SEALED
WITH SPEC. 3722)

LONGITUDINAL JOINT CLASS DESIGNATION, DETAIL & SEALER SPECIFICATION TABLE

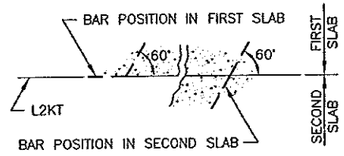
CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT TIE BARS	WITH TIE BARS	WITH KEYWAY & TIE BARS	BUTTED		
L1H	L1TH			B	3723
		L2KTH		D OR E	3723
		L2KTS		C	3722
			L3H	D OR E	3723
			L3S	C	3722
L4S				F	3722

LEGEND
- L = LONGITUDINAL JOINT
- NO. = JOINT REFERENCE
- K = KEYWAY
- T = TIE BARS
- U = UNSEALED
- H = HOT POUR (SEALANT)
- S = SILICONE (SEALANT)

JOINT REFERENCE NUMBERS
1. = SAWED TO A DEPTH OF T/3
2. = KEYED CONSTRUCTION JOINT
3. = BUTTED CONSTRUCTION JOINT
4. = SAWED TO A DEPTH OF T/2

LONGITUDINAL JOINT DEPTH TABLE ③

PAVEMENT THICKNESS T	CONCRETE BASE JOINT DEPTH g
6"-6-1/2"	2"
7"-7-1/2"	2-1/4"
8"-8-1/2"	2-1/2"
9"-9-1/2"	3"



TIE BAR BENDING DETAIL

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ENGINEERING

LONGITUDINAL JOINT NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

THE TIE BAR SPACING FOR ALL L2KT JOINTS SHALL BE 2'-6" CENTER TO CENTER AND BENT 60° AS SHOWN, EXCEPT WHEN NOTED OTHERWISE IN THE PLANS.

TIE BARS IN THE L2KT JOINTS SHALL BE THE SAME SIZE AND LENGTH AS USED FOR THE L1T JOINTS, WHEN TYING PAVEMENT TO PAVEMENT. TIE BARS IN THE L2KT JOINTS SHALL BE No. 13 x 2'-6", WHEN TYING CURB & GUTTER TO PAVEMENT.

ALL TIE BARS SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53.

NORMALLY, TIED PAVEMENT WIDTHS SHALL NOT EXCEED 4 LANES, EXCEPT BRIDGE APPROACH PANELS AND PAVEMENT TAPERS.

JOINT WIDTH TOLERANCE IS +1/16 IN. TO -1/32 IN.

FOR CONCRETE PAVEMENT, THE JOINT DEPTH "g" SHALL BE T/3 INCHES.

SPEC. 3723 SEALER -- TOP OF SEALER FLUSH TO -3/16 IN. BELOW TOP OF PAVEMENT SURFACE.

① THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A CLOSED CELL BACKER ROD CAPABLE OF WITHSTANDING SEALANT TEMPERATURES OF 400 DEGREES F, WITH A DIAMETER 1/8 IN. LARGER THAN THE JOINT OPENINGS, MAY BE PLACED 1/2 IN. BELOW THE TOP OF THE PAVEMENT.

② THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING. PRIOR TO SEALING THE JOINT, A 1/2 IN. DIAMETER CLOSED CELL BACKER ROD SHALL BE PLACED SUCH THAT THE TOP OF THE BACKER ROD IS 1/2 IN. BELOW THE SURFACE OF THE PAVEMENT. NON SELF-LEVELING SILICONE SHALL BE TOOLED INTO THE JOINT MAINTAINING A SEALANT BEAD THICKNESS OF 1/4 IN.

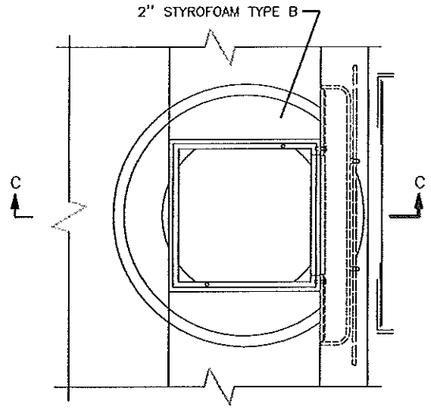
GENERAL NOTES:

SEE STANDARD PLATE 1103, DOWEL BAR ASSEMBLY. SEE STANDARD PLATE 1141, PAVEMENT KEYWAY. SEE STANDARD PLANS 5-297.217 AND 5-297.219 FOR CONCRETE MAINLINE AND RAMP PAVEMENT.

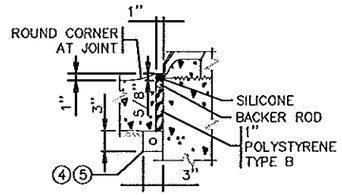
SEE PAVING LAYOUTS IN THE PLANS FOR JOINT CLASS DESIGNATIONS TO BE USED AND SPECIAL REINFORCEMENT REQUIRED.

STANDARD SHEET NO. 5-297.221 (2 OF 2)	TITLE: PAVEMENT JOINTS LONGITUDINAL (DESIGN L)
STANDARD APPROVED: JUNE 6, 2005	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 83 of 299 Sheets

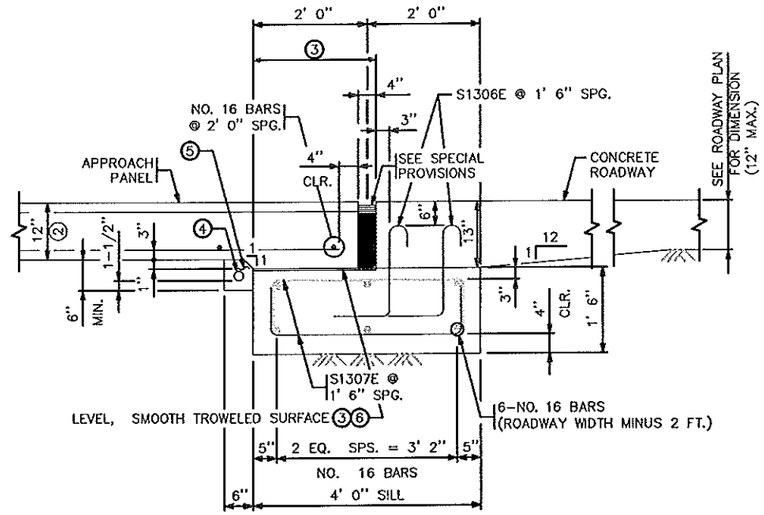
FILE NAME: P206-221B.DWG DATE: 03-04-10



PLAN VIEW OF C. B. CASTING
(GRATE NOT SHOWN)

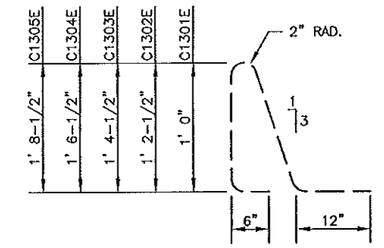


JOINT DETAIL
(AT PARALLEL WINGWALLS)

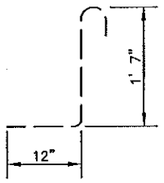


E8S JOINT DETAIL ①
USE AT JOINTLESS ABUTMENTS

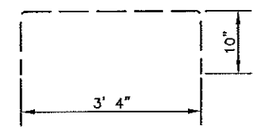
SUMMARY OF QUANTITIES FOR BRIDGE APPROACH PANEL	
CONCRETE MIX No. 3X42	CU. YD.
REINFORCEMENT BARS	LBS.
CURB, DESIGN B4 INTEGRANT	LIN. FT.
CURB, DESIGN B424	LIN. FT.



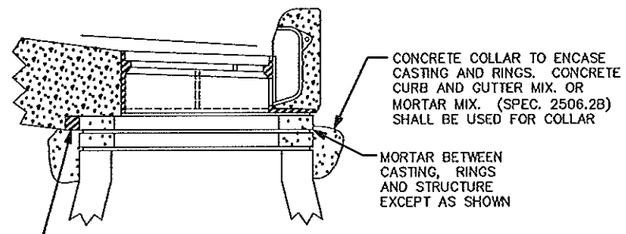
C1301E – C1305E ①



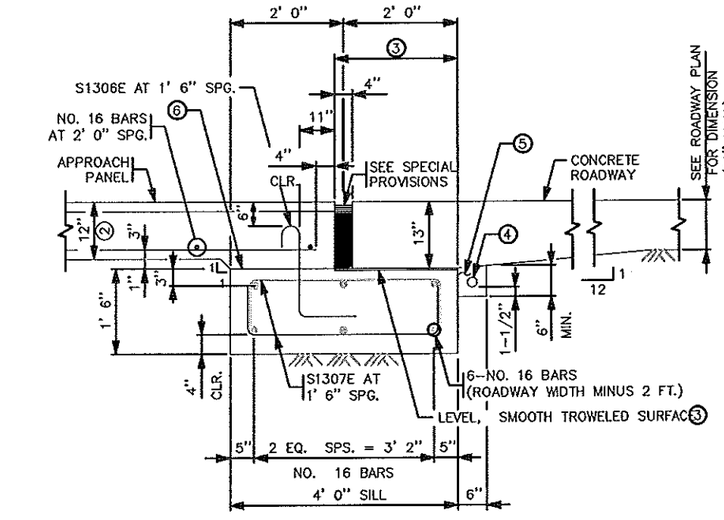
S1306E ①



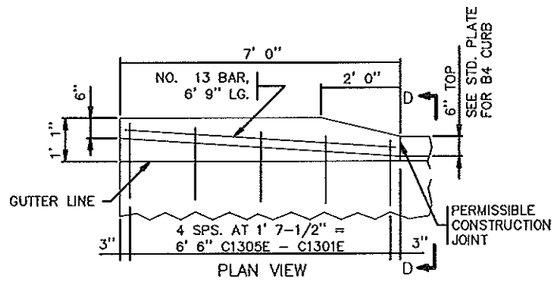
S1307E ①



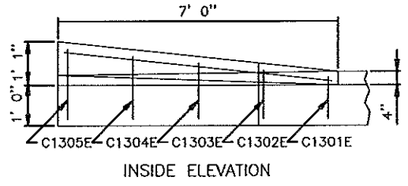
SECTION C--C



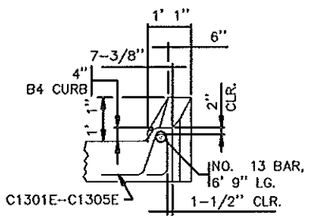
E8S JOINT DETAIL ①
USE AT ABUTMENTS WITH JOINTS



PLAN VIEW

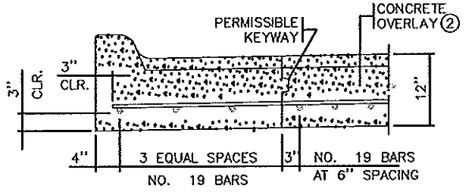


INSIDE ELEVATION



SECTION D--D

CURB TRANSITION DETAILS ①



CURB DETAIL ①
(B4 INTEGRANT CURB OR B424 MODIFIED CURB AND GUTTER)

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ENGINEERING

NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

① ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.

② APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. CHECK BRIDGE PLANS FOR OVERLAYS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.

③ PLACE PLASTIC SHEETING, SPEC. 3756, AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL.

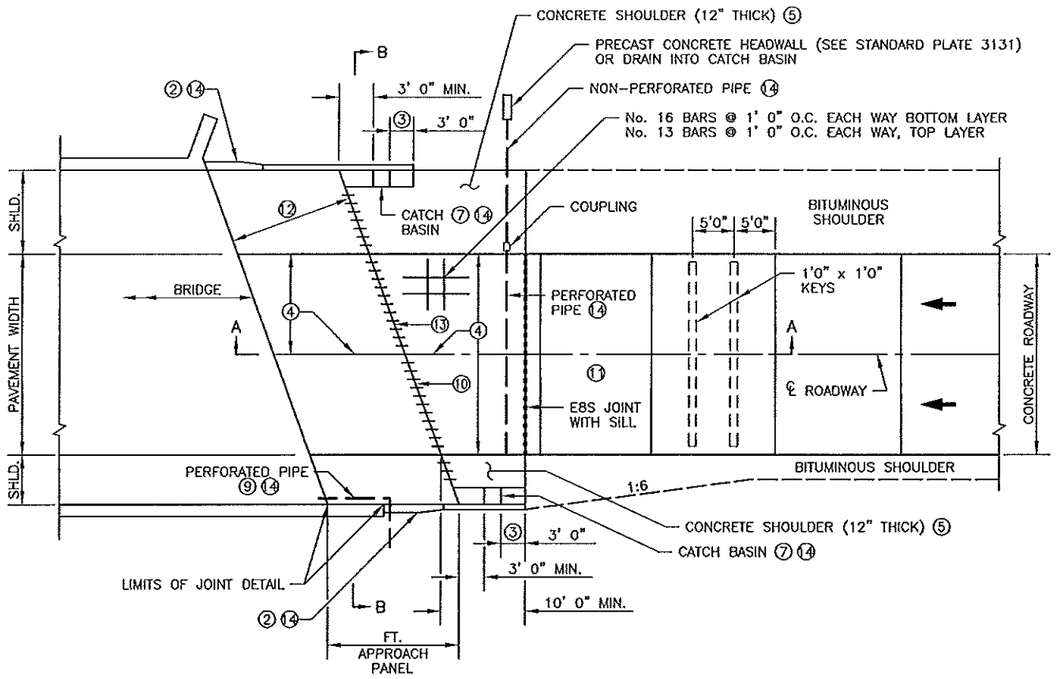
④ 2 INCH OR 4 INCH NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733, 1/8 INCH PER 12 INCH MINIMUM SLOPE.

⑤ BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0 – 3% PASSING A No. 200 SIEVE.

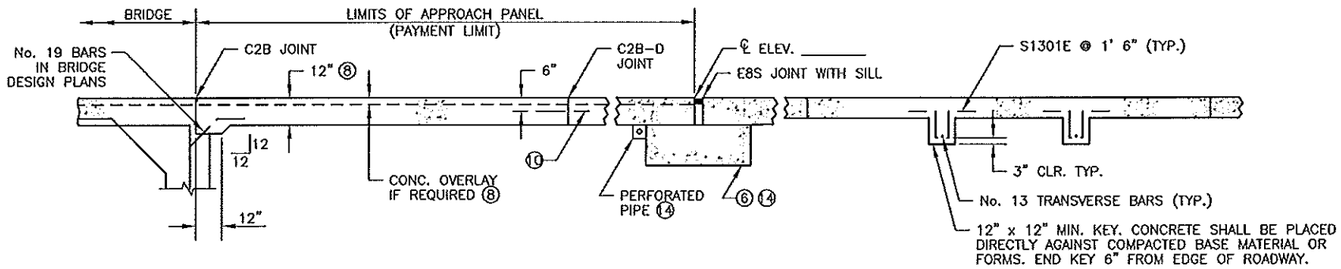
⑥ REQUIRED CONSTRUCTION JOINT.

STANDARD SHEET NO. 5-297.223	TITLE: BRIDGE APPROACH PANEL
STANDARD APPROVED: NOVEMBER 9, 1999	CONCRETE MAINLINE ROADWAY (MISCELLANEOUS DETAILS)
REVISION DATE 02-07-2000	~~State Proj. No.~~ S.A.P. 55-610-22 — Sheet No. 84 of 299 Sheets

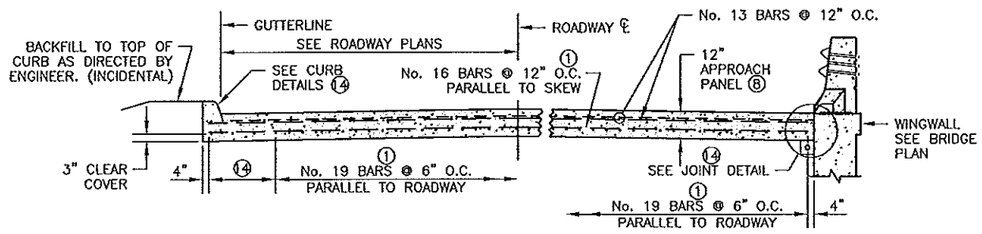
FILE NAME: P306-223.DWG DATE: 03-04-10



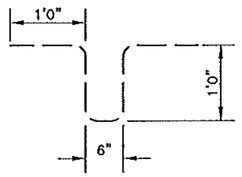
DIVIDED – URBAN ROADWAY PLAN
PARALLEL & NONPARALLEL WINGWALLS



SECTION A–A
(SOME REINFORCEMENT NOT SHOWN)



SECTION B–B
(SEE ROADWAY PLAN VIEW)



S1301E

NOTES:

① ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.

② TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAIL SHEET.

③ TRANSITION APPROACH PANEL CURB HEIGHT 4" TO 0" WHERE THERE IS NO ROADWAY CURB.

④ L2KT OR L1T LONGITUDINAL JOINT IS REQUIRED. SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.

⑤ CONCRETE SHOULDERS INCLUDED IN PAYMENT FOR APPROACH PANEL QUANTITY.

⑥ 18" x 4' 0" CONCRETE SILL UNDER TRAFFIC LANES ONLY WHEN MAINLINE ROADWAY PAVEMENT IS CONCRETE. CONCRETE SILL AND CURBING IF REQUIRED IS INCLUDED IN APPROACH PANEL PAY ITEM.

⑦ LOCATION AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.

⑧ APPROACH SLAB THICKNESS SHOWN INCLUDES ANY CONCRETE OVERLAY THAT MAY BE REQUIRED. CHECK BRIDGE PLANS FOR OVERLAYS. CONCRETE OVERLAYS TO BE INCLUDED IN BRIDGE QUANTITIES AND DONE AT THE SAME TIME BY BRIDGE CONTRACTOR.

⑨ BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0 – 3% PASSING A No. 200 SIEVE.

⑩ CONTRACTION JOINT C2B–D OR C4E–D WITH 1–1/2" DIA. x 15" LONG EPOXY COATED DOWEL BARS AT 12" SPACING. PLACE DOWELS PARALLEL TO THE CENTERLINE OF ROADWAY. CAGES NOT REQUIRED.

⑪ SEE SHEET __ FOR BRIDGE APPROACH ROADWAY INFORMATION.

⑫ 20 FEET TO 40' SKEWS, 15 FEET OVER 40' SKEWS.

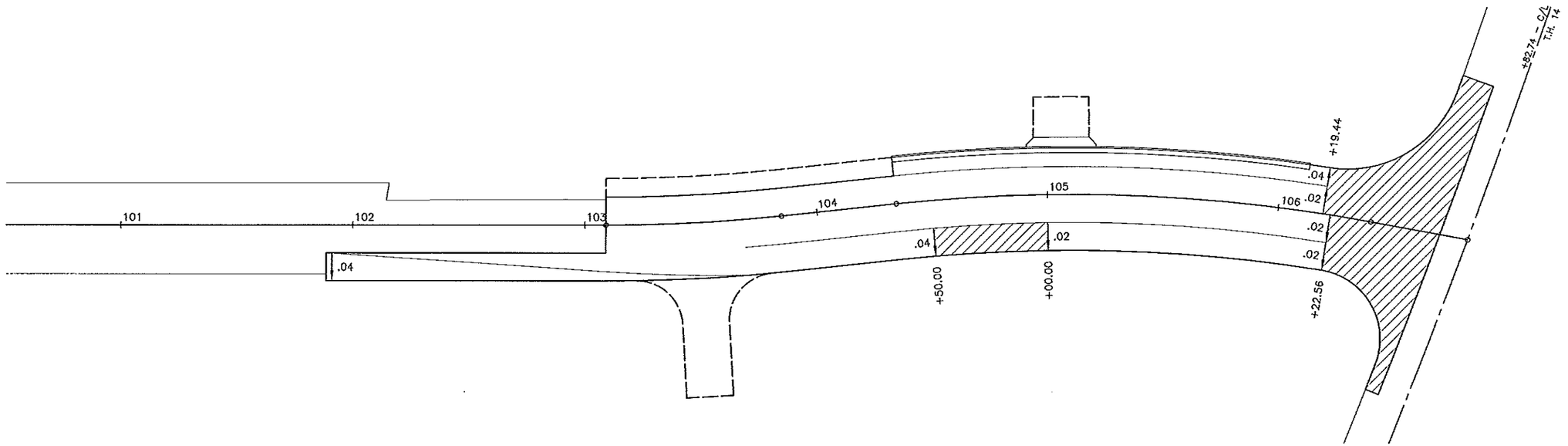
⑬ REQUIRED CONSTRUCTION JOINT.

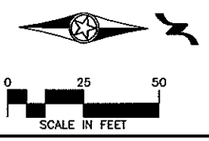
⑭ SEE SHEET __ FOR REQUIRED MISCELLANEOUS DETAILS NOT SHOWN.

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STANDARD SHEET NO. 5–297.228	TITLE: BRIDGE APPROACH PANEL CONCRETE MAINLINE – JOINTLESS ABUTMENT OVER 10' – 30' SKEWS
STANDARD APPROVED: MAY 2, 2002	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 85 of 299 Sheets

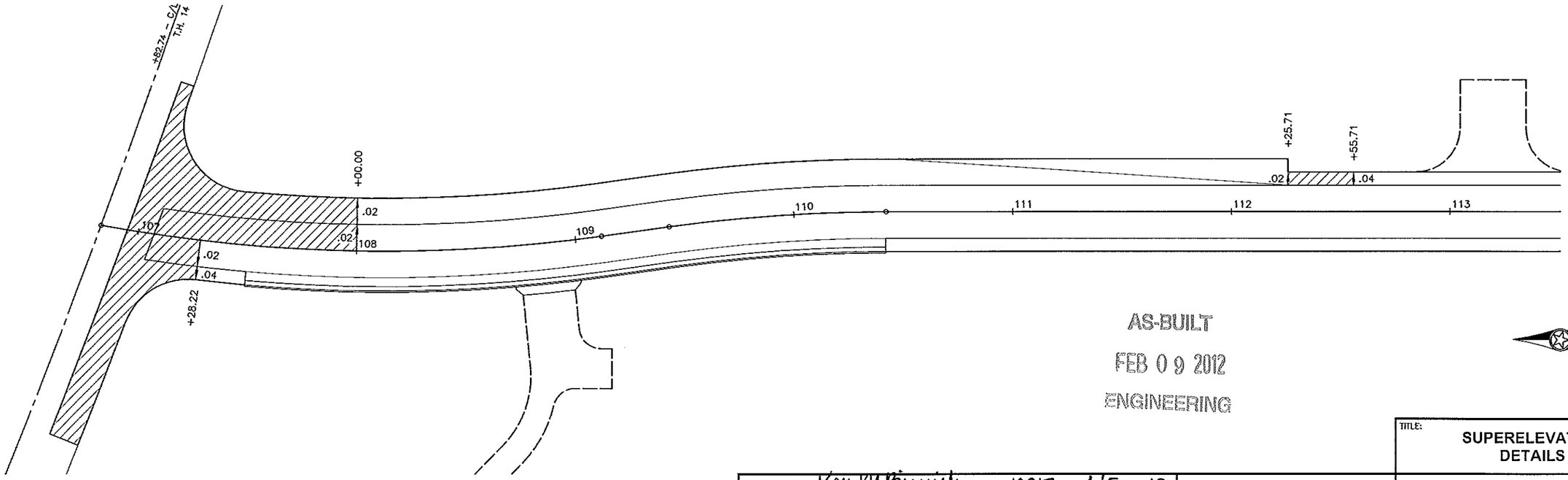
DATE: 03-04-10
FILE NAME: P305-228.DWG





LEGEND

CROSS SLOPE TRANSITION AREA



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FEB 0 9 2012

ENGINEERING

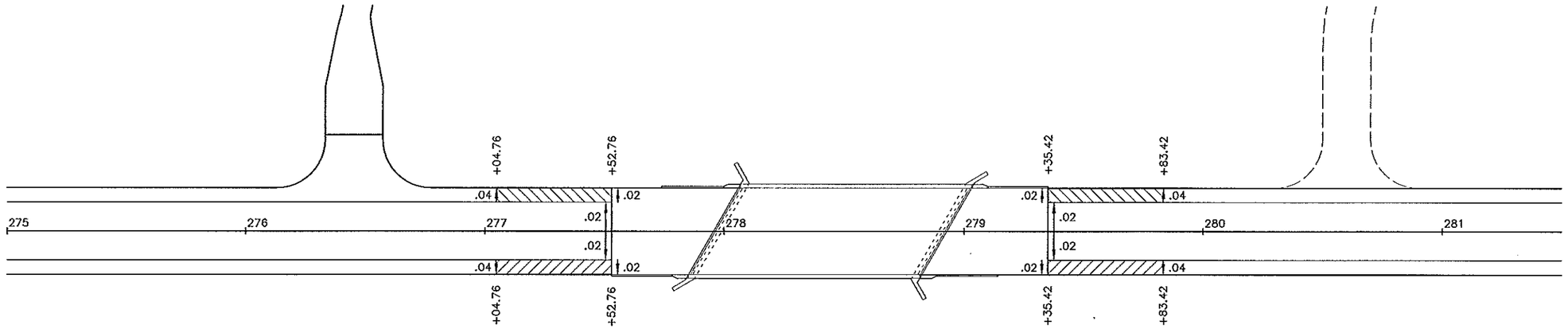
CERTIFIED BY Gary M Bennett REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: SUPERELEVATION DETAILS

Sheet No. 86 of 299 Sheets

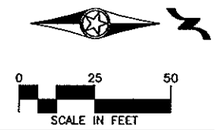
FILE NAME: P3055001.DWG DATE: 03-04-10



AS-BUILT

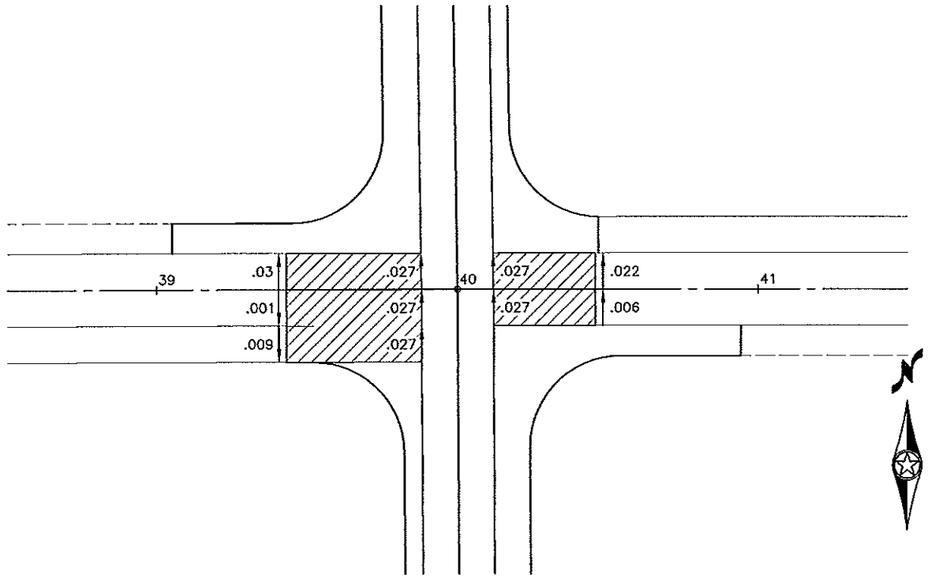
FEB 0 9 2012

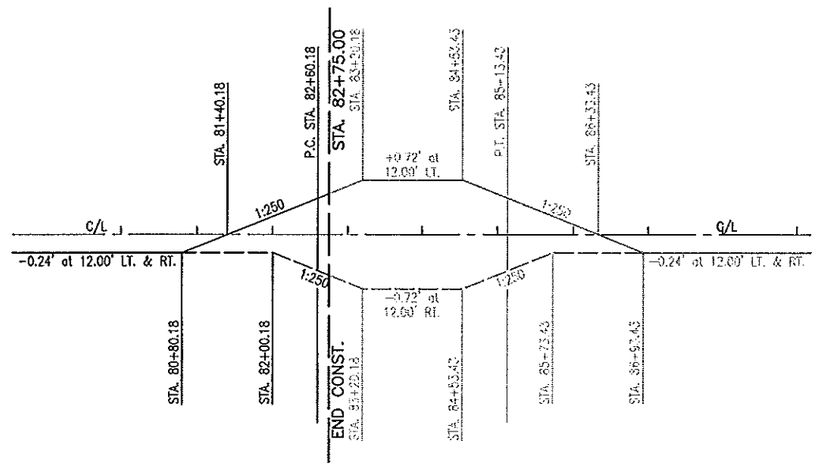
ENGINEERING



LEGEND

CROSS SLOPE TRANSITION AREA





C.S.A.H. No. 2

STA. 80+80.18 TO STA. 86+93.43

16°00'00" CURVE RT.
Emax = 0.06 FT./FT.

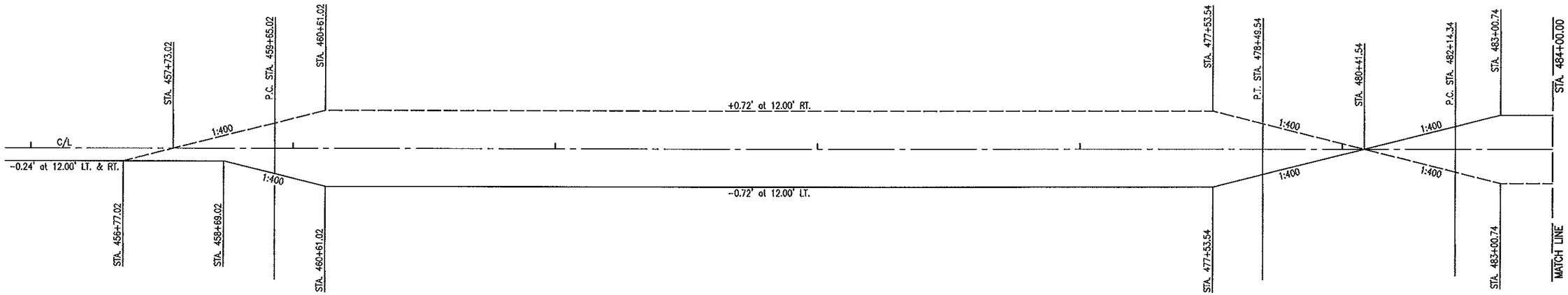
CERTIFIED BY Kevin Reinish REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

TITLE: SUPERELEVATION DETAILS

S.A.P. 55-610-22

Sheet No. 87 of 299 Sheets

FILE NAME: P2065D02.DWG DATE: 03-04-10

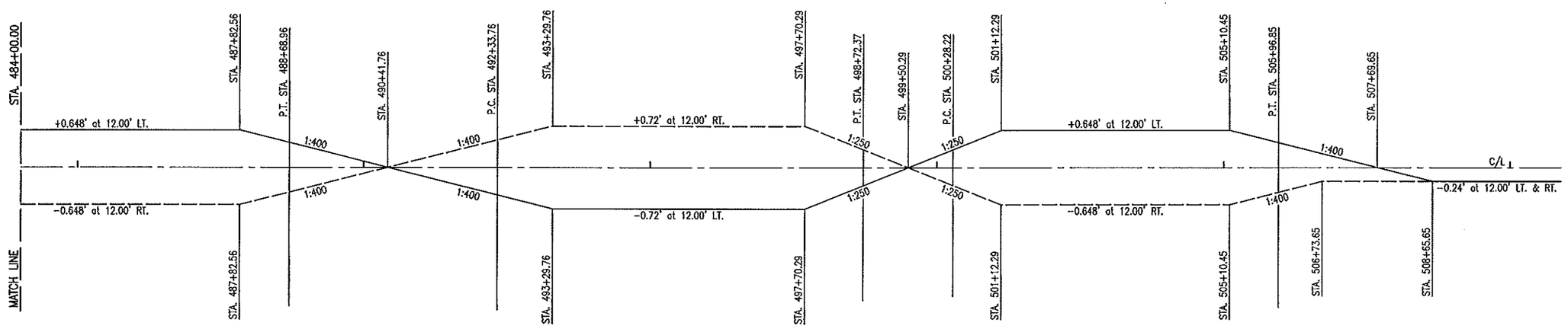


C.S.A.H. No. 10
STA. 456+77.02 TO STA. 480+41.54
5°15'00" CURVE LT.
Emax = 0.06 FT./FT.

AS-BUILT

FEB 0 9 2012

ENGINEERING



C.S.A.H. No. 10
STA. 480+41.54 TO STA. 490+41.76
3°30'00" CURVE RT.
Emax = 0.054 FT./FT.

C.S.A.H. No. 10
STA. 490+41.76 TO STA. 499+50.29
5°15'00" CURVE LT.
Emax = 0.06 FT./FT.

C.S.A.H. No. 10
STA. 499+50.29 TO STA. 508+65.65
3°30'00" CURVE RT.
Emax = 0.054 FT./FT.

FILE NAME: P3065003.DWG DATE: 03-04-10

CERTIFIED BY Kay M Brenick REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE: SUPERELEVATION DIAGRAM

Sheet No. 88 of 299 Sheets

Ⓐ STA. 107+46.17 – 32.00' RT.
C/L END TOP OF BERM

Ⓑ STA. 107+46.83 – 167.25' RT.
C/L END TOP OF BERM

Ⓒ STA. 107+74.62 – 60.00' RT.
8.00' TOE OF POND RADIUS PT.

Ⓓ STA. 107+76.63 – 135.87' RT.
13.00' TOE OF POND RADIUS PT.

Ⓔ STA. 108+53.09 – 54.00' RT.
22.00' TOP OF POND RADIUS PT.

Ⓕ STA. 108+33.79 – 58.18' RT.
22.64' TOE OF POND RADIUS PT.

Ⓖ STA. 108+33.82 – 57.06' RT.
50.00' DRIVEWAY C/L RADIUS PT.

Ⓗ STA. 107+88.95 – 257.54' RT.
50.00' DRIVEWAY C/L RADIUS PT.

Ⓘ STA. 109+08.95 – 59.95' RT.
C/L END DRIVEWAY

PT STA. 103+84.61

20' T.E.

5' T.E.

PC STA. 104+34.61

25' T.E.

10' T.E.

104

105

106

300' RIGHT TURN LANE

PC STA. 106+87.74

PT STA. 106+40.25

107

32

108

109

PT STA. 109+12.05

300' RIGHT TURN LANE

110

111

20' T.E.

APRON 4

M.H. 1

APRON 3

PC STA. 109+43.25

PT STA. 110+42.45

20' T.E.

+20.00

+00.00

+12.05

18'

1147

1145

1:4

1:3

42.11 Ⓒ

20'

PIPE DRAIN RISER

42.11

1143

TOP OF BERM - 6.50

42.11 Ⓓ

8'

46.78 Ⓑ

T.E.

280'

Ⓗ

43.70 Ⓕ Ⓖ

Ⓐ 46.78

Ⓘ

12" x 26' CSP
2 - 12" CSP Aprons

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APRON 3
STA. 110+58.15 – 42.00' RT.
END APRON EL. 47.49
135.06 L.F. 24" R.C.P. CL. III

M.H. 1
STA. 109+43.25 – 31.13' RT.
DRAINAGE STRUCTURE DESIGN F
RING EL. 50.39
INL. EL. 44.84 FROM APRON 3
OUT. EL. 44.74 TO APRON 4
52.95 L.F. 24" R.C.P. CL. III

APRON 4
STA. 108+59.59 – 51.46' RT.
END APRON EL. 43.80

POND OUTLET

STA. 107+81.04 – 94.29' RT.
INV. EL. 40.90
8" x 20.00 L.F. PERF. P.V.C. at 1.00%

PIPE DRAIN RISER
STA. 107+63.37 – 93.67' RT.
INV. EL. 40.70
8" x 8" P.V.C. TEE

OUT. STA. 107+27.49 – 93.93' RT.
OUT. EL. 40.29
8" x 40.58 L.F. P.V.C. at 1.00%
8" PRECAST CONCRETE HEADWALL

0 25 50
SCALE IN FEET

REVISION DATE
07-19-2010

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN
POND "A"

CERTIFIED BY _____ REG. NO. _____ _____ 20__
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 89 of 299 Sheets

FILE NAME: P:\SAP\DRAWING DATE: 07 14 10

Ⓐ STA. 222+83.00 – 79.81' RT.
2.00' TOE OF POND RADIUS PT.

Ⓑ STA. 223+40.16 – 148.38' RT.
59.50' TOE OF POND RADIUS PT.

Ⓒ STA. 223+30.06 – 202.20' RT.
C/L END TOP OF BERM

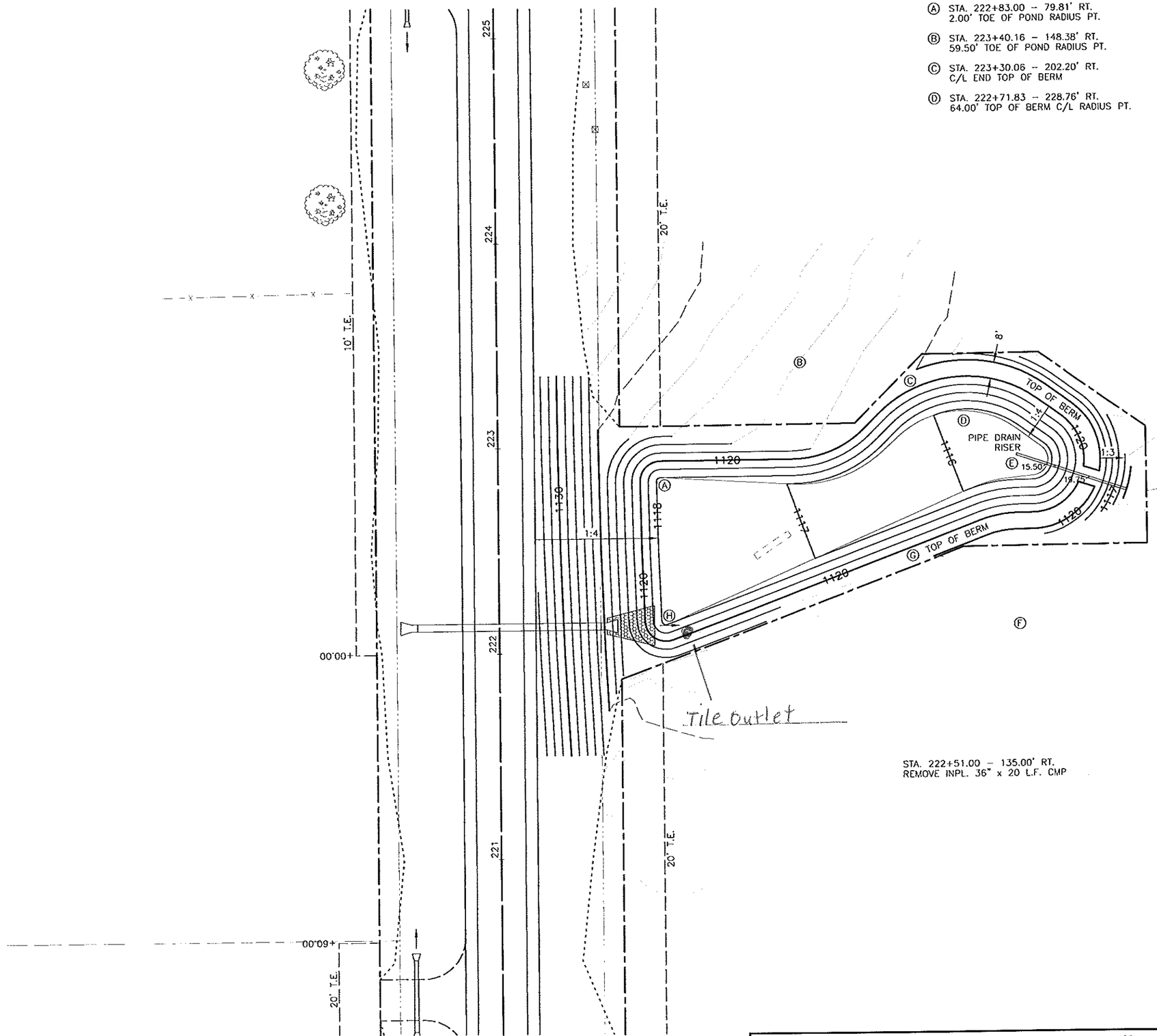
Ⓓ STA. 222+71.83 – 228.76' RT.
64.00' TOP OF BERM C/L RADIUS PT.

Ⓔ STA. 222+90.75 – 261.24' RT.
29.75' TOP OF BERM C/L RADIUS PT.

Ⓕ STA. 222+11.00 – 253.94' RT.
50.00' TOP OF BERM C/L RADIUS PT.

Ⓖ STA. 222+45.16 – 202.30' RT.
C/L END TOP OF BERM

Ⓗ STA. 222+15.33 – 81.72' RT.
2.00' TOE OF POND RADIUS PT.



STA. 222+51.00 – 135.00' RT.
REMOVE INPL. 36" x 20 L.F. CMP

POND OUTLET

STA. 222+93.37 – 253.42' RT.
INV. EL. 14.58
8" x 20.00 L.F. PERF. P.V.C. at 0.50%

PIPE DRAIN RISER
STA. 222+87.01 – 272.38' RT.
INV. EL. 14.48
8" x 8" P.V.C. TEE

OUT. STA. 222+75.20 – 307.58' RT.
OUT. EL. 14.29
8" x 37.13 L.F. P.V.C. at 0.50%
8" PRECAST CONCRETE HEADWALL

AS-BUILT
FEB 0 9 2012
ENGINEERING

0 25 50
SCALE IN FEET

FILE NAME: P:\Dwg\901.dwg DATE: 07-14-10

REVISION DATE
07-19-2010

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN
POND "B"

CERTIFIED BY _____ REG. NO. _____ _____ 20__
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 90 of 299 Sheets

Ⓐ STA. 417+17.01 – 80.40' RT.
9.00' TOE OF POND RADIUS PT.

Ⓑ STA. 417+83.00 – 75.95' RT.
1.50' TOE OF POND RADIUS PT.

Ⓒ STA. 417+83.00 – 110.84' RT.
1.50' TOE OF POND RADIUS PT.

Ⓓ STA. 418+05.00 – 60.57' RT.
C/L END TOP OF BERM

Ⓔ STA. 418+05.00 – 147.39' RT.
C/L END TOP OF BERM

+15.00
45' T.E.
+50.00
+80.00
+60.00
20' T.E.
C.B. 2
414
415
416
417
418
419
420
421
1180
1175
APRON 5
1:4
1:2
1:3
1162
1161
1160
59.50
PIPE DRAIN RISER
TOP OF BERM
1165
+00.00
Tile Riser
+68.77
+25.00
8'
20' T.E.
12' T.E.
7' T.E.

C.B. 2
STA. 416+73.72 – 42.10' LT.
DRAINAGE STRUCTURE DESIGN F
TOP GRATE EL. 77.55
OUT. EL. 66.87 TO APRON 5
100.67 L.F. 30" R.C.P. CL. IV

APRON 5
STA. 417+01.36 – 61.07' RT.
END APRON EL. 65.51

POND OUTLET

STA. 417+69.65 – 92.40' RT.
INV. EL. 58.58
8" x 20.00 L.F. PERF. P.V.C. at 0.50%

PIPE DRAIN RISER
STA. 417+87.83 – 100.73' RT.
INV. EL. 58.48
8" x 8" P.V.C. TEE

OUT. STA. 418+25.28 – 117.88' RT.
OUT. EL. 58.27
8" x 41.19 L.F. P.V.C. at 0.50%
8" PRECAST CONCRETE HEADWALL

AS-BUILT
FEB 0 9 2012
ENGINEERING

0 25 50
SCALE IN FEET

DATE 07-14-10

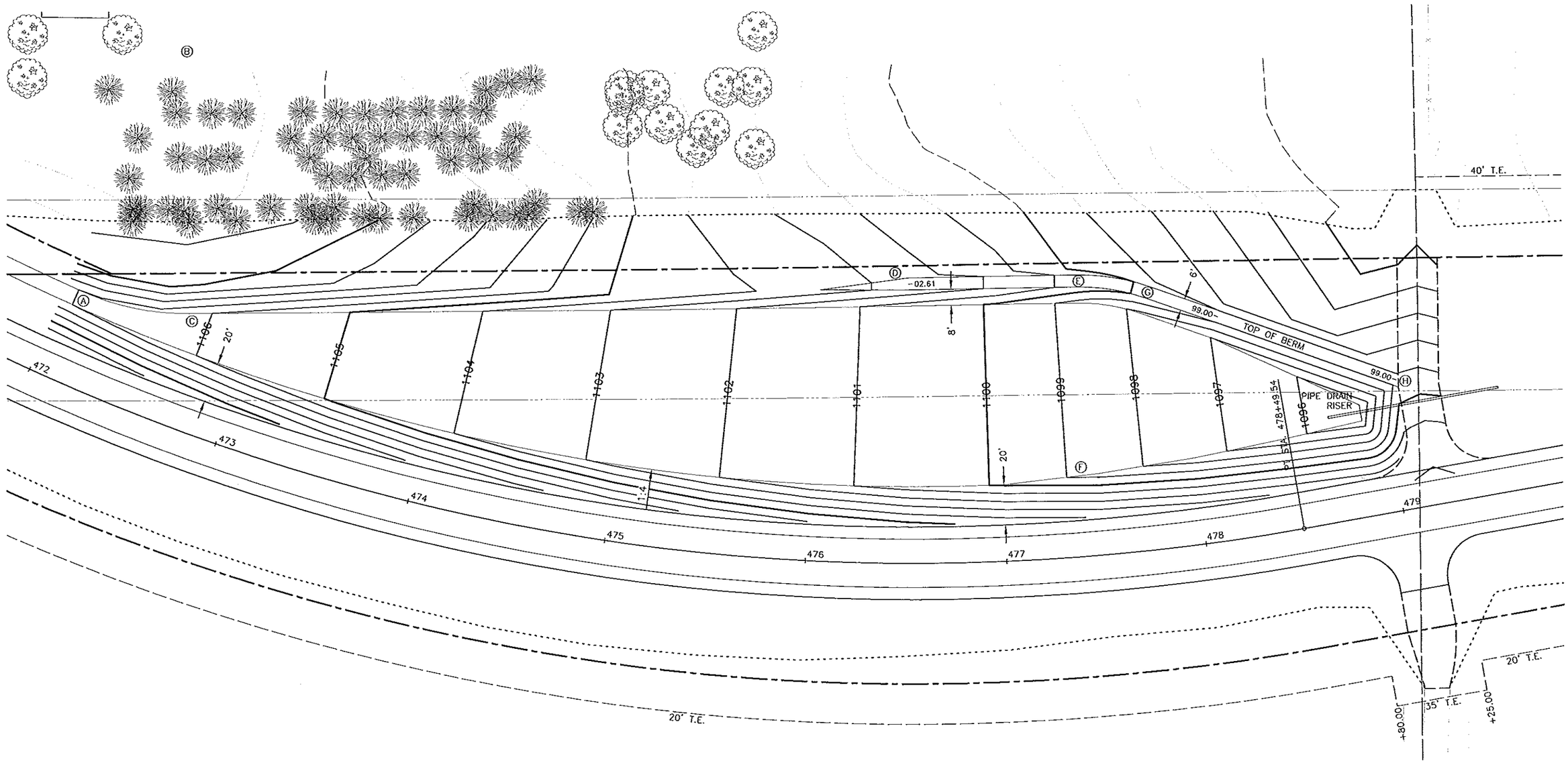
CERTIFIED BY _____ REG. NO. _____ _____ 20__
LICENSED PROFESSIONAL ENGINEER

REVISION DATE
07-19-2010

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN
POND "C"

Sheet No. 91 of 299 Sheets



Ⓐ STA. 472+07.47 – 46.00' LT.
TOE OF POND P.C.

Ⓑ STA. 472+07.47 – 176.00' LT.
130.00' TOE OF POND RADIUS PT.

Ⓒ STA. 472+64.16 – 56.24' LT.
TOE OF POND P.T.

Ⓓ STA. 476+50.00 – 138.70' LT.
C/L END TOP OF BERM

Ⓔ STA. 477+47.31 – 136.67' LT.
C/L TOP OF BERM P.C.

Ⓕ STA. 477+40.23 – 36.88' LT.
100.00' TOP OF BERM C/L RADIUS PT.

Ⓖ STA. 477+85.92 – 127.54' LT.
C/L TOP OF BERM P.T.

Ⓗ STA. 479+07.68 – 64.44' LT.
C/L END TOP OF BERM

POND OUTLET

STA. 478+70.89 – 52.00' LT.
INV. EL. 93.38
8" x 20.00 L.F. PERF. P.V.C. at 1.00%

PIPE DRAIN RISER
STA. 478+90.89 – 52.00' LT.
INV. EL. 93.18
8" x 8" P.V.C. TEE

OUT. STA. 479+56.60 – 52.00' LT.
OUT. EL. 92.52
8" x 65.71 L.F. P.V.C. at 1.00%
8" PRECAST CONCRETE HEADWALL

AS-BUILT
FEB 0 9 2012
ENGINEERING

N
0 25 50
SCALE IN FEET

REVISION DATE
07-19-2010

TITLE:
C.S.A.H. No. 10
CONSTRUCTION PLAN
POND "D"

CERTIFIED BY _____ REG. NO. _____ _____ 20__
LICENSED PROFESSIONAL ENGINEER

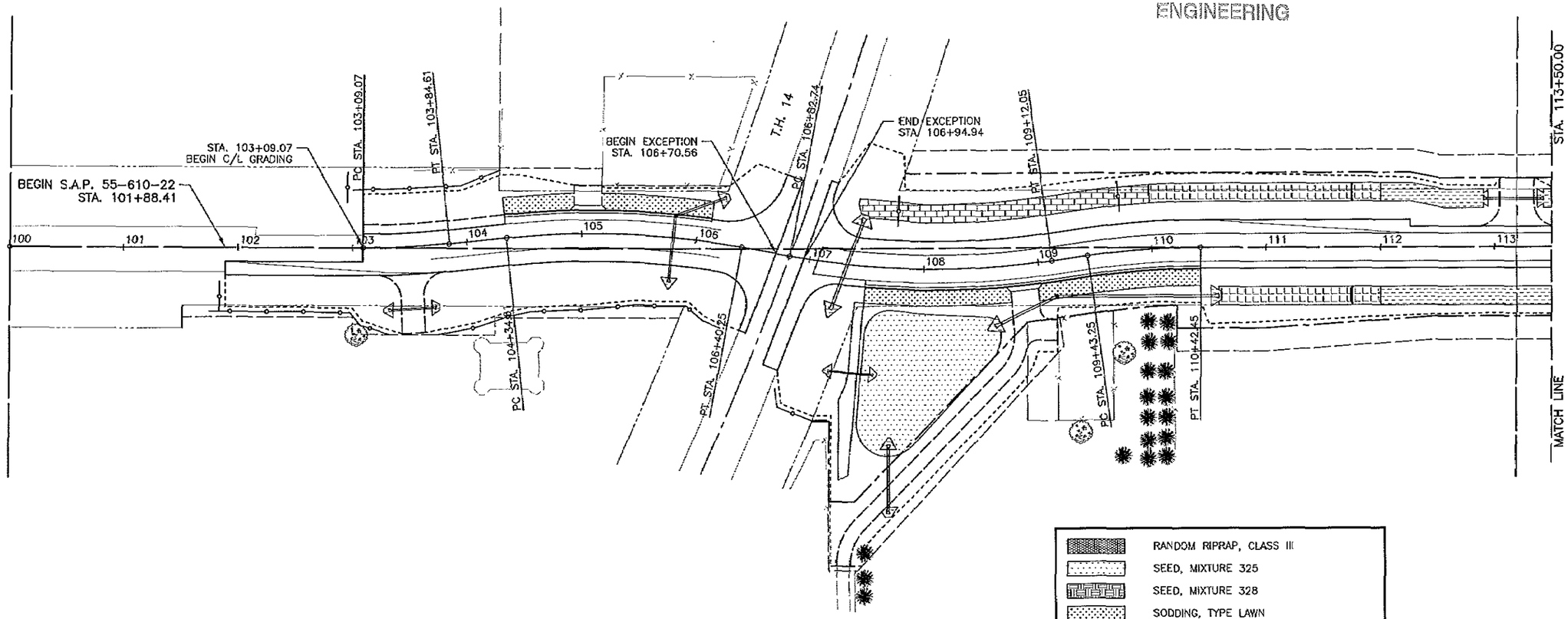
S.A.P. 55-610-22

Sheet No. 92 of 299 Sheets

DATE: 07-14-10
PLOT NAME: P10-POND.DWG

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012
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RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 100+00.00 to STA. 113+50.00

CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

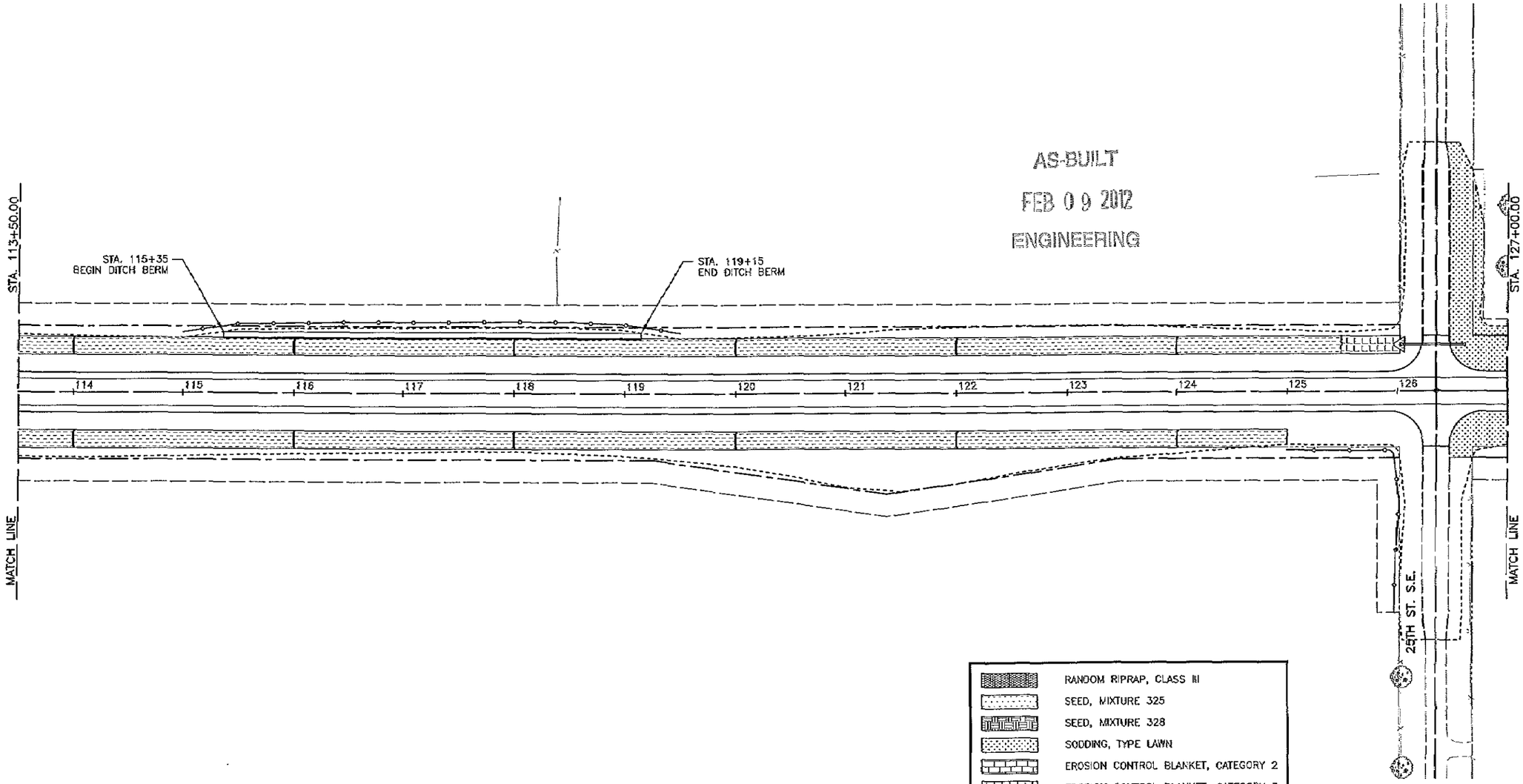
S.A.P. 55-610-22

Sheet No. 93 of 299 Sheets

FILE NAME: P306EC01.DWG DATE: 03-16-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 09 2012
ENGINEERING



CERTIFIED BY Kayl W Pennick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

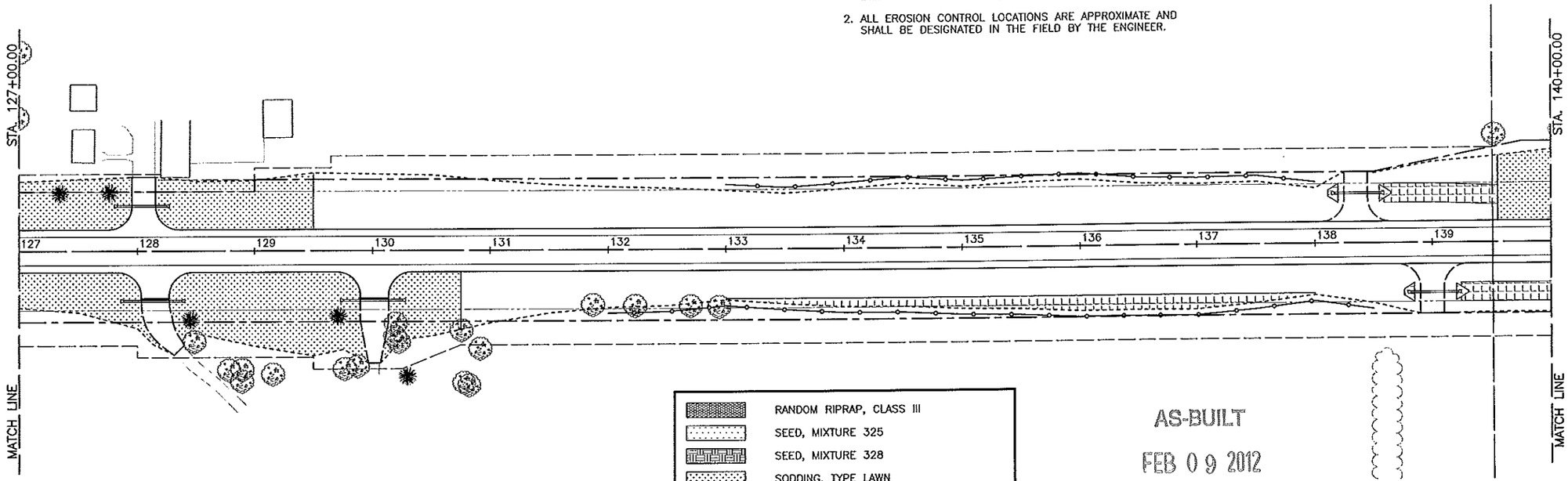
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 113+50.00 to STA. 127+00.00

Sheet No. 94 of 299 Sheets

FILE NAME: P2056C02.DWG DATE: 03-14-10

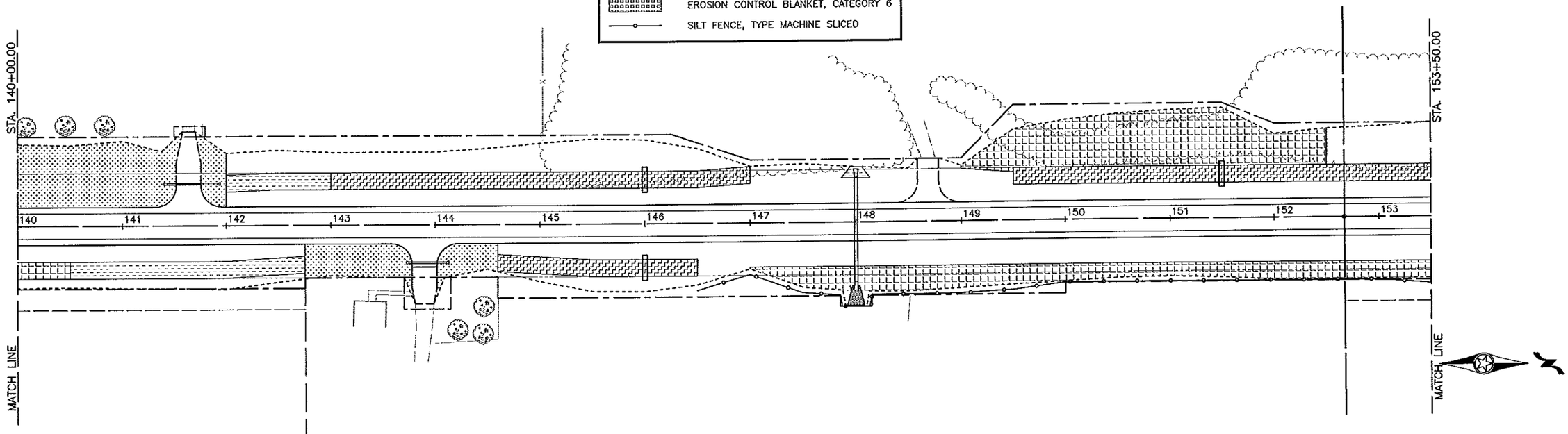
NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

AS-BUILT
FEB 09 2012
ENGINEERING

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kenneth M Bierwirth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

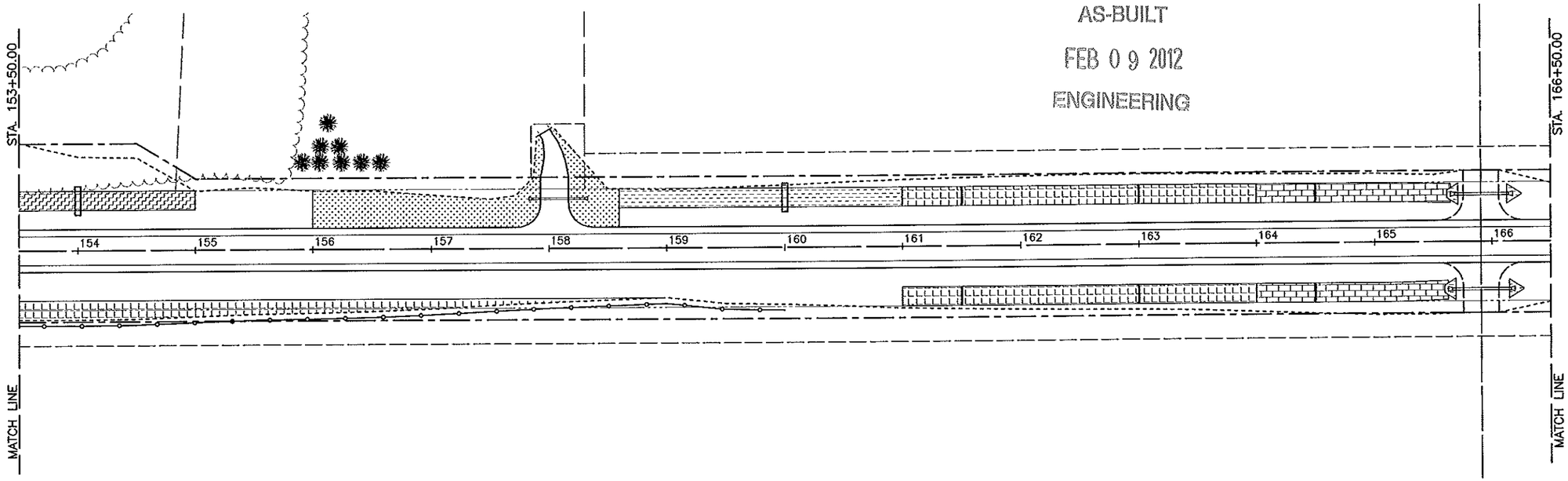
TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 127+00.00 to STA. 153+50.00

Sheet No. 95 of 299 Sheets

DATE: 03-16-10
FILE NAME: PS055C003.DWG

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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ENGINEERING



- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 153+50.00 to STA. 166+50.00

CERTIFIED BY Kayd M Riemer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

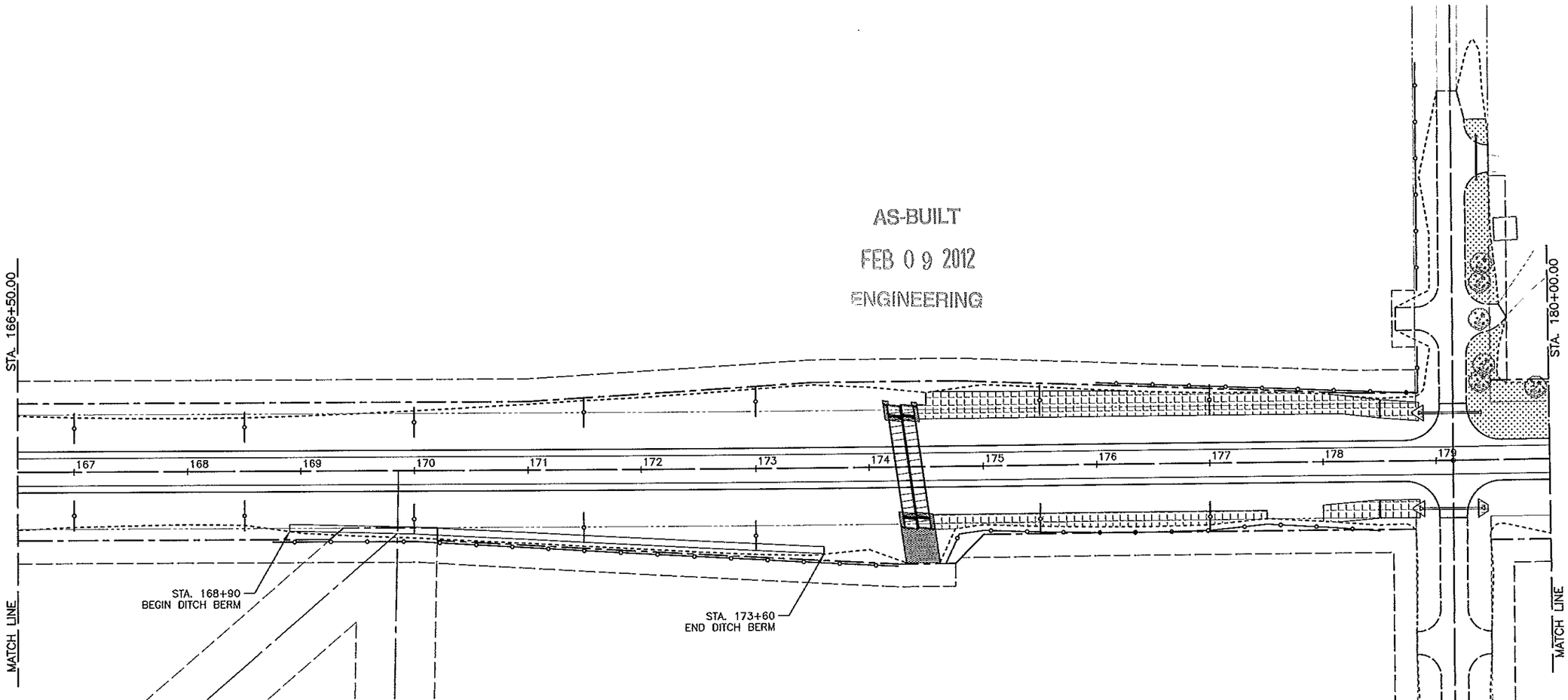
S.A.P. 55-610-22

Sheet No. 96 of 299 Sheets

FILE NAME: P305EC04.DWG DATE: 03-16-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

AS-BUILT
FEB 0 9 2012
ENGINEERING



RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 166+50.00 to STA. 180+00.00

CERTIFIED BY Kayl W Bierwich REG. NO. 19317 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

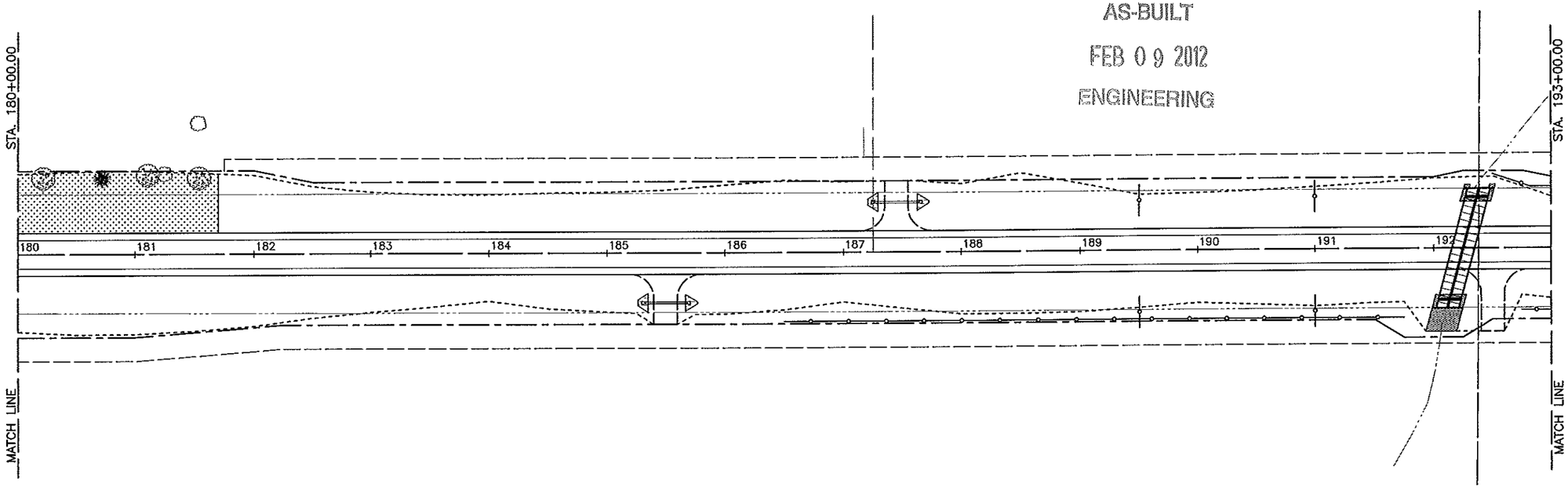
S.A.P. 55-610-22

Sheet No. 97 of 299 Sheets

FILE NAME: P3056C05.DWG DATE: 03-10-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

AS-BUILT
FEB 0 9 2012
ENGINEERING



RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 180+00.00 to STA. 193+00.00

CERTIFIED BY Kayd M Doumith REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

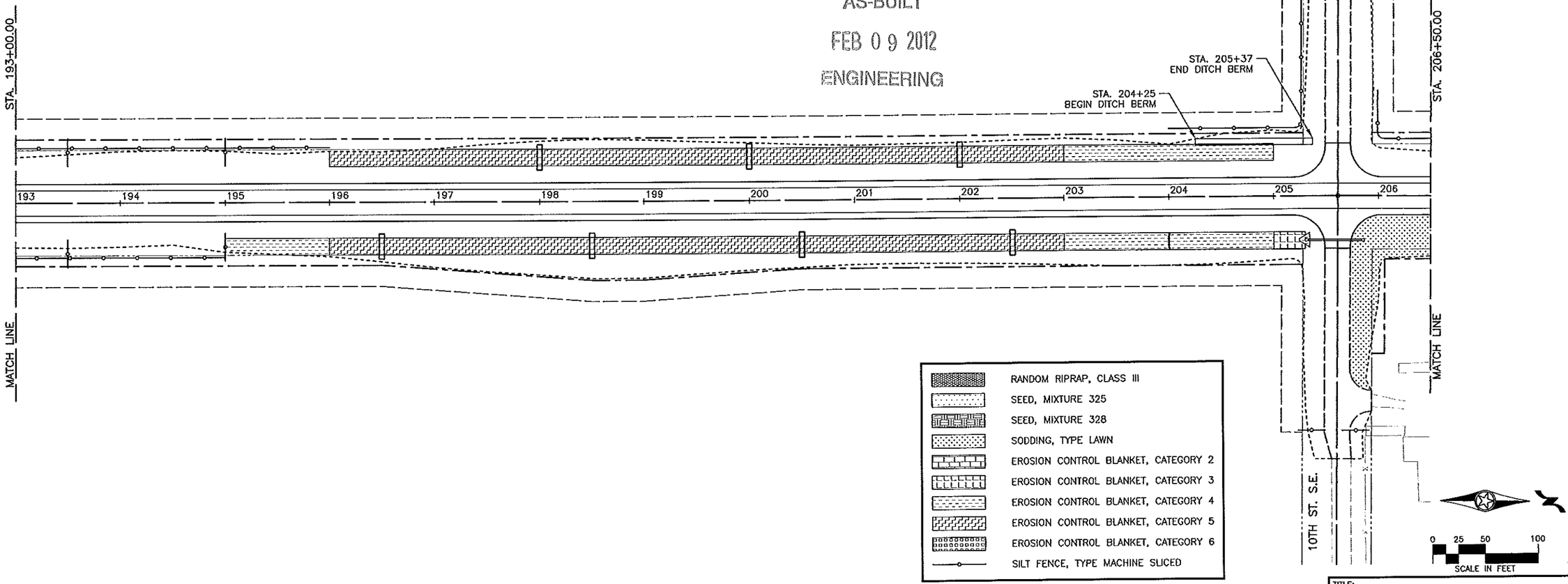
S.A.P. 55-610-22

Sheet No. 98 of 299 Sheets

FILE NAME: P206EC06.DWG DATE: 03-10-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

AS-BUILT
FEB 0 9 2012
ENGINEERING



CERTIFIED BY Kevin M Bierich REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

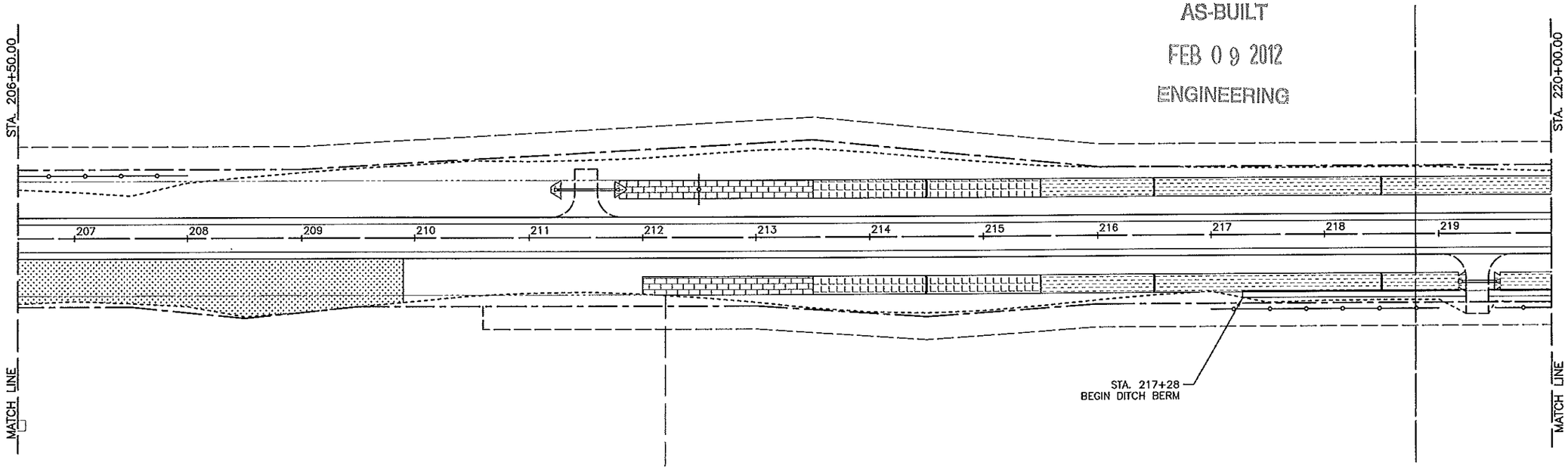
TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 193+00.00 to STA. 206+50.00

Sheet No. 99 of 299 Sheets

FILE NAME: P3056207.DWG DATE: 03-16-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

AS-BUILT
FEB 0 9 2012
ENGINEERING



- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 206+50.00 to STA. 220+00.00

CERTIFIED BY Kevin M Kriesmith REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

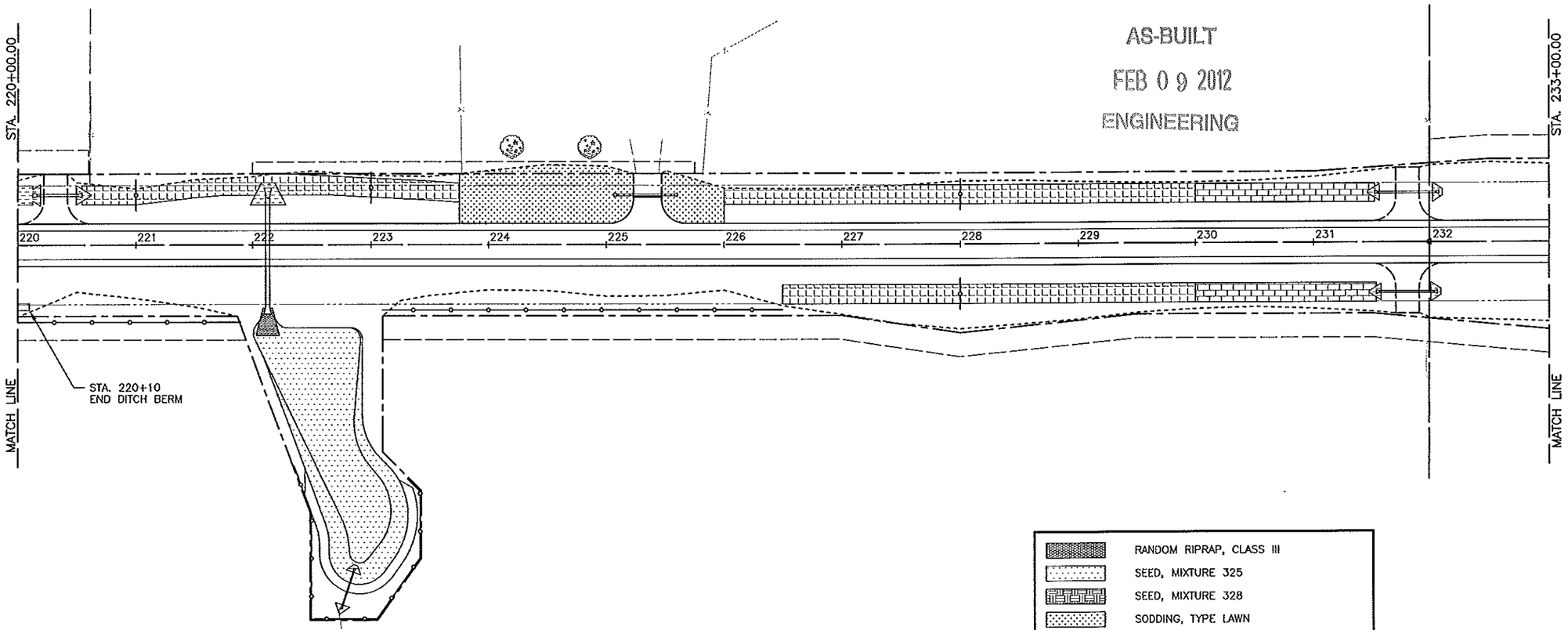
S.A.P. 55-610-22

Sheet No. 100 of 299 Sheets

FILE NAME: P3065C08.DWG DATE: 03-16-10

NOTES

1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



AS-BUILT

FEB 0 9 2012

ENGINEERING

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 220+00.00 to STA. 233+00.00

CERTIFIED BY Kaye M Rieniets REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

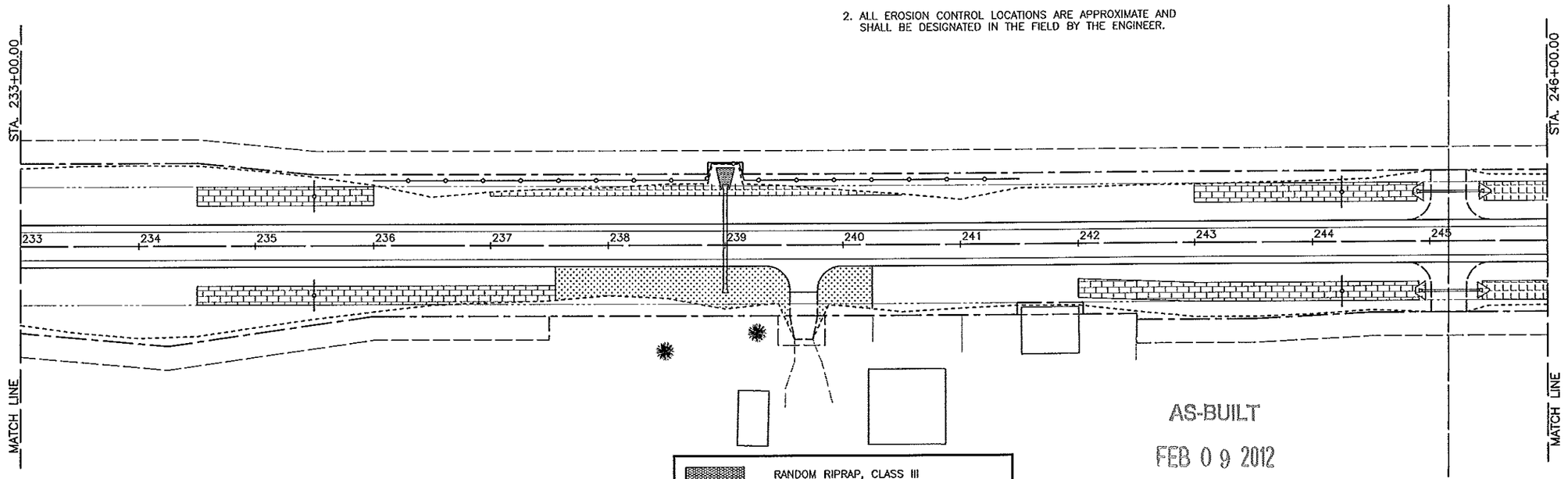
S.A.P. 55-610-22

Sheet No. 101 of 299 Sheets

FILE NAME: P:\06EC09.DWG DATE: 03-16-10

NOTES

1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



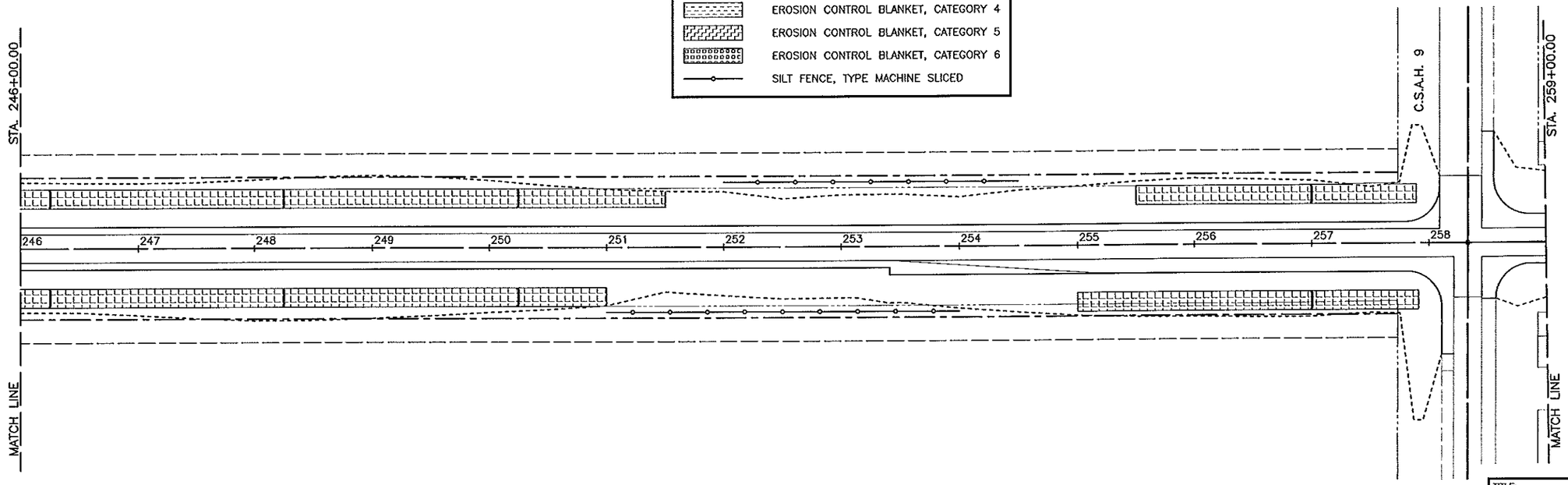
AS-BUILT

FEB 0 9 2012

ENGINEERING

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET



TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 233+00.00 to STA. 259+00.00

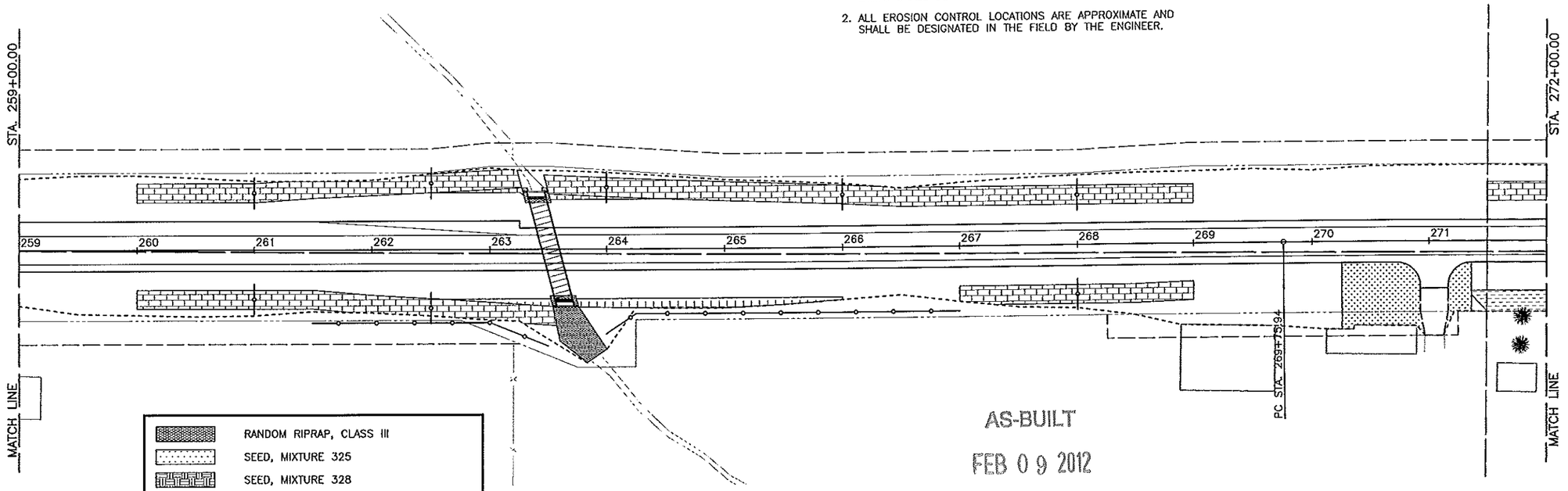
CERTIFIED BY Kyle M Poienick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 102 of 299 Sheets

FILE NAME: P:\06EC10.DWG DATE: 03-16-10

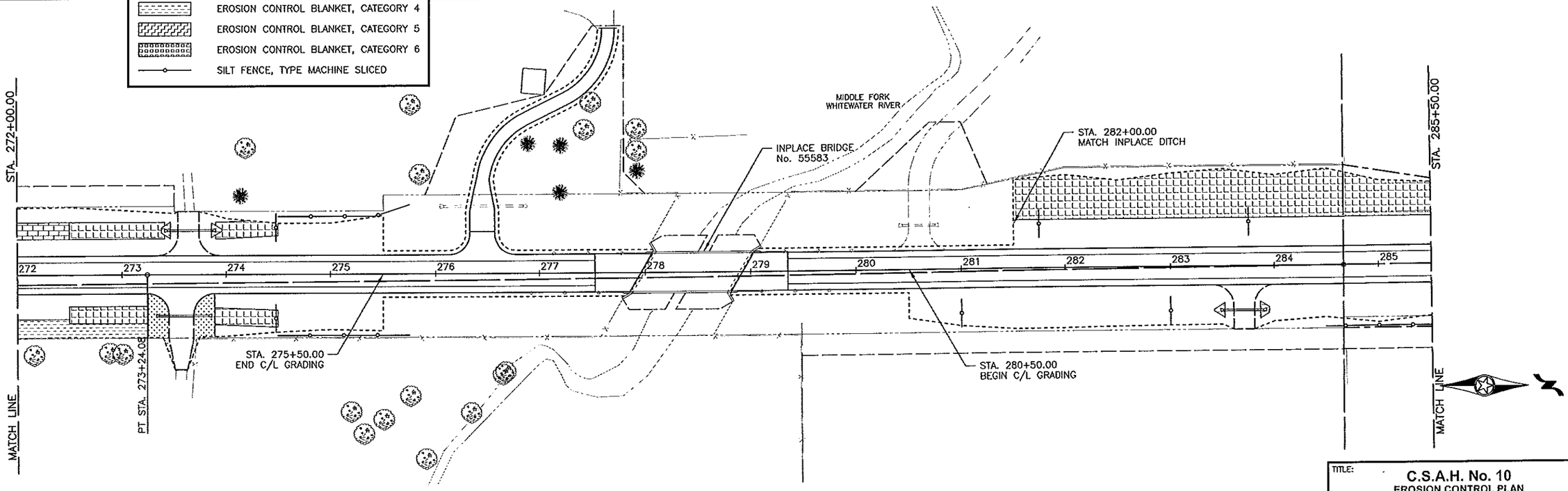
NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



AS-BUILT
FEB 0 9 2012
ENGINEERING

0 25 50 100
SCALE IN FEET

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED



CERTIFIED BY Kaye M Bruinsma REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

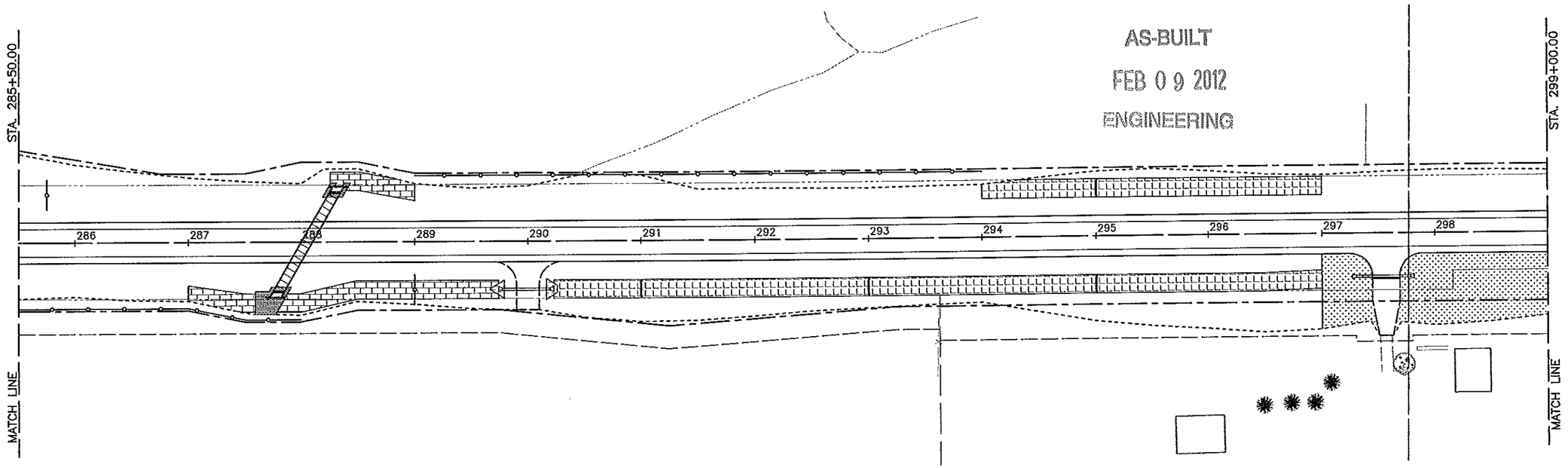
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 259+00.00 to STA. 285+50.00

Sheet No. 103 of 299 Sheets

FILE NAME: P306EC11.DWG DATE: 03-16-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



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FEB 0 9 2012
ENGINEERING

RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 285+50.00 to STA. 299+00.00

CERTIFIED BY Gary M. Poeschl REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

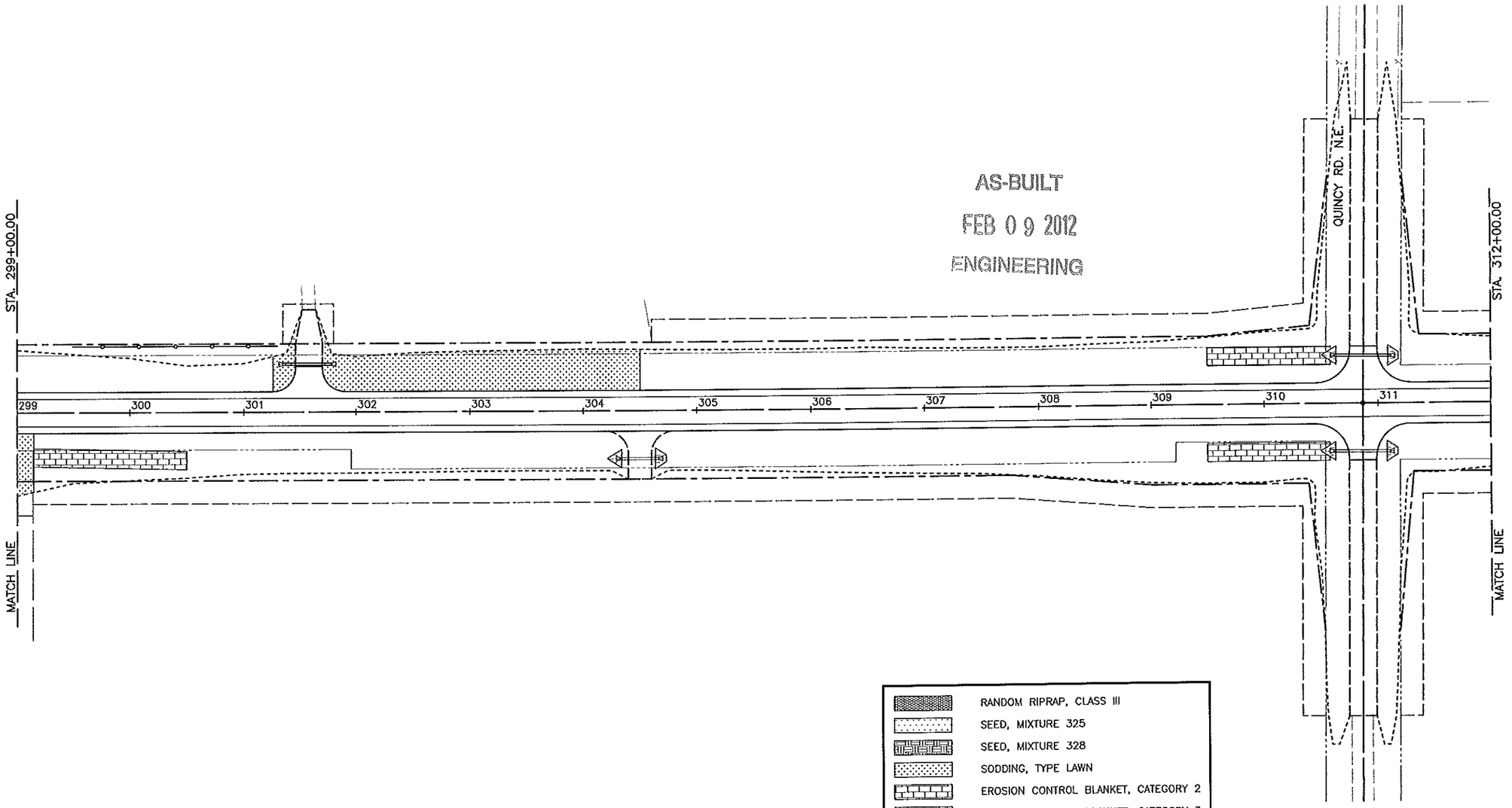
S.A.P. 55-610-22

Sheet No. 104 of 299 Sheets

FILE NAME: P306EC12.DWG DATE: 03-11-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012
ENGINEERING



- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 299+00.00 to STA. 312+00.00

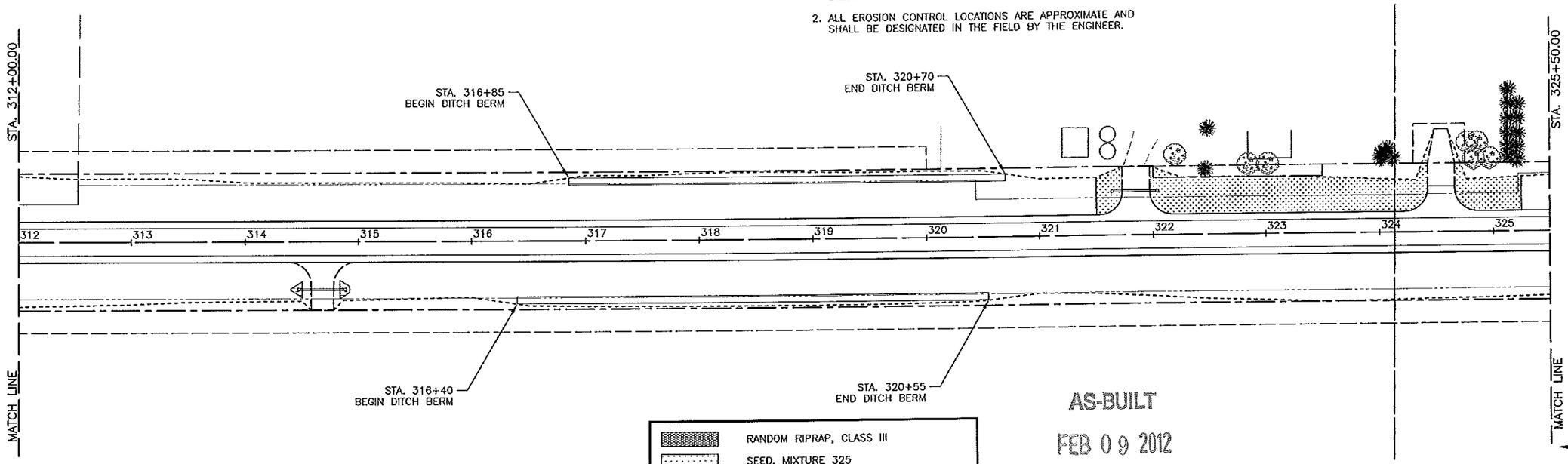
CERTIFIED BY Kevin M Biernieth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 105 of 299 Sheets

FILE NAME: P:\56EC13.DWG DATE: 03-17-10

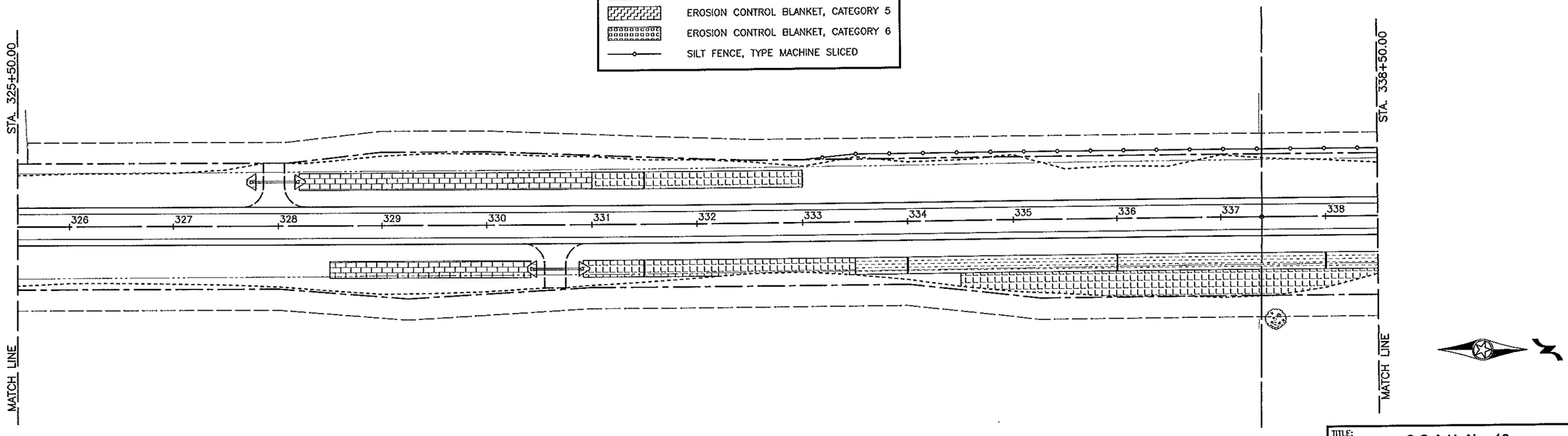
NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



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ENGINEERING

RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kevin M Poirier REG. NO. 19317 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 312+00.00 to STA. 338+50.00

Sheet No. 106 of 299 Sheets

FILE NAME: P306CC14.DWG DATE: 03-17-10

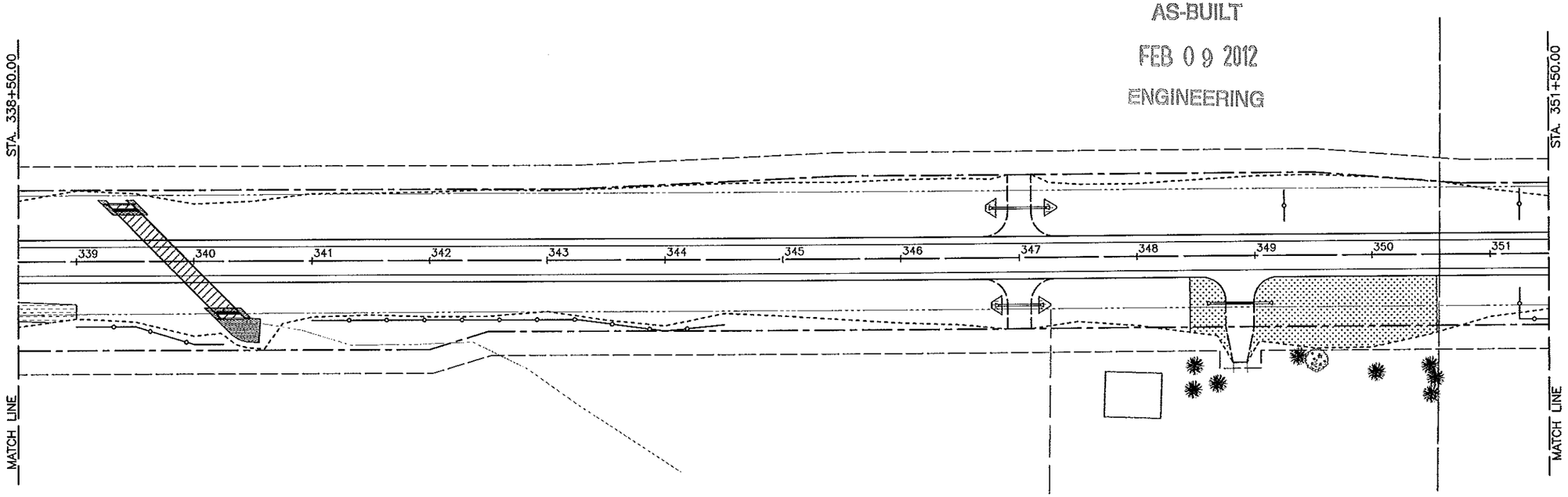
NOTES

1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012

ENGINEERING



- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 338+50.00 to STA. 351+50.00

CERTIFIED BY Kaye M Petersen REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

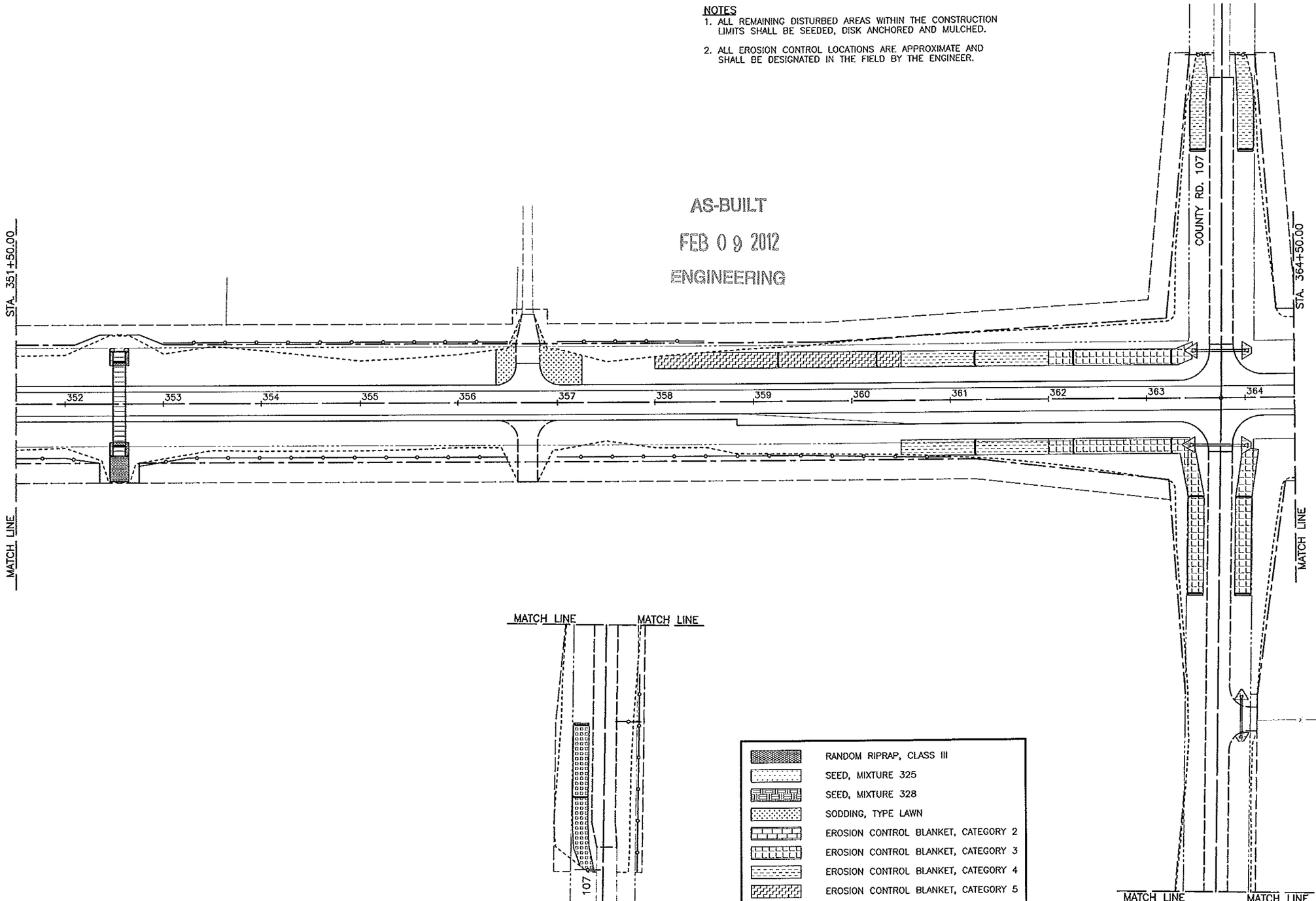
S.A.P. 55-610-22

Sheet No. 107 of 299 Sheets

FILE NAME: P:\056015.DWG DATE: 03-17-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012
ENGINEERING



RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

FILE NAME: P306EC16.DWG DATE: 04-05-10

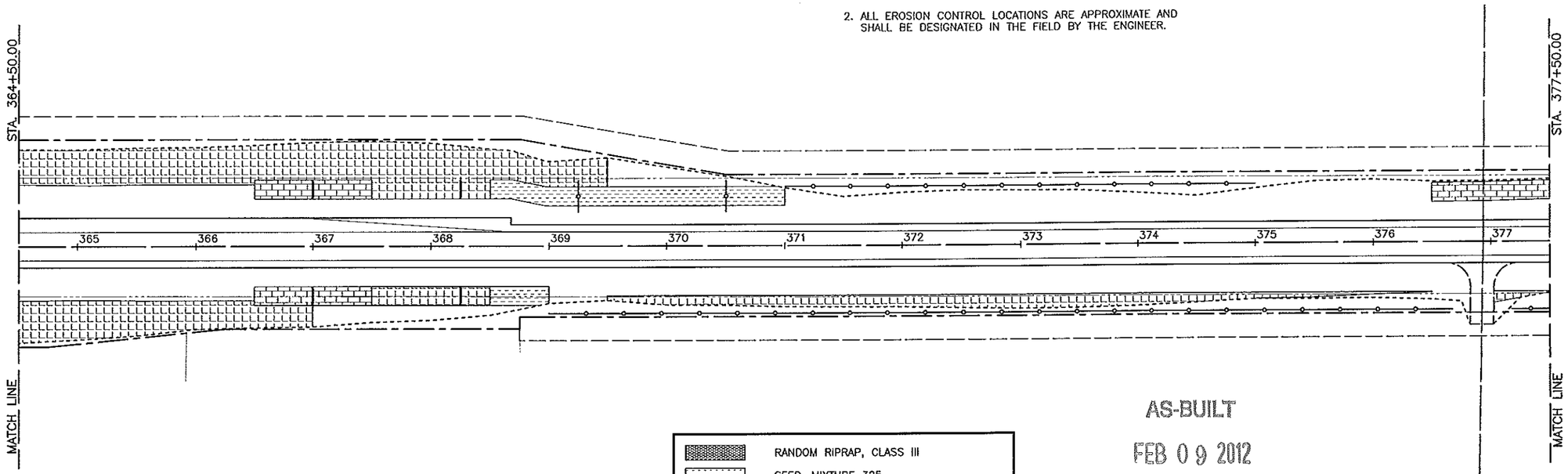
CERTIFIED BY Kay M Bunnich LICENSED PROFESSIONAL ENGINEER REG. NO. 19317 4/5 2010

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 351+50.00 to STA. 364+50.00

S.A.P. 55-610-22

Sheet No. 108 of 299 Sheets

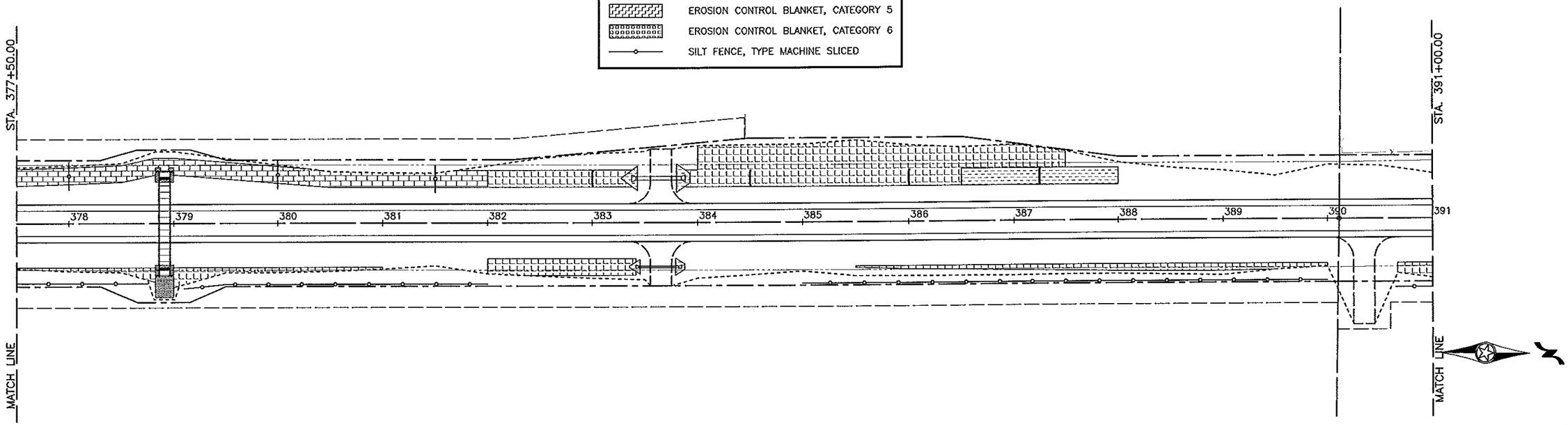
NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



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FEB 0 9 2012
ENGINEERING

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET



TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 364+50.00 to STA. 391+00.00

CERTIFIED BY Kay M Pournier REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

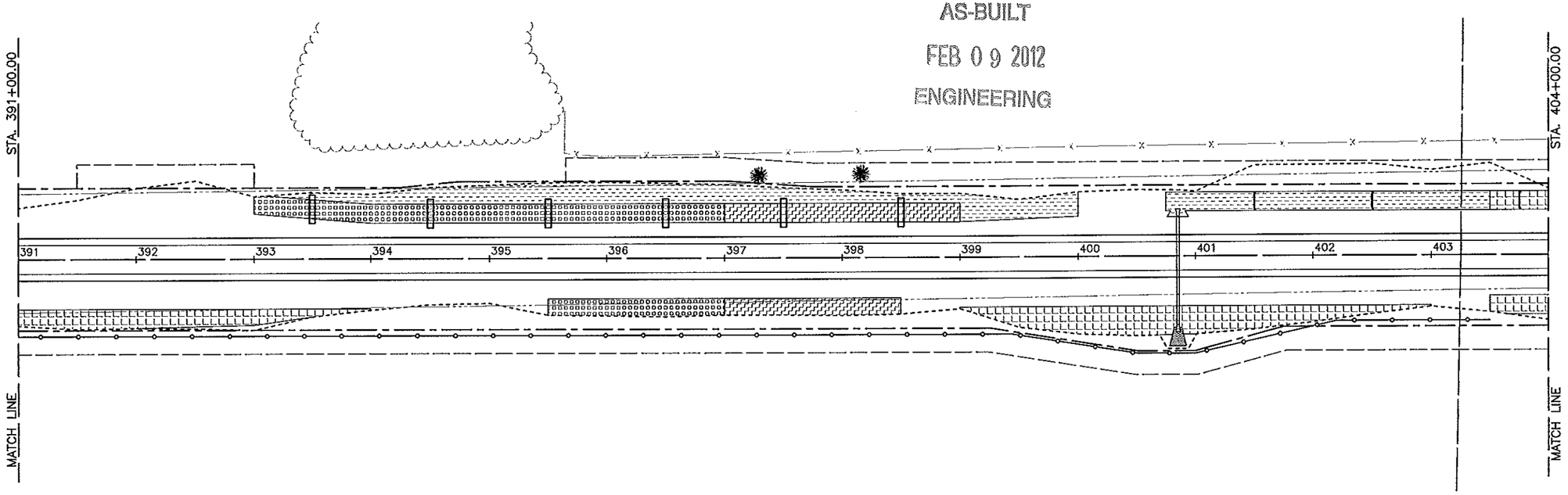
S.A.P. 55-610-22

Sheet No. 109 of 299 Sheets

FILE NAME: P30862170.DWG DATE: 03-17-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012
ENGINEERING



RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

FILE NAME: P206EC18.DWG DATE: 03-17-10

CERTIFIED BY Kayc M Reinish REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

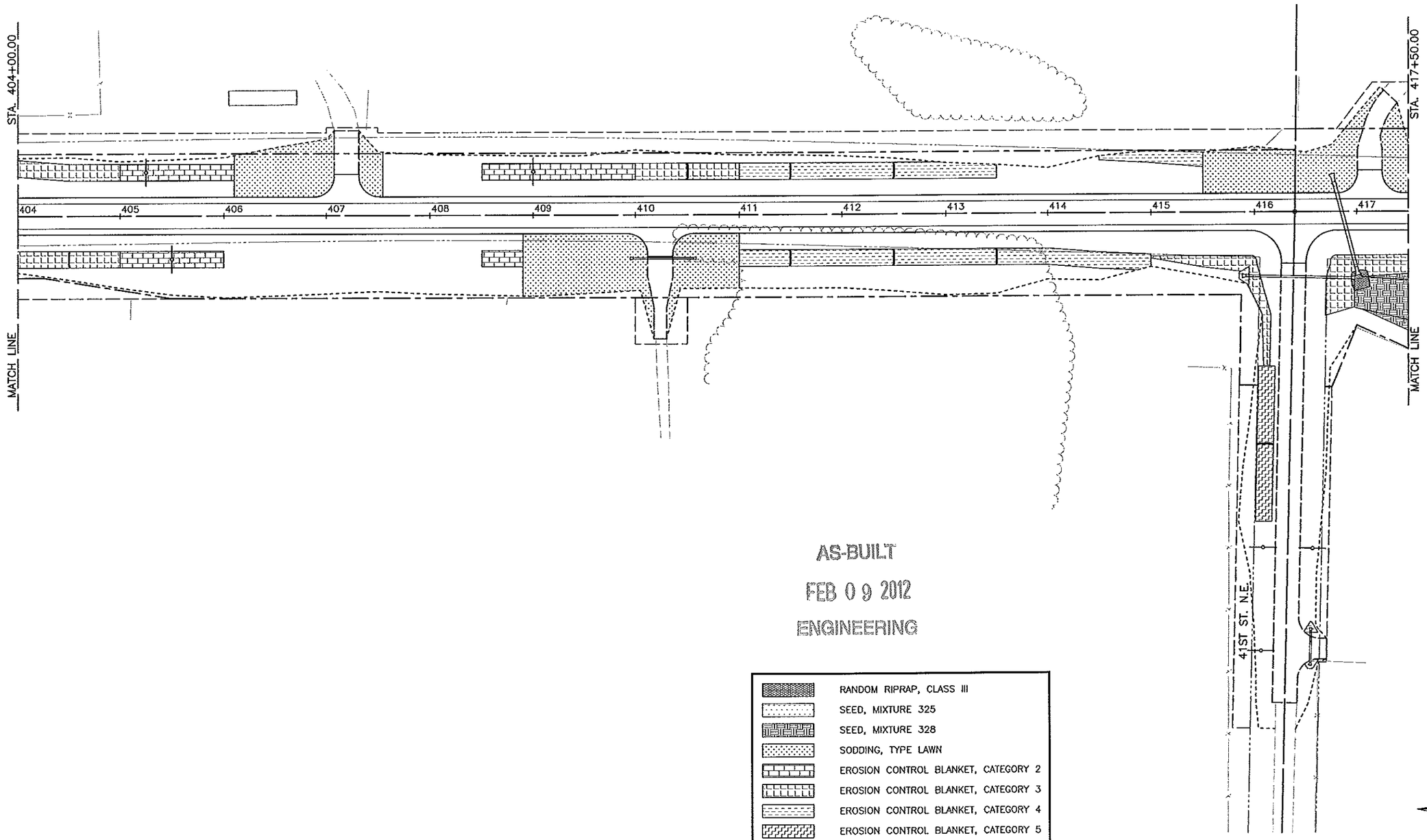
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 391+00.00 to STA. 404+00.00

Sheet No. 110 of 299 Sheets

NOTES

1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



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FEB 0 9 2012

ENGINEERING

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

CERTIFIED BY Kaye M Previch REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

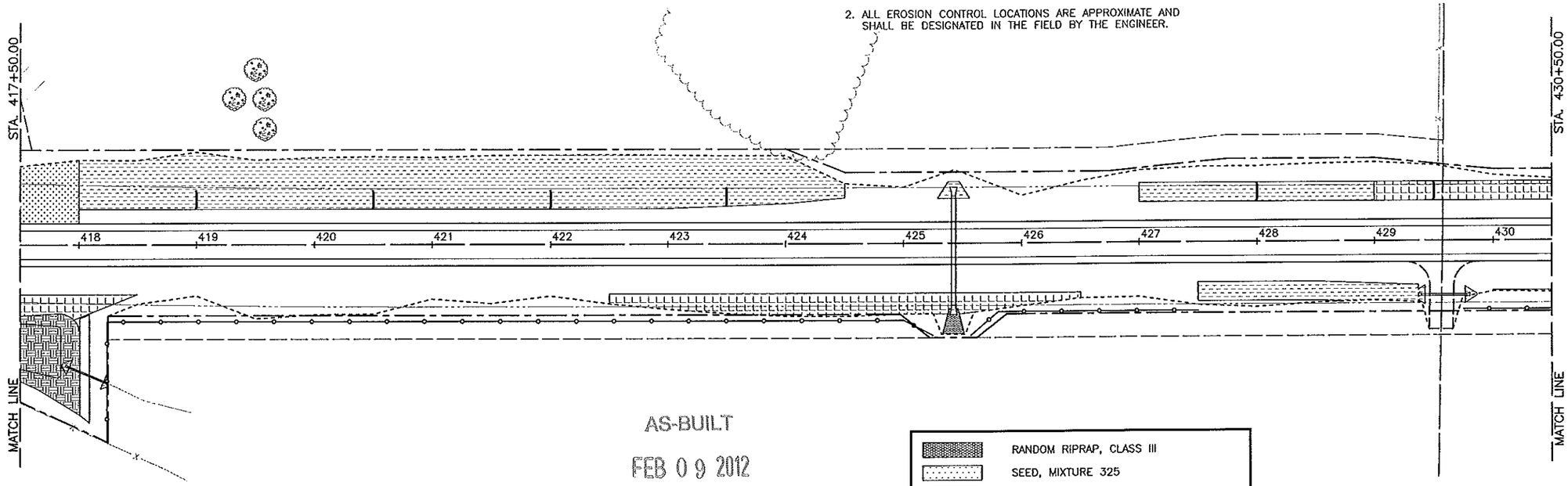
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 404+00.00 to STA. 417+50.00

Sheet No. 111 of 299 Sheets

FILE NAME: P306C019.DWG DATE: 02-17-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



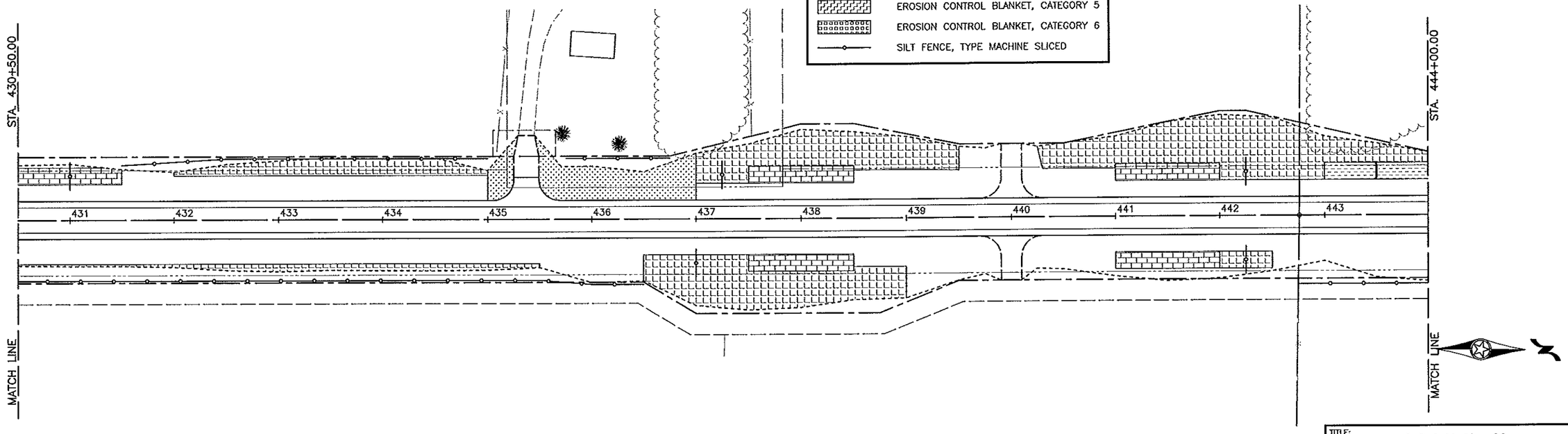
AS-BUILT

FEB 0 9 2012

ENGINEERING

RANDOM RIPRAP, CLASS III
SEED, MIXTURE 325
SEED, MIXTURE 328
SODDING, TYPE LAWN
EROSION CONTROL BLANKET, CATEGORY 2
EROSION CONTROL BLANKET, CATEGORY 3
EROSION CONTROL BLANKET, CATEGORY 4
EROSION CONTROL BLANKET, CATEGORY 5
EROSION CONTROL BLANKET, CATEGORY 6
SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET



CERTIFIED BY Kaye M Brenneth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

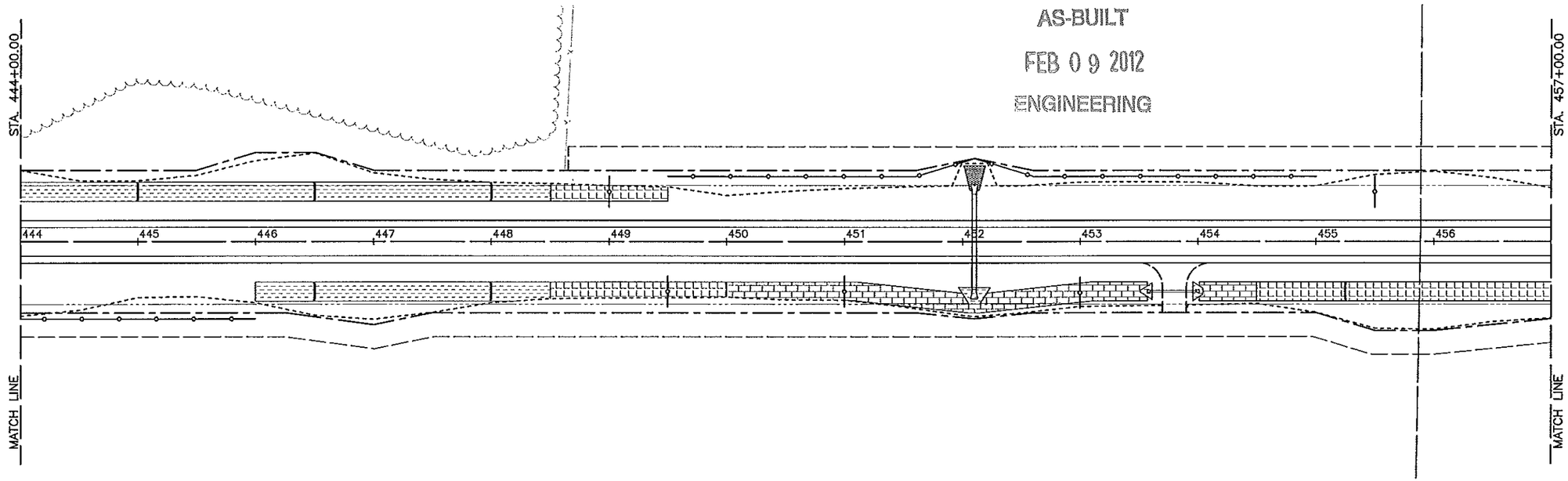
TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 417+50.00 to STA. 444+00.00

Sheet No. 112 of 299 Sheets

DATE: 03-17-10
FILE NAME: P305EC20.DWG

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.

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FEB 0 9 2012
ENGINEERING



- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED

0 25 50 100
SCALE IN FEET

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 444+00.00 to STA. 457+00.00

CERTIFIED BY Kevin Biernat LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

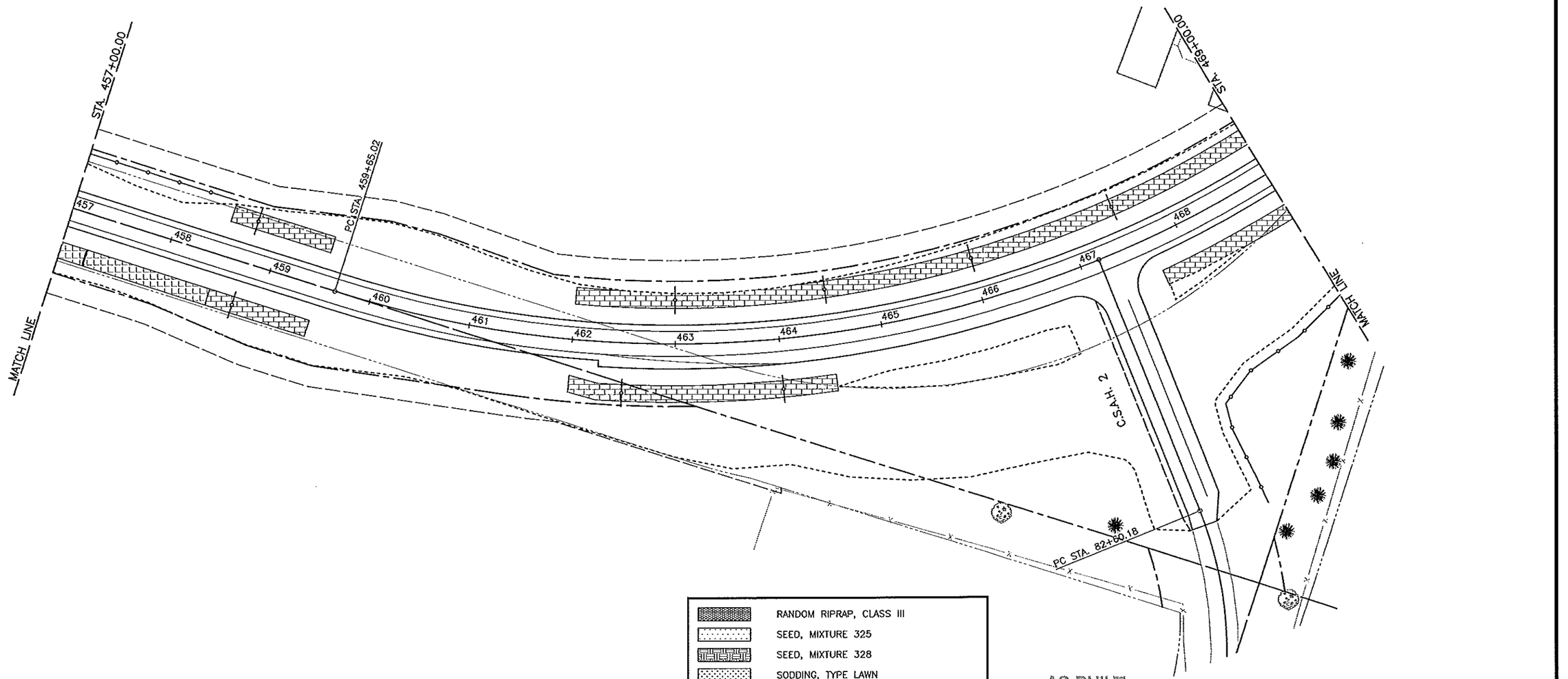
S.A.P. 55-610-22

Sheet No. 113 of 299 Sheets

FILE NAME: P2066C21.DWG DATE: 03-17-10

NOTES

1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



	RANDOM RIPRAP, CLASS III
	SEED, MIXTURE 325
	SEED, MIXTURE 328
	SODDING, TYPE LAWN
	EROSION CONTROL BLANKET, CATEGORY 2
	EROSION CONTROL BLANKET, CATEGORY 3
	EROSION CONTROL BLANKET, CATEGORY 4
	EROSION CONTROL BLANKET, CATEGORY 5
	EROSION CONTROL BLANKET, CATEGORY 6
	SILT FENCE, TYPE MACHINE SLICED

AS-BUILT

FEB 0 9 2012

ENGINEERING

0 25 50 100

SCALE IN FEET

TITLE:

C.S.A.H. No. 10

EROSION CONTROL PLAN

STA. 457+00.00 to STA. 469+00.00

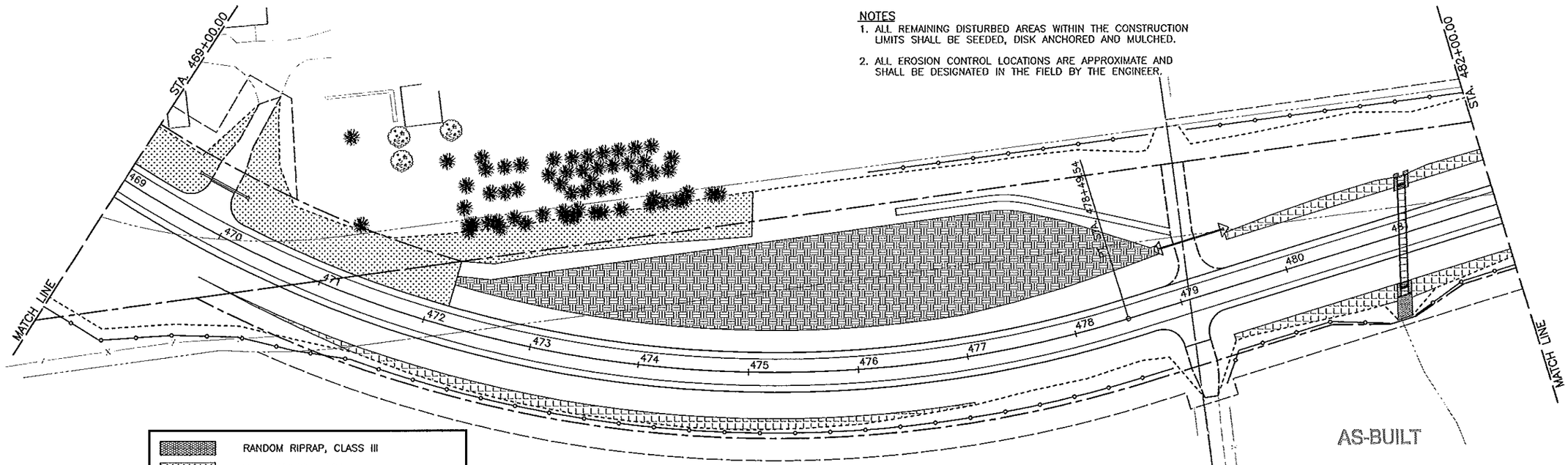
CERTIFIED BY Gary M Pieruch LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

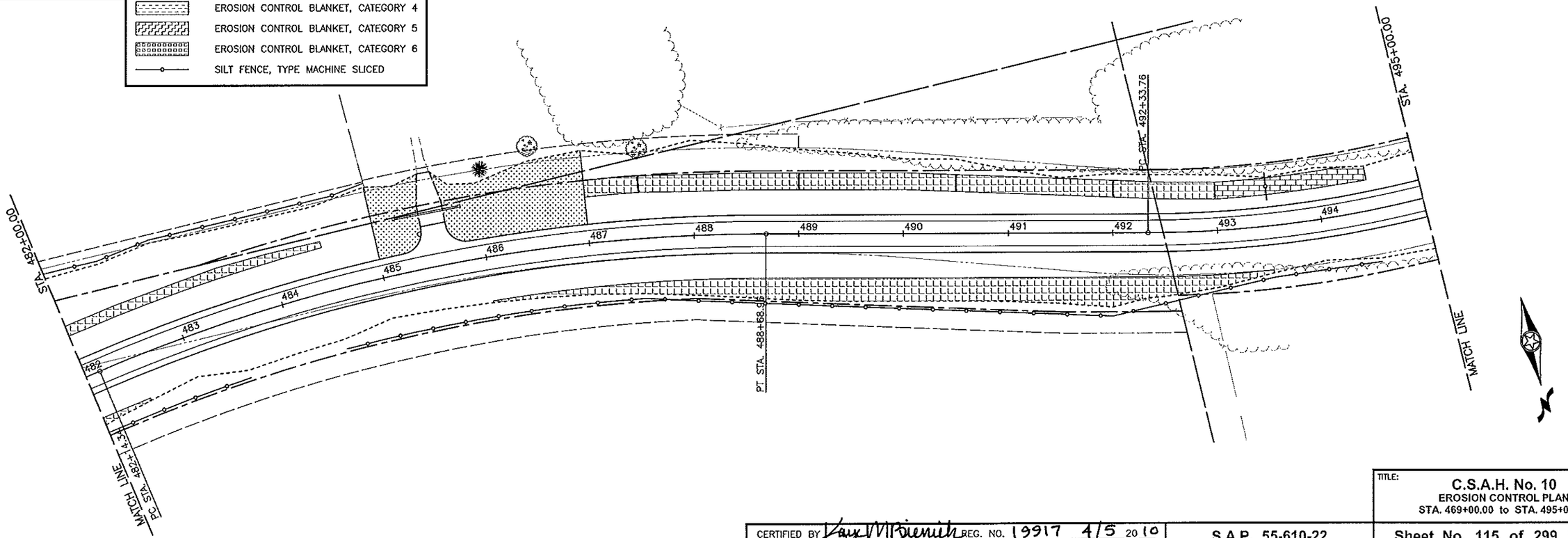
S.A.P. 55-610-22

Sheet No. 114 of 299 Sheets

FILE NAME: P305EC22.DWG DATE: 03-17-10

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.





DATE: 03-17-10
FILE NAME: P306EC23.DWG

CERTIFIED BY Kaye M Bienvenu REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

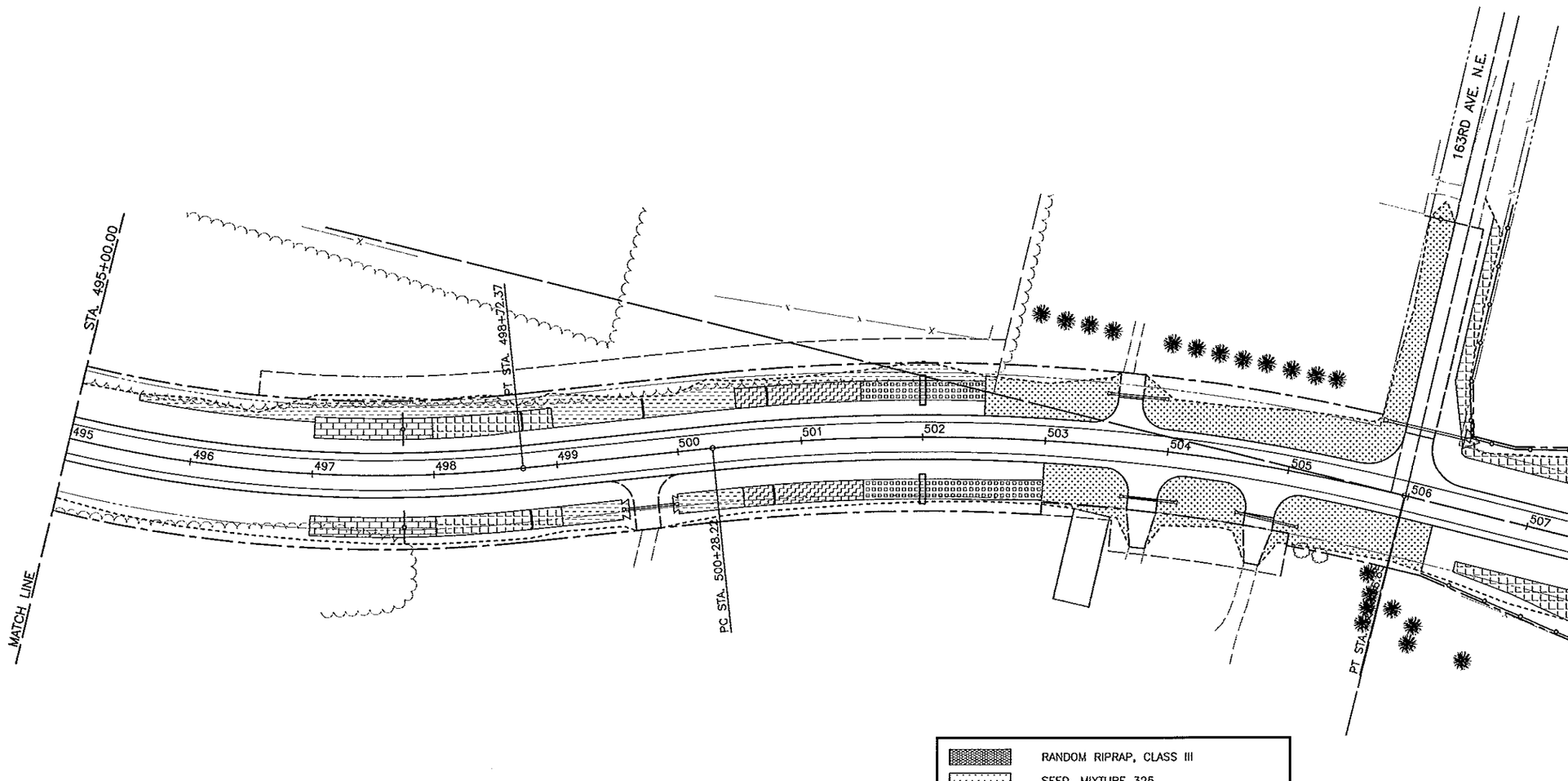
TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 469+00.00 to STA. 495+00.00

S.A.P. 55-610-22

Sheet No. 115 of 299 Sheets

NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.

2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



	RANDOM RIPRAP, CLASS III
	SEED, MIXTURE 325
	SEED, MIXTURE 328
	SODDING, TYPE LAWN
	EROSION CONTROL BLANKET, CATEGORY 2
	EROSION CONTROL BLANKET, CATEGORY 3
	EROSION CONTROL BLANKET, CATEGORY 4
	EROSION CONTROL BLANKET, CATEGORY 5
	EROSION CONTROL BLANKET, CATEGORY 6
	SILT FENCE, TYPE MACHINE SLICED

AS-BUILT
FEB 09 2012
ENGINEERING

N

0 25 50 100
SCALE IN FEET

CERTIFIED BY Kaye M Bienieck LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

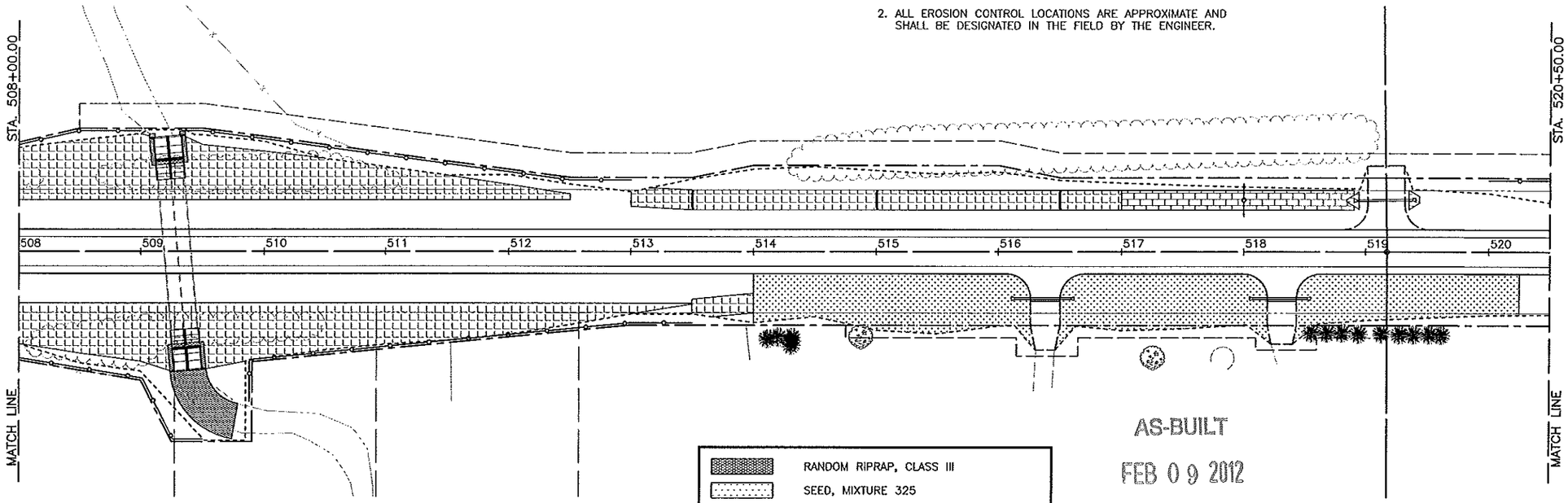
TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 495+00.00 to STA. 508+00.00

S.A.P. 55-610-22

Sheet No. 116 of 299 Sheets

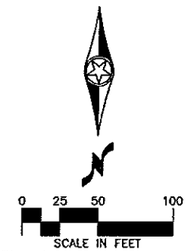
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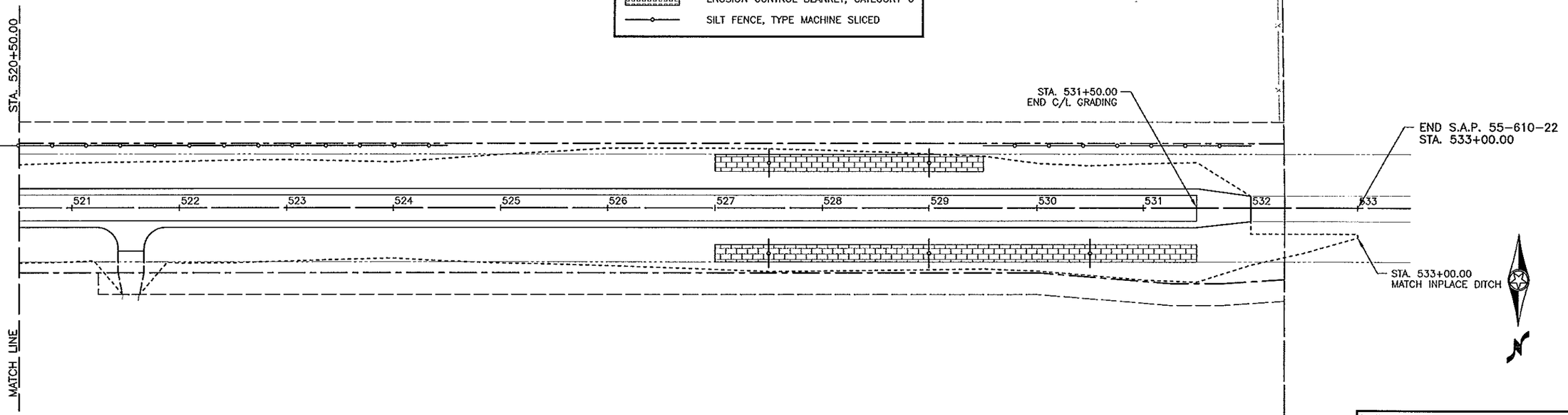
NOTES
1. ALL REMAINING DISTURBED AREAS WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED, DISK ANCHORED AND MULCHED.
2. ALL EROSION CONTROL LOCATIONS ARE APPROXIMATE AND SHALL BE DESIGNATED IN THE FIELD BY THE ENGINEER.



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FEB 0 9 2012
ENGINEERING

- RANDOM RIPRAP, CLASS III
- SEED, MIXTURE 325
- SEED, MIXTURE 328
- SODDING, TYPE LAWN
- EROSION CONTROL BLANKET, CATEGORY 2
- EROSION CONTROL BLANKET, CATEGORY 3
- EROSION CONTROL BLANKET, CATEGORY 4
- EROSION CONTROL BLANKET, CATEGORY 5
- EROSION CONTROL BLANKET, CATEGORY 6
- SILT FENCE, TYPE MACHINE SLICED





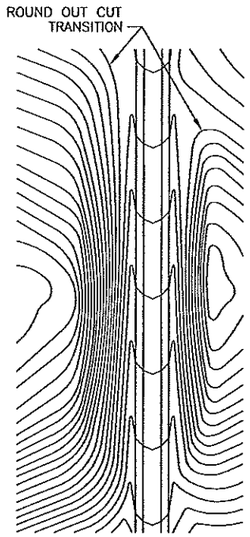
FILE NAME: P3086025.DWG DATE: 03-11-10

CERTIFIED BY Kaye M Brenneis REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

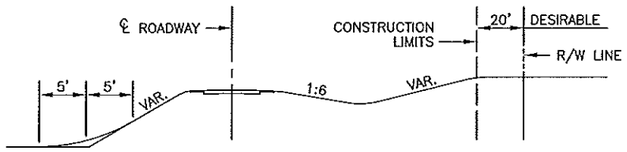
S.A.P. 55-610-22

TITLE:
C.S.A.H. No. 10
EROSION CONTROL PLAN
STA. 508+00.00 to STA. 533+50.00

Sheet No. 117 of 299 Sheets

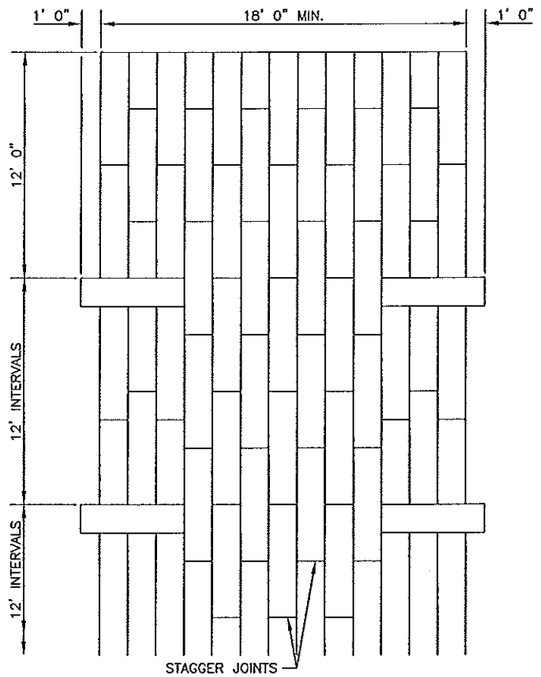


CONTOURING ROAD CUTS

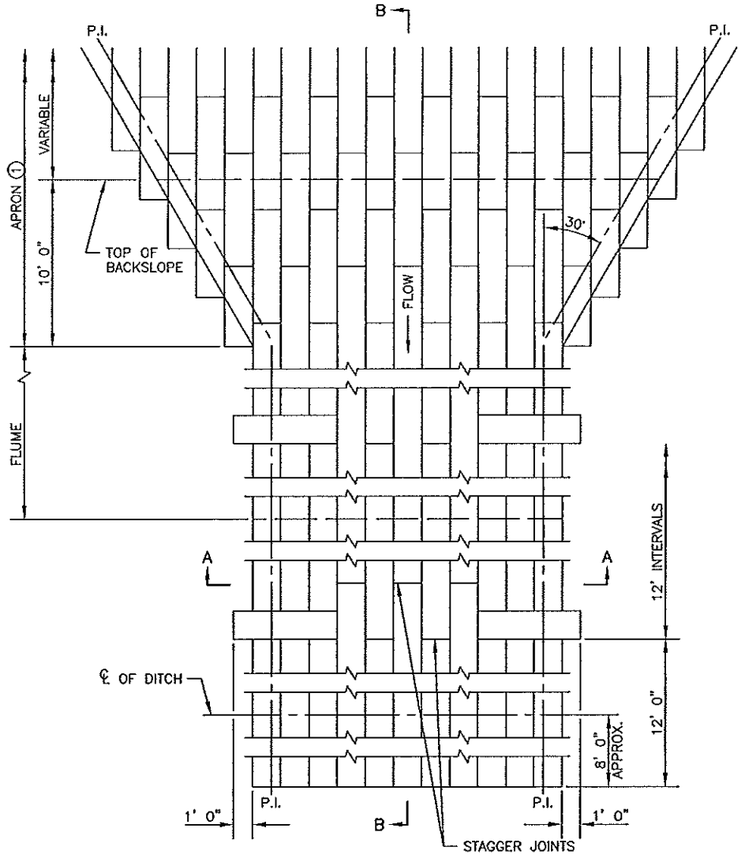


ROUNDING SHOULDERS AND BACKSLOPES

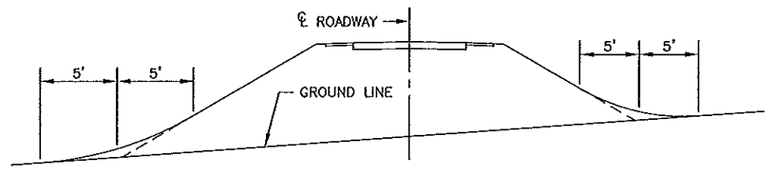
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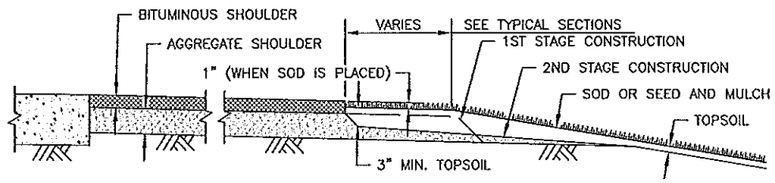
PLAN VIEW



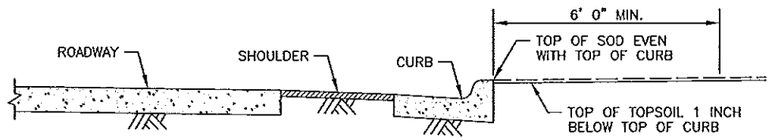
PLAN VIEW



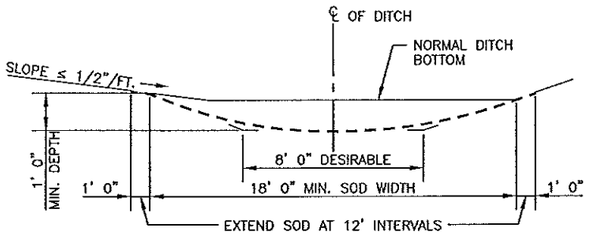
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



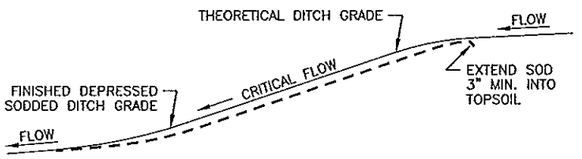
SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

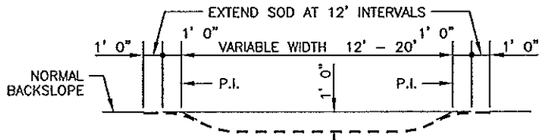


SODDED DITCH CROSS SECTION
WHERE FRONT OR BACKSLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING

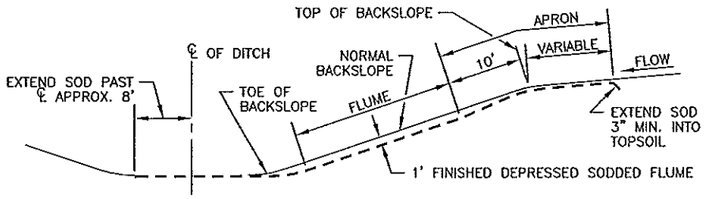


DITCH PROFILE

SODDED DITCH DETAILS



SECTION A–A



SECTION B–B

SODDED FLUME DETAILS

NOTES:

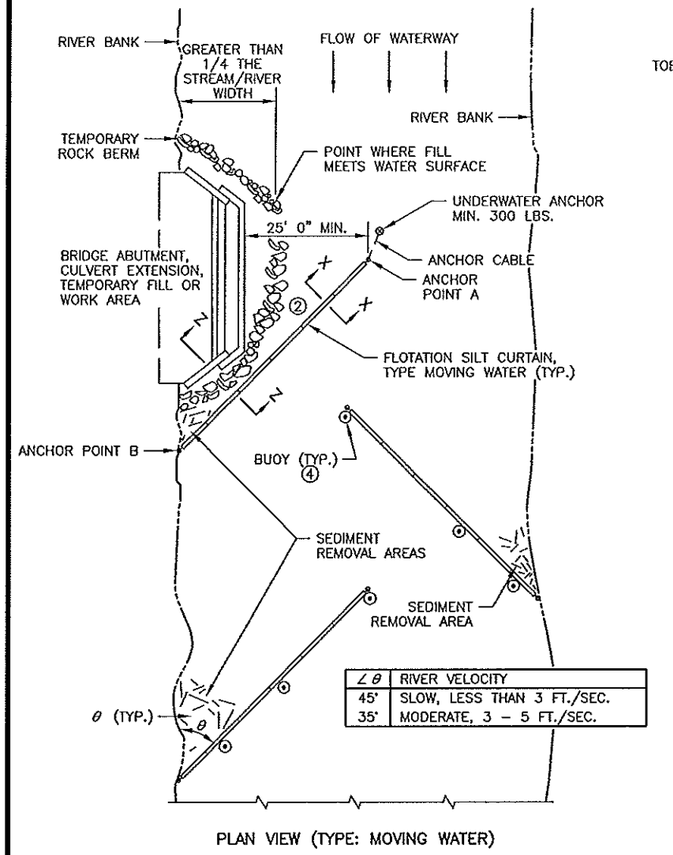
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

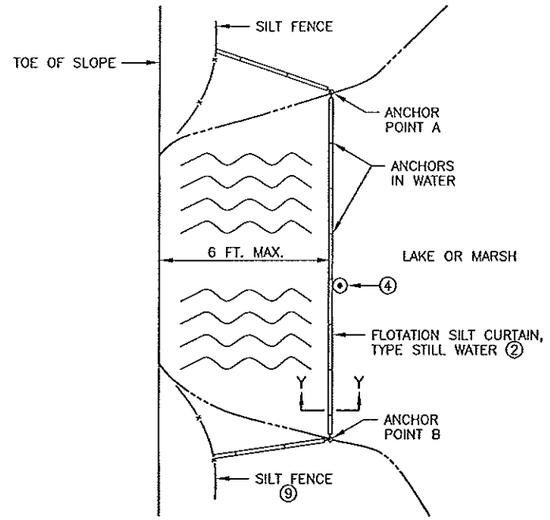
STANDARD SHEET NO. 5–297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 118 of 299 Sheets

DATE: 03-04-10

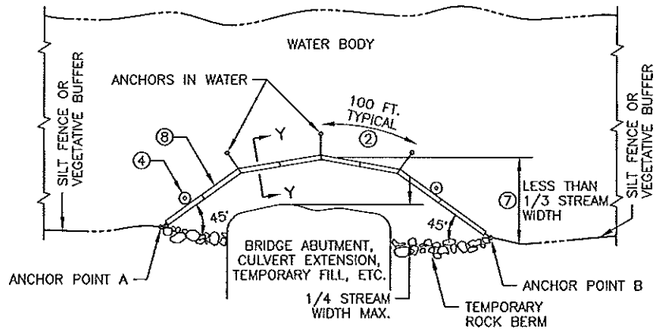
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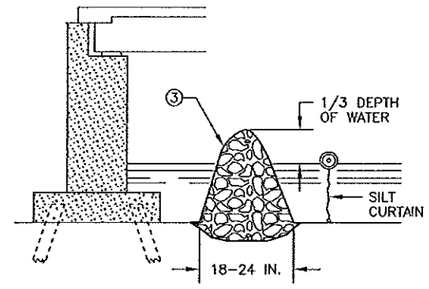
PLAN VIEW (TYPE: MOVING WATER)



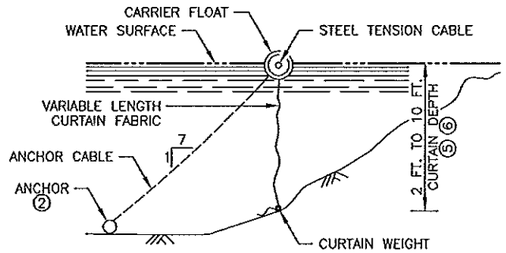
PLAN VIEW (TYPE: STILL WATER)



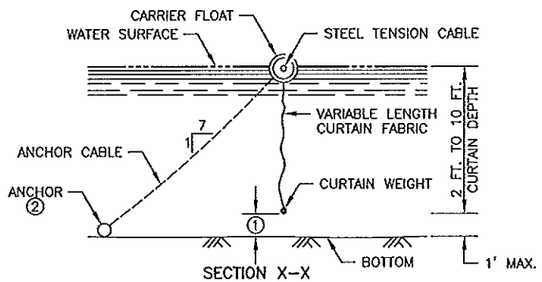
PLAN VIEW (TYPE: WORK AREA)



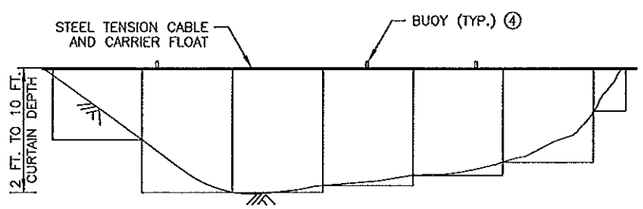
SECTION Z–Z
TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL



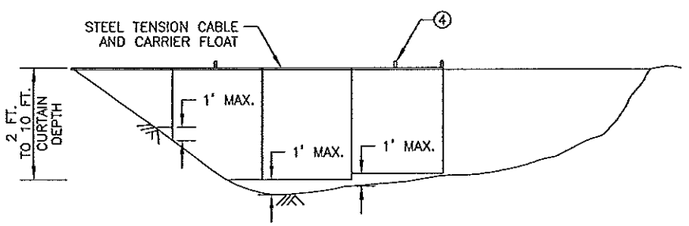
SECTION Y–Y



SECTION X–X



FLOTATION SILT CURTAIN – TYPE: WORK AREA AND STILL WATER ⑤
FOR CONTAINING OVERFLOWS FROM WEIRS, STANDPIPES, SETTLING PONDS



FLOTATION SILT CURTAIN – TYPE: MOVING WATER ⑤
USE FOR SMALLER RIVERS WITH SLOW AND MODERATE VELOCITIES

DESIGN GUIDELINES:
MOVING WATER ①⑥

WHEN TEMPORARY FILL ENCROACHES MORE THAN 1/4 BUT LESS THAN 1/3 WIDTH OF THE STREAM.
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 11 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES:
WORK AREA

WHEN TEMPORARY FILL ENCROACHES LESS THAN 1/4 OF THE WIDTH OF STREAM.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

DESIGN GUIDELINES:
STILL WATER ⑥

MINIMUM WATER DEPTH: 0 FT.
MAXIMUM WATER DEPTH: 10 FT.

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NOTES:

SEE SPECS. 2573 & 3887.

① CURTAIN EXTENDS TO 1 FT. MAXIMUM FROM BOTTOM OF WATER BODY.

② FOR ANCHOR AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.

③ IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT THE BRIDGE, A TEMPORARY ROCK BERM WILL BE USED TO PROVIDE ADDITIONAL PROTECTION. THE TEMPORARY ROCK BERM IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

④ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.

⑤ WATER DEPTH CAN BE 0 TO 10 FEET, 0 TO 11 FEET FOR TYPE MOVING WATER.

⑥ SILT CURTAIN HEIGHT INCLUDES MAXIMUM WAVE HEIGHT FOR WATER BODY.

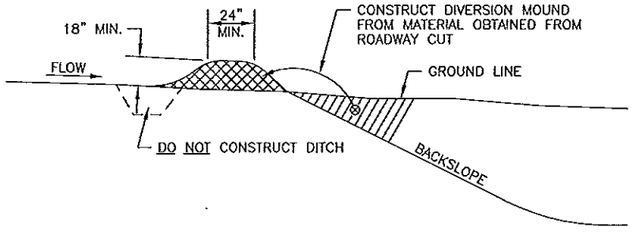
⑦ KEEP AS CLOSE TO WORK AREA AS POSSIBLE.

⑧ SILT CURTAIN, ROCK BERM OR SHEET PILE AS REQUIRED TO CONTROL THE INFILTRATION OF SILT.

⑨ IF 6 INCHES OR LESS OF WATER, USE BALE BARRIERS. SEE SHEET 2.

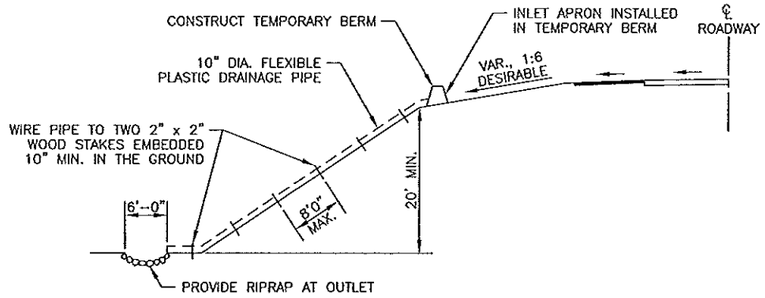
STANDARD SHEET NO. 5–297.405 (1 of 4)	TITLE: TEMPORARY SEDIMENT CONTROL SILT CURTAIN
STANDARD APPROVED: SEPTEMBER 27, 2006	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 119 of 299 Sheets

FILE NAME: P305-405ALDWG DATE: 03-04-10



DIVERSION MOUND

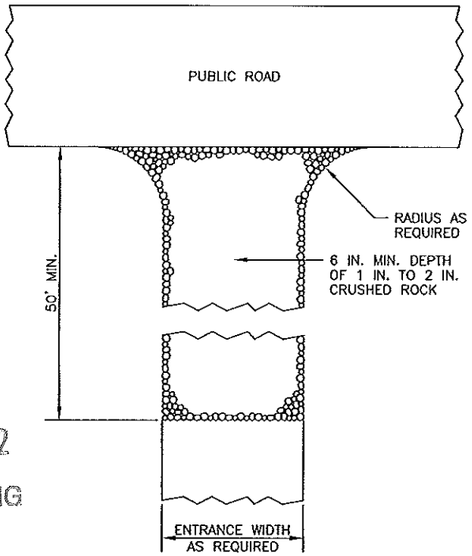
DESIGN GUIDELINES:
STORM FRQUENCY: 10 YEAR – 24 HOUR
MAXIMUM DRAINAGE AREA: 5 ACRES
MAXIMUM DIVERSION: GRADE 5%



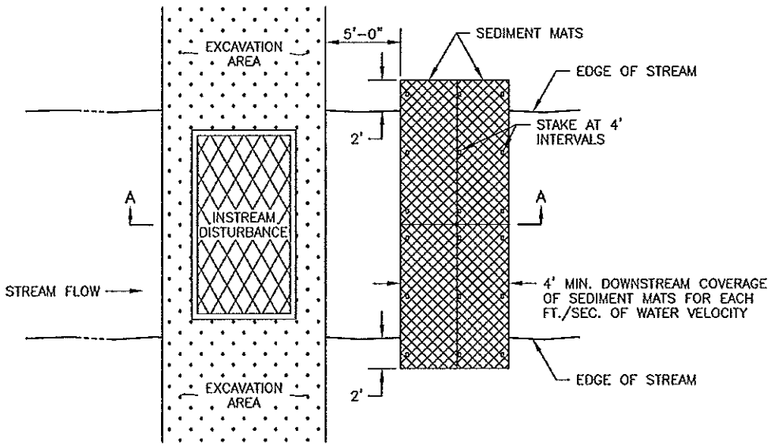
TEMPORARY DOWN DRAIN ON FILL SLOPE

DESIGN GUIDELINES:
STORM FRQUENCY: 2 YEAR – 24 HOUR
MAXIMUM DRAINAGE AREA: 3 ACRES

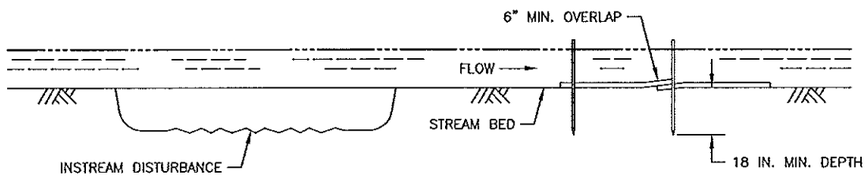
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ROCK CONSTRUCTION ENTRANCE ①



PLAN VIEW

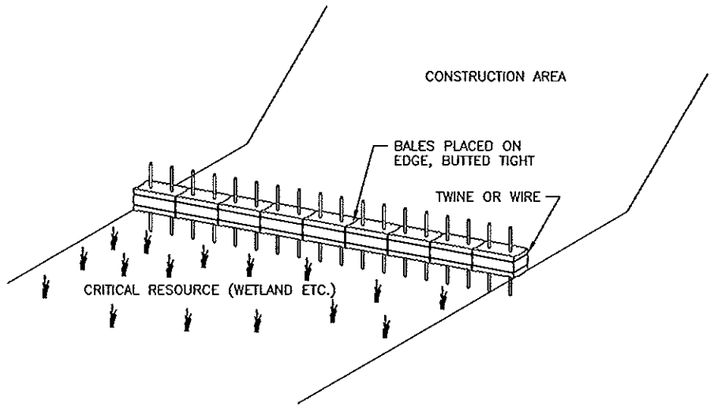


SECTION A–A

SEDIMENT MAT ⑥

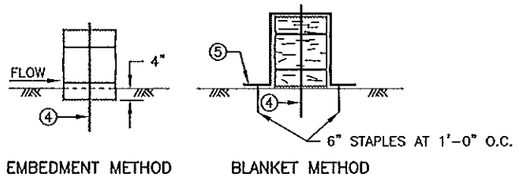
TYPICAL STREAM BED INSTALLATION

DESIGN GUIDELINES:
MAXIMUM FLOW VELOCITY: 5 FT./SEC.
MAXIMUM FLOW DEPTH: 2 FT.



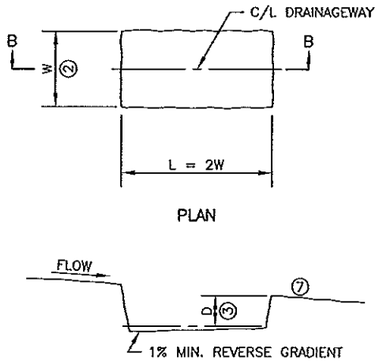
BALE BARRIERS

TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS



BALE BARRIER DETAIL

APPROX. BALE SIZE: 14" x 18" x 36" LONG



PLAN

SECTION B–B

SEDIMENT TRAP DETAIL

NOTES:

SEE SPECS. 2573, 3892 & 3894.

① ROCKS AT ENTRANCE CLEAN WORKSITE MUD OFF OF TRUCK TIRES BEFORE TRUCKS ENTER MAIN ROAD. KEEPING MUD OFF THE ROAD WILL PREVENT AUTO DAMAGE AND KEEP CONSTRUCTION SEDIMENT OUT OF DRAINAGE SYSTEMS AND WETLANDS. GEOTEXTILE MAY BE PLACED UNDER THE ROCK TO KEEP ROCKS SEPARATE FROM SOIL.

② W = 10 FT. MIN., 20 FT. MAX.

③ D = 2 FT.

④ TWO 2 IN. x 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE EMBEDDED 10 INCHES MINIMUM IN THE GROUND.

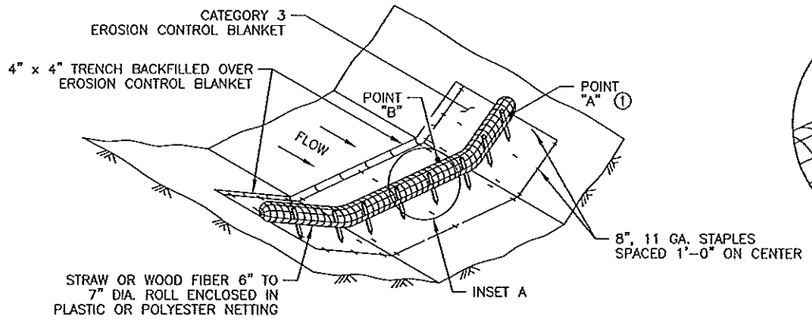
⑤ PLACE A CATEGORY 3 EROSION CONTROL BLANKET, 6 FT. WIDE MINIMUM, OVER THE BALE INSTEAD OF TRENCHING.

⑥ THIS DETAIL MAY NOT BE ACCEPTABLE FOR WORK ON PUBLIC WATERS, SEE GENERAL PUBLIC WATERS PERMIT (GP) 2004-0001.

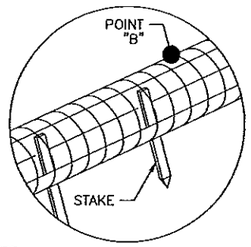
⑦ LOCATION OF DOWNSTREAM TEMPORARY SEDIMENT CONTROL DEVICE.

STANDARD SHEET NO. 5-297.405 (2 of 4)	TITLE: TEMPORARY SEDIMENT CONTROL
STANDARD APPROVED: SEPTEMBER 27, 2006	MISCELLANEOUS DETAILS
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 120 of 299 Sheets

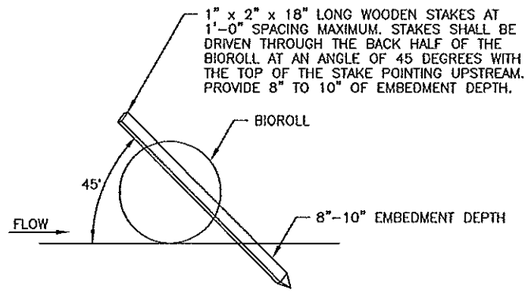
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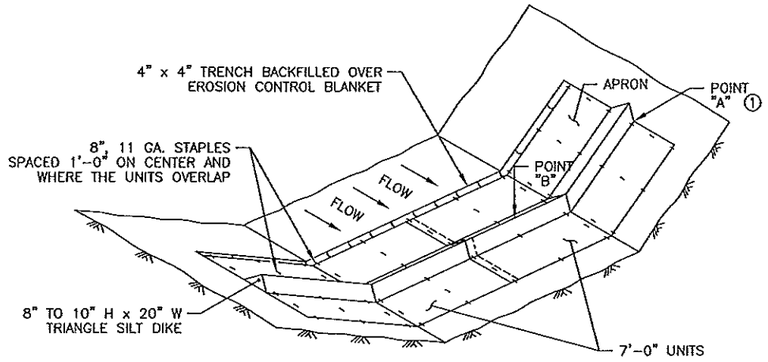
TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK



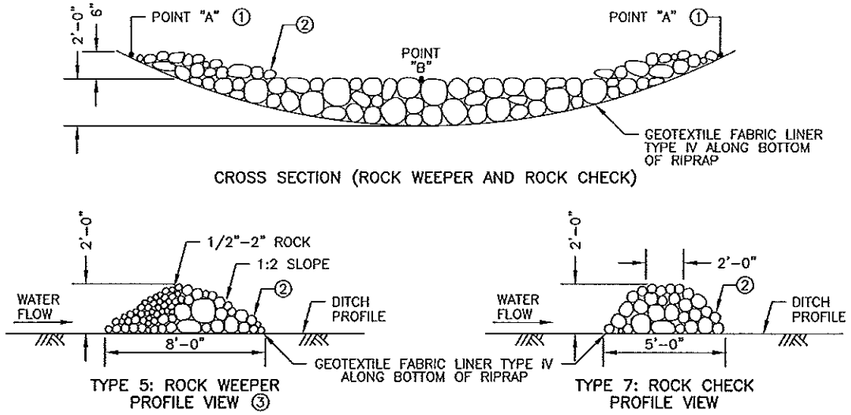
INSET A



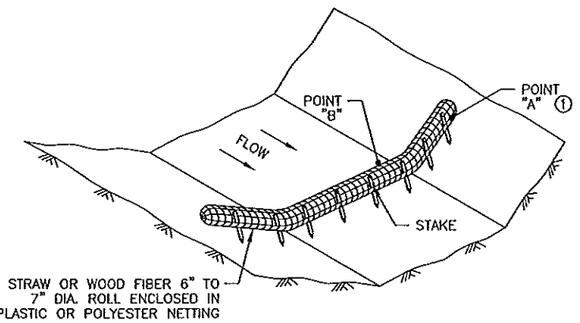
BIOROLL STAKING DETAIL



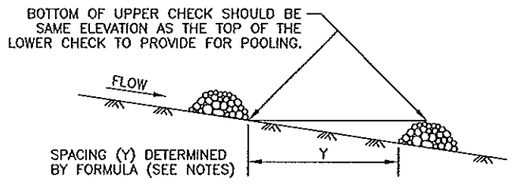
TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK



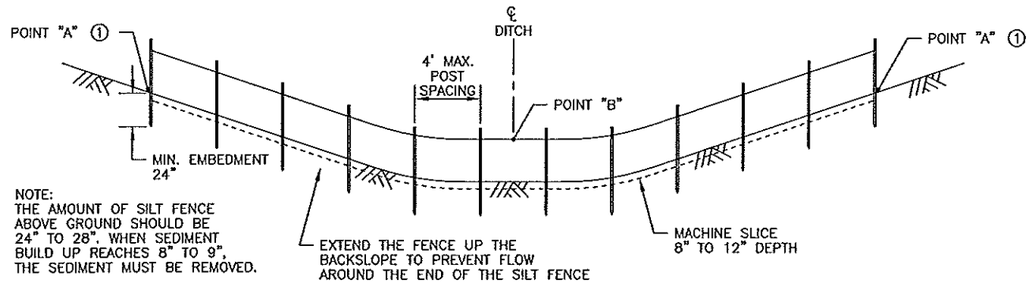
TYPE 5: ROCK WEEPER AND
TYPE 7: ROCK CHECK DITCH CHECKS ④
USE ON ROUGH GRADED AREAS



TYPE 2: BIOROLL DITCH CHECK
USE ON ROUGH GRADED AREAS



DITCH CHECK SPACING ④



TYPE 1: SLICED IN SILT FENCE DITCH CHECK

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY: MAX. FLOW VELOCITY: MAX. DITCH GRADE: MAX. DRAINAGE AREA:	2 YR. – 24 HR. < 1 FT./SECOND 0.0% – 0.5% 1 ACRE	2 YR. – 24 HR. 1.5 FT./SECOND 1.5% – 3.0% 2 ACRE	2 YR. – 24 HR. 4.5 FT./SECOND 1.5% – 3.0% 2 ACRE	2 YR. – 24 HR. 1.5 FT./SECOND 1.5% – 2.0% 4 ACRE	5 YR. – 24 HR. 12 FT./SECOND 3.0% – 5.0% 4+ ACRE	5 YR. – 24 HR. 12 FT./SECOND 3.0% – 5.0% 4+ ACRE

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NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

APPROXIMATE SPACING OF DITCH CHECKS (FT.) = Y = $\frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}}$ X 100

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② CLASS I – IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).

④ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.

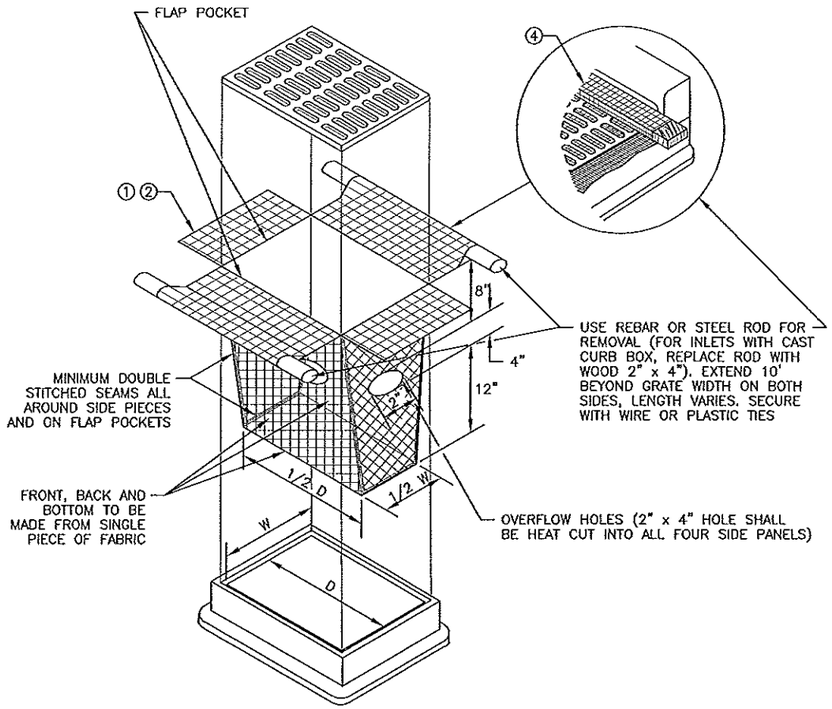
④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

STANDARD SHEET NO.	TITLE:
5-297.405 (3 of 4)	**TEMPORARY SEDIMENT CONTROL**
STANDARD APPROVED: SEPTEMBER 27, 2006	DITCH CHECK/BARRIER

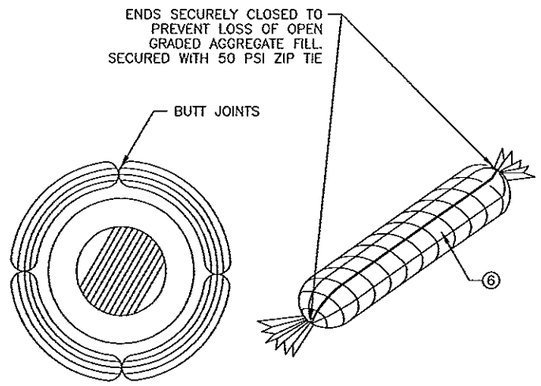
~~State Proj. No.~~ S.A.P. 55-610-22 — **Sheet No. 121 of 299 Sheets**

DATE: 03-04-19

FILE NAME: P306-405C.DWG

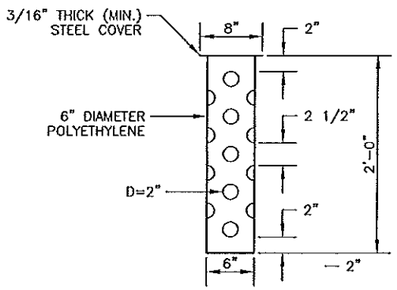


FILTER BAG INSERT
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

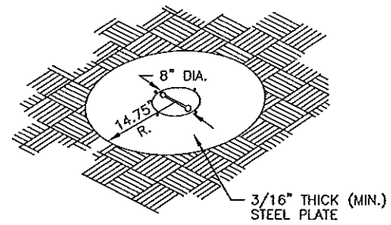


ROCK LOG/COMPOST LOG

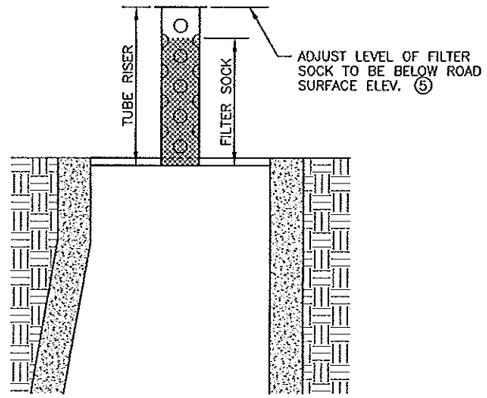
AS-BUILT
FEB 0 9 2012
ENGINEERING



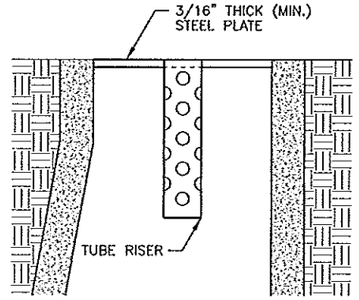
TUBE RISER



PERSPECTIVE VIEW

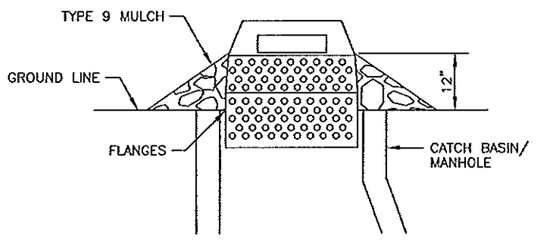


SECTION
(UP POSITION)



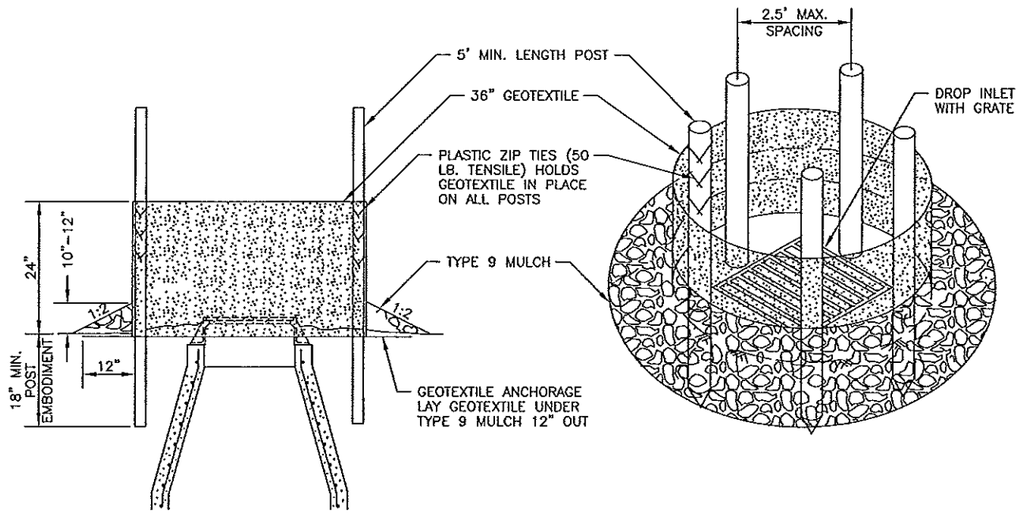
SECTION
(DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES 1:3 OR LESS

NOTES:

SEE SPECS. 2573, 3137, 3886 & 3891.

MANUFACTURED ALTERNATIVES LISTED ON Mn/DOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

③ INSTALLATION NOTES:
DO NOT INSTALL FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY, THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

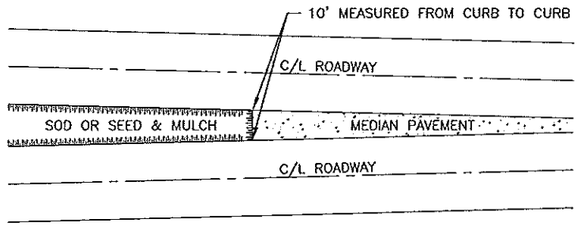
④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH x 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

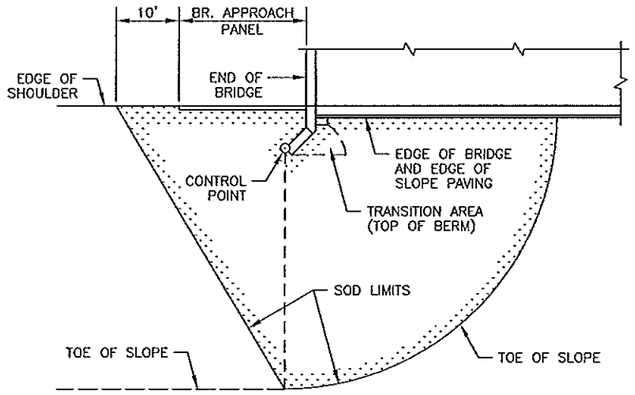
⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

STANDARD SHEET NO. 5-297.405 (4 of 4)	TITLE: TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION
STANDARD APPROVED: SEPTEMBER 27, 2006	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 122 of 299 Sheets

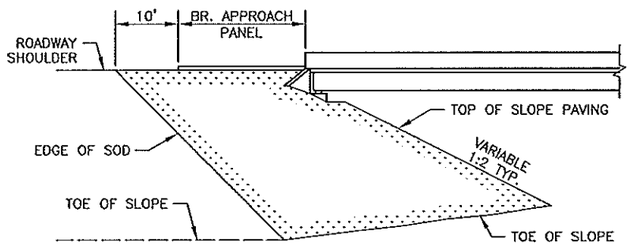
DATE: 03-04-10
FILE NAME: P305-4050.DWG



SODDING LIMITS AT GORE AREA

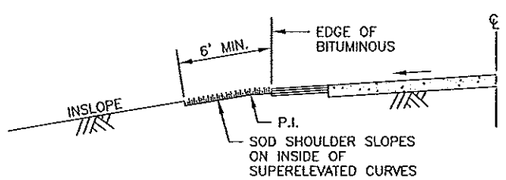


PLAN

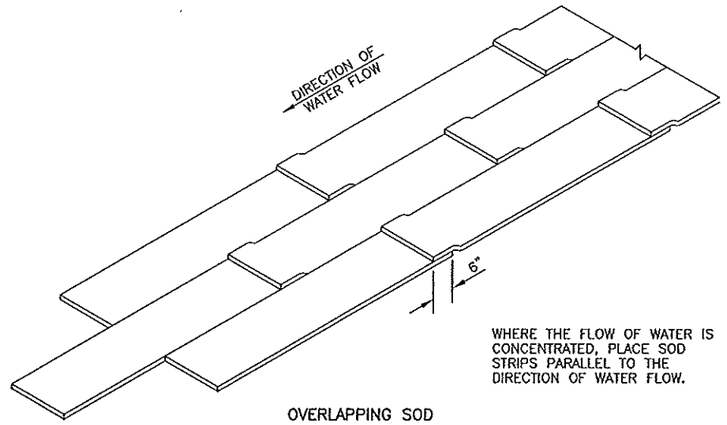


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

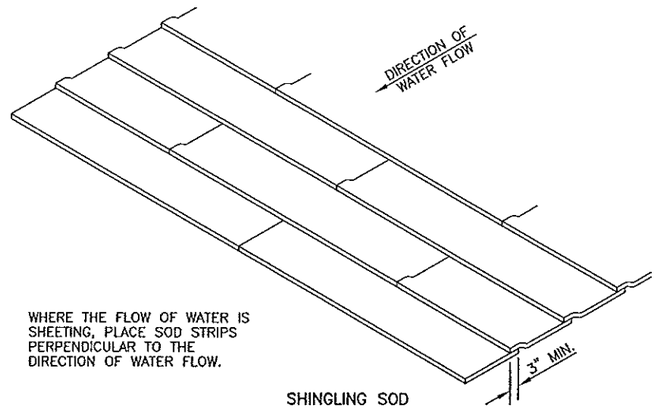


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

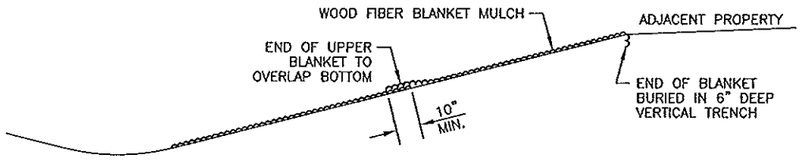
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



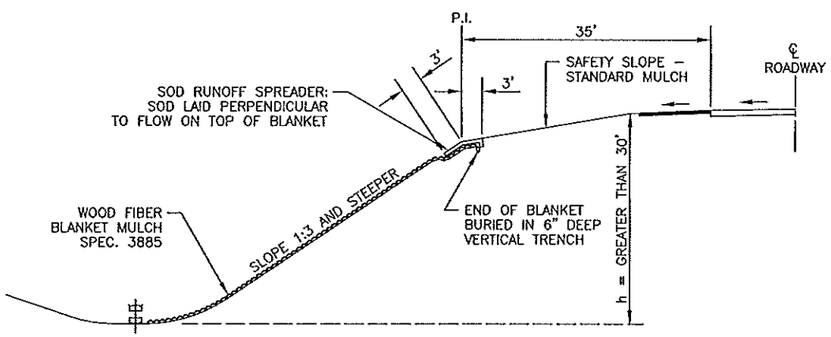
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

SPECIAL SOD PLACEMENT TECHNIQUES



WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE

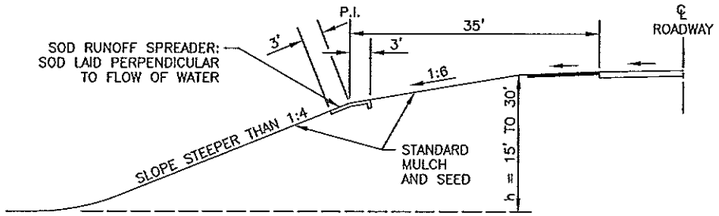


WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE
(WHEN REQUIRED)

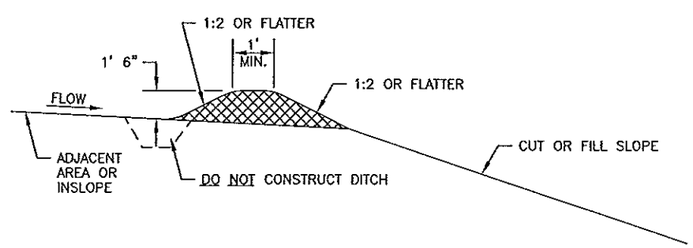
AS-BUILT

FEB 0 9 2012

ENGINEERING



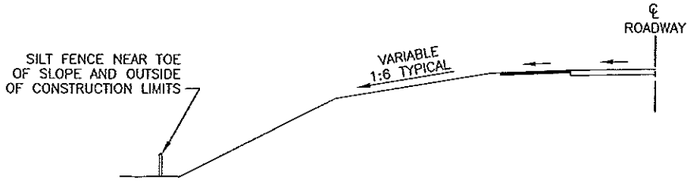
BROKEN–BACK SAFETY FILL SLOPE



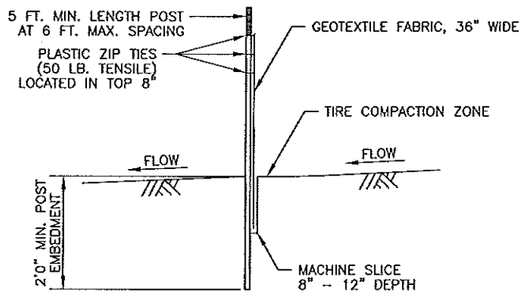
PERMANENT SLOPE PROTECTION DIKE

STANDARD SHEET NO. 5–297.406	TITLE: PERMANENT EROSION CONTROL
STANDARD APPROVED: JANUARY 31, 1985	ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
REVISION DATE 10–26–2000	~~State Proj. No.~~ S.A.P. 55-610-22 — Sheet No. 123 of 299 Sheets

FILE NAME: P305-406.DWG DATE: 03-04-10



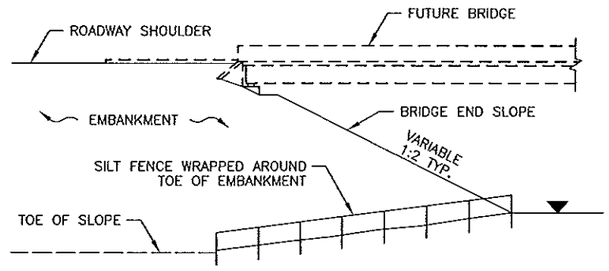
LOCATION OF SILT FENCE
AT TOE OF ROADWAY EMBANKMENT



SILT FENCE, MACHINE SLICED

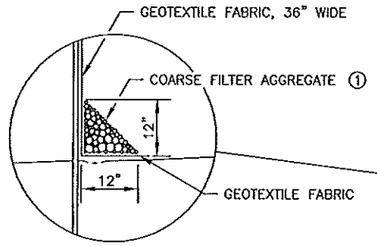
DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW
MAXIMUM CONTRIBUTING AREA: 1 ACRE

AS-BUILT
FEB 0 9 2012
ENGINEERING

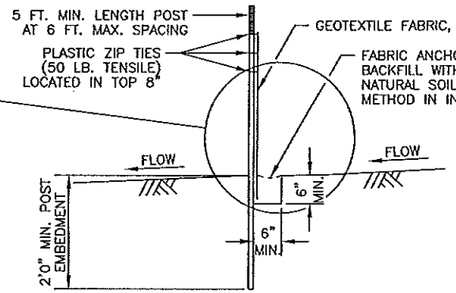


BRIDGE FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 1/2 ACRE

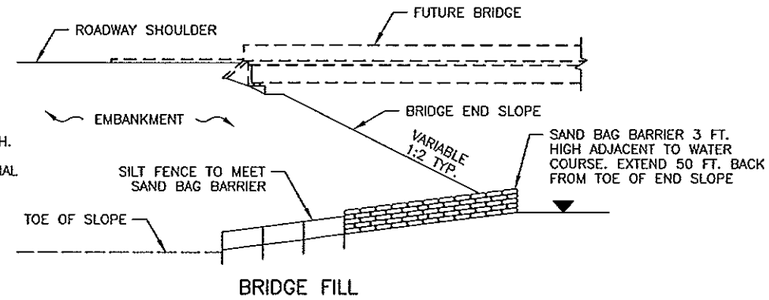


OPTIONAL METHOD
FOR SILT FENCE, HEAVY DUTY



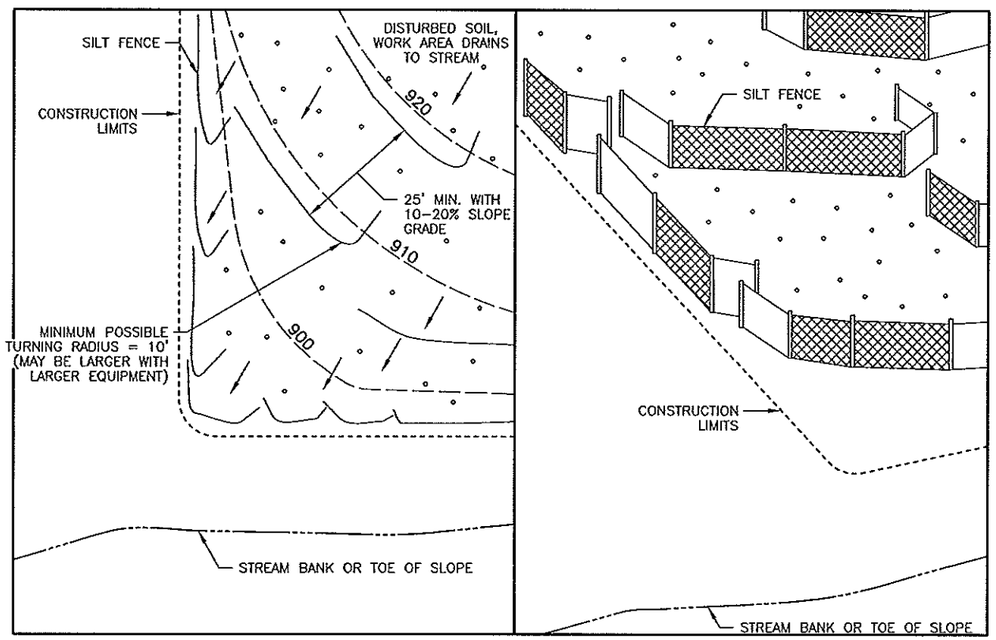
SILT FENCE, HEAVY DUTY
(HAND INSTALLED)

DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW
MAXIMUM CONTRIBUTING AREA: 1 ACRE

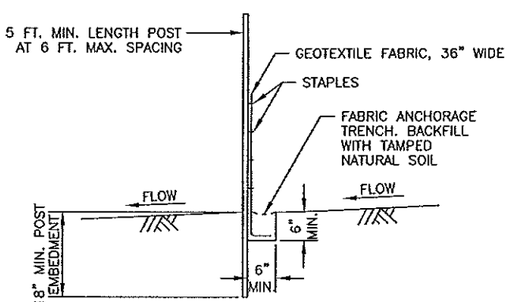


BRIDGE FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1 ACRE

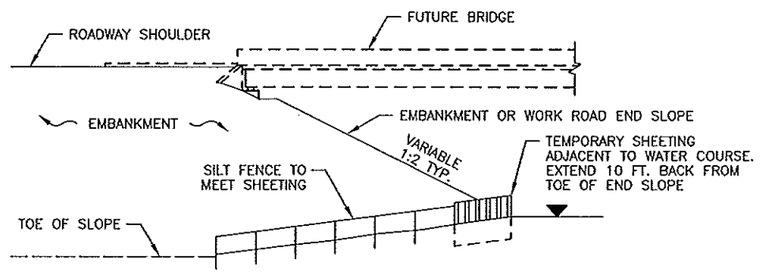


SILT FENCE, J–HOOK INSTALLATION



SILT FENCE, PREASSEMBLED

DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW
MAXIMUM CONTRIBUTING AREA: 1 ACRE



EMBANKMENT OR WORK ROAD FILL

DESIGN GUIDELINES:
WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES

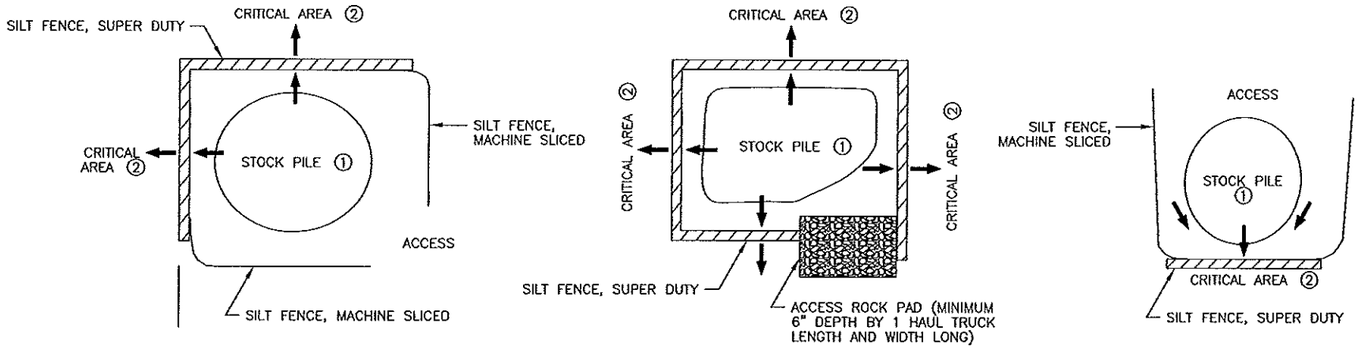
SILT FENCE AT BRIDGE EMBANKMENT ADJACENT TO WATER

NOTES:
SEE SPECS. 2573, 3149 & 3886.

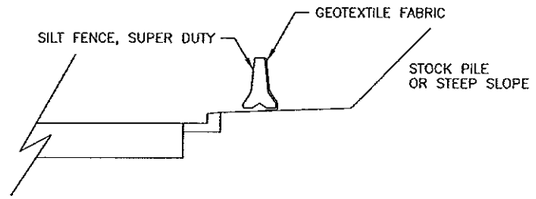
① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

STANDARD SHEET NO. 5–297.408 (1 of 2)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: SEPTEMBER 27,2006	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 124 of 299 Sheets

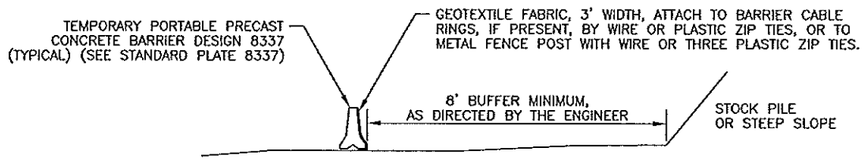
FILE NAME: P305-498A.DWG DATE: 03-24-10



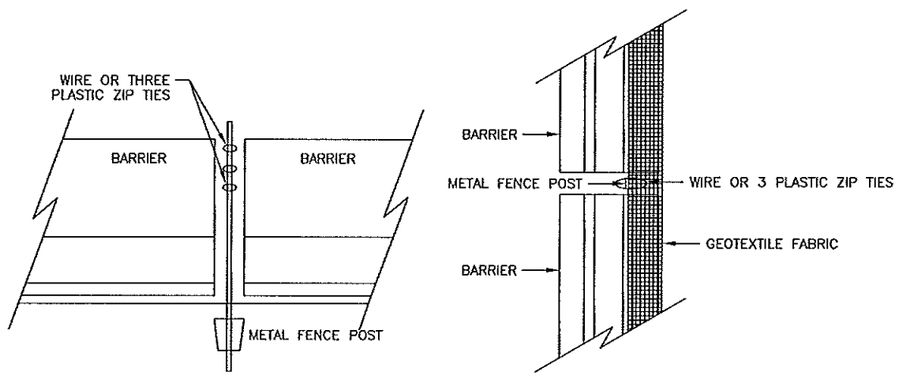
SILT FENCE, SUPER DUTY
STOCK PILE CONTAINMENT



SILT FENCE, SUPER DUTY
CURB AND GUTTER PROTECTION SYSTEM

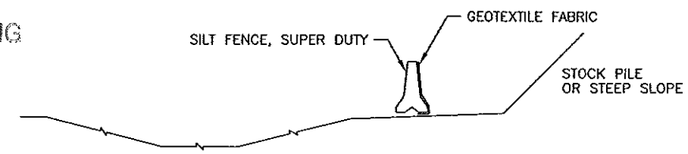


SILT FENCE, SUPER DUTY
STOCK PILE SEDIMENT CONTROL

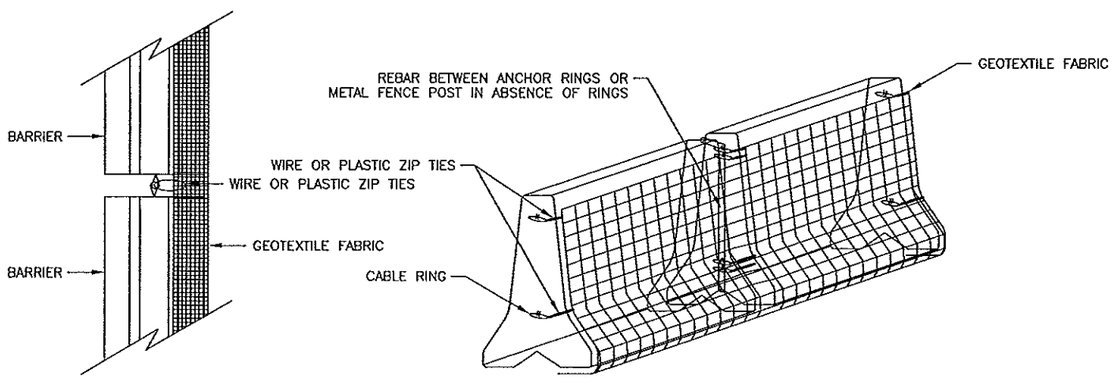


BARRIER WITHOUT CABLE RINGS

AS-BUILT
FEB 0 9 2012
ENGINEERING



SILT FENCE, SUPER DUTY
DITCH PROTECTION SYSTEM



BARRIER WITH CABLE RINGS
SILT FENCE, SUPER DUTY

NOTES:

SEE SPECS. 2533, 2573 & 3886.

PLACE SUPER DUTY SILT FENCE ALONG A CONSTANT ELEVATION.

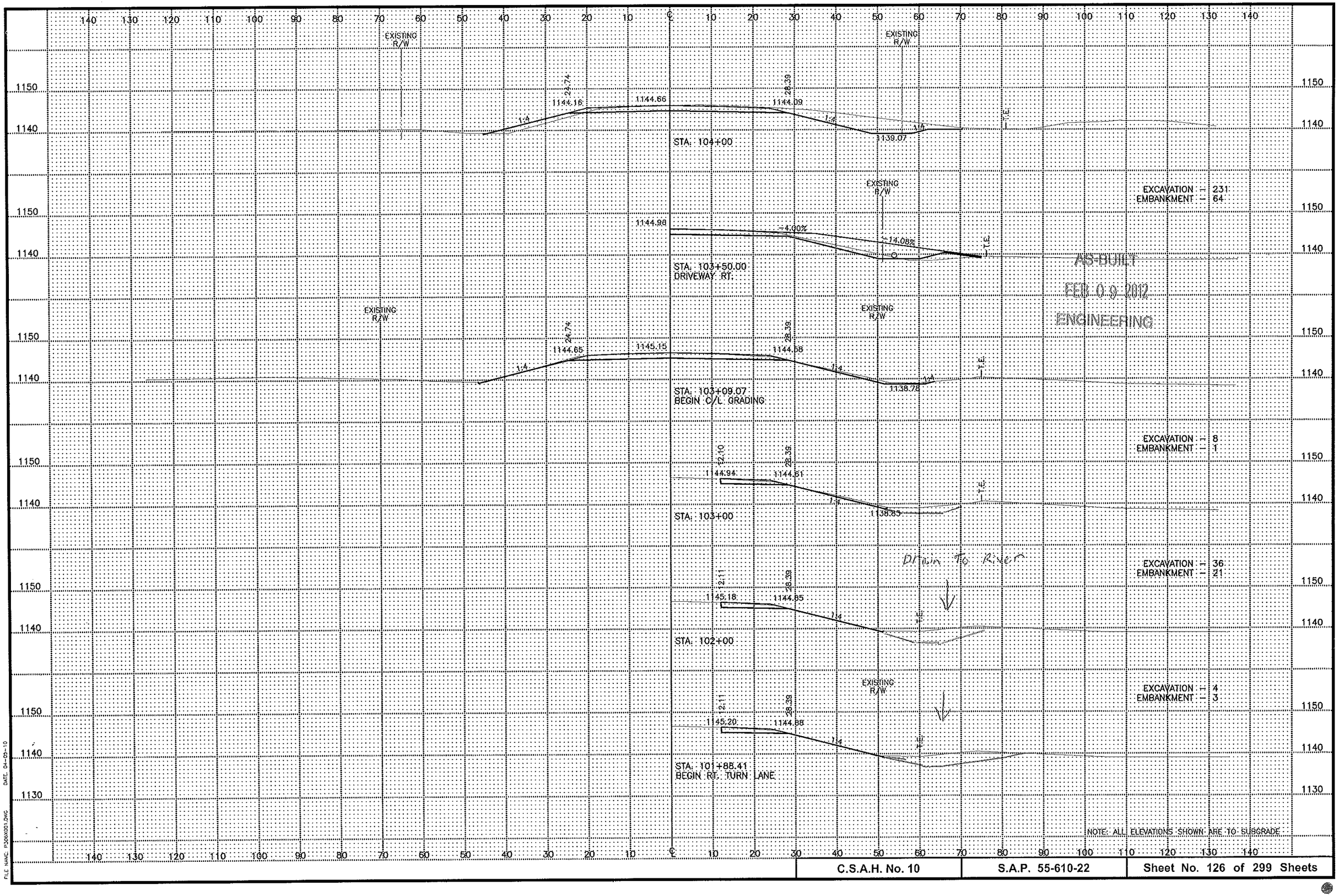
SUPER DUTY SILT FENCE CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

① PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, THE SUPER DUTY SILT FENCE IS TO BE USED AS SHOWN OR AS DIRECTED BY THE ENGINEER.

② CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES AND OTHER AREAS REQUIRING PROTECTION.

STANDARD SHEET NO. 5-297.408 (2 of 2)	TITLE: TEMPORARY SEDIMENT CONTROL SUPER DUTY SILT FENCE
STANDARD APPROVED: SEPTEMBER 27,2006	
~~State Proj. No.~~ S.A.P. 55-610-22	Sheet No. 125 of 299 Sheets

FILE NAME: P306-408B.DWG DATE: 03-04-10



DATE: 04-05-10

FILE NAME: P3060001.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 126 of 299 Sheets

STA. 101+88.41 – STA. 106+70.56
UNCLASSIFIED EXC. = 1297 CU. YDS.
TOPSOIL EXC. = 292 CU. YDS.
EMBANKMENT = 514 CU. YDS.

1144.35

STA. 106+70.56 – 10° SKEW
BEGIN EXCEPTION

EXCAVATION – 138
EMBANKMENT – 0

EXISTING R/W

28.02
1143.18
1143.74
32.54
1143.09
1:3
1141.02
1:6
1:6
1140.28

STA. 106+25

EXCAVATION – 36
EMBANKMENT – 0

EXISTING R/W
35.00
T.E.
1144.53
.00%
1143.66
32.52
1143.01
1:6
140.16

STA. 106+10.94
END C&G LT.

AS-BUILT
FEB 09 2017
ENGINEERING

EXCAVATION – 28
EMBANKMENT – 0

EXISTING R/W
35.00
T.E.
1144.49
.00%
1143.61
32.52
1142.96
1:6
1140.25

STA. 106+00

EXCAVATION – 377
EMBANKMENT – 117

NEW R/W
T.E.
-6.69%
1143.94

STA. 105+05.97
DRIVEWAY LT.

NEW R/W
35.00
T.E.
1144.85
1:4
.00%
1143.98
29.44
1143.39
1:4
139.72
EXISTING R/W
T.E.

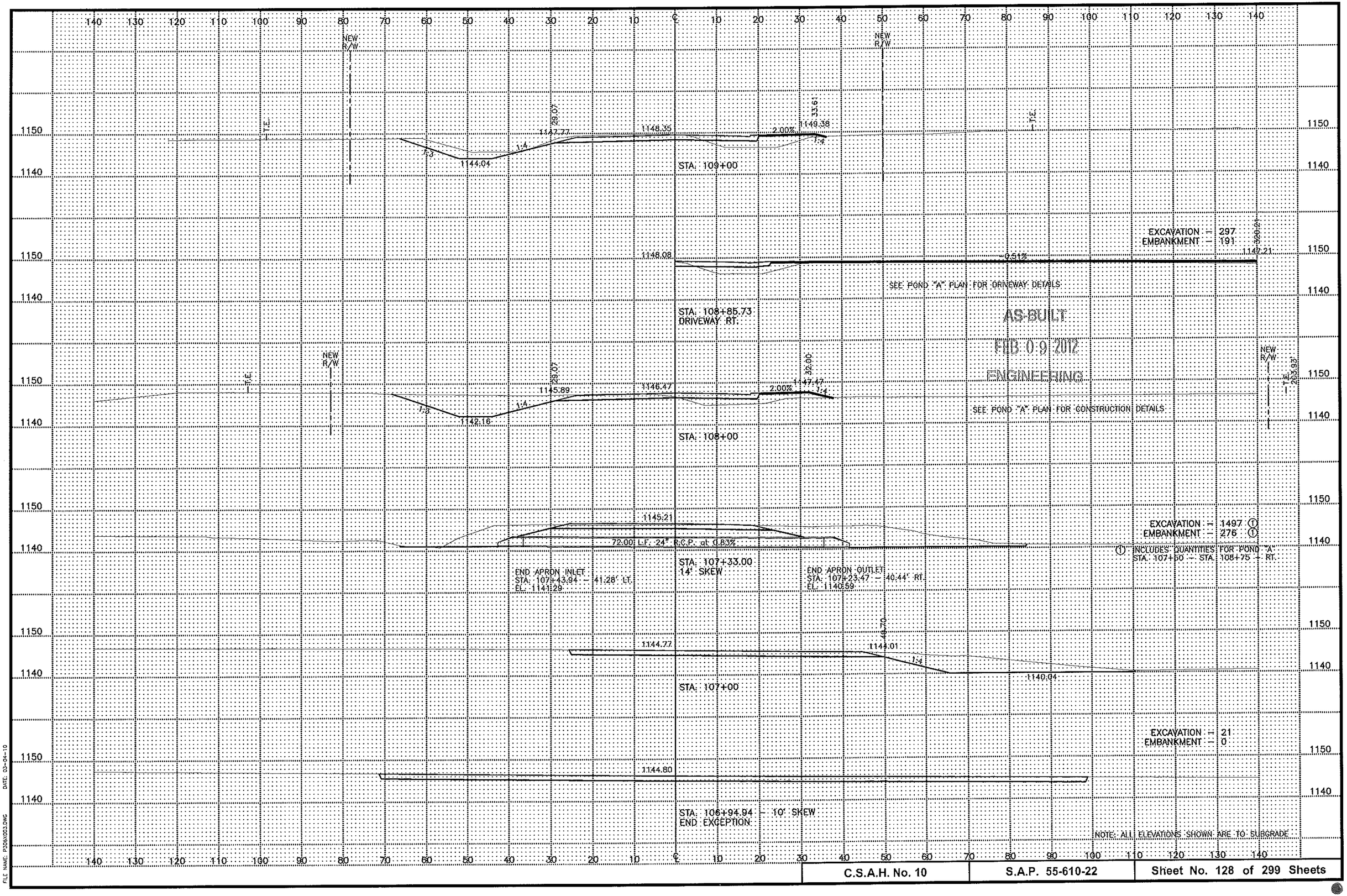
STA. 105+00

EXCAVATION – 438
EMBANKMENT – 308

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10
FILE NAME: P305EX002.DWG

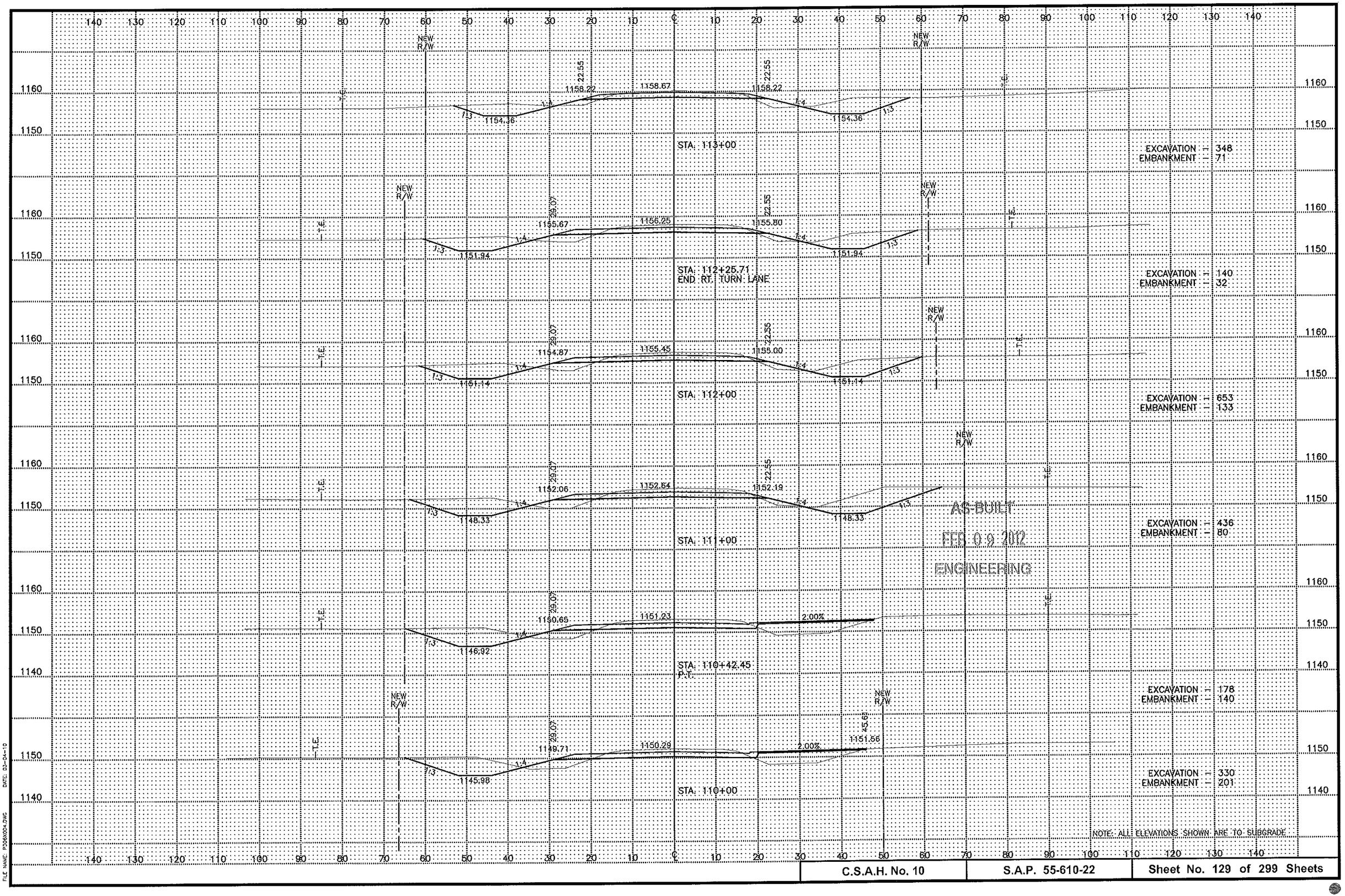
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 127 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306\003.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 128 of 299 Sheets



AS-BUILT
FEB 09 2012
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10
FILE NAME: P306K004.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 129 of 299 Sheets

NEW R/W

NEW R/W

STA. 118+00

1174.62 1175.07 1174.62 1170.76 1170.76

22.55 22.55

1:3 1:4 1:4 1:3

T.E. T.E.

AS-BUILT

FEB 0 9 2012

ENGINEERING

EXCAVATION = 66
EMBANKMENT = 373

STA. 117+00

1171.34 1171.79 1171.34 1167.48 1167.48

22.55 22.55

EXCAVATION = 100
EMBANKMENT = 346

STA. 116+00

1168.06 1168.51 1168.06 1164.20 1164.20

22.55 22.55

EXCAVATION = 162
EMBANKMENT = 251

STA. 115+00

1164.78 1165.23 1164.78 1160.92 1160.92

22.55 22.55

EXCAVATION = 290
EMBANKMENT = 144

STA. 114+00

1161.60 1161.95 1161.50 1157.64 1157.64

22.55 22.55

EXCAVATION = 397
EMBANKMENT = 108

STA. 113+19.36
SHARED FIELD ENT. LT.

1159.31

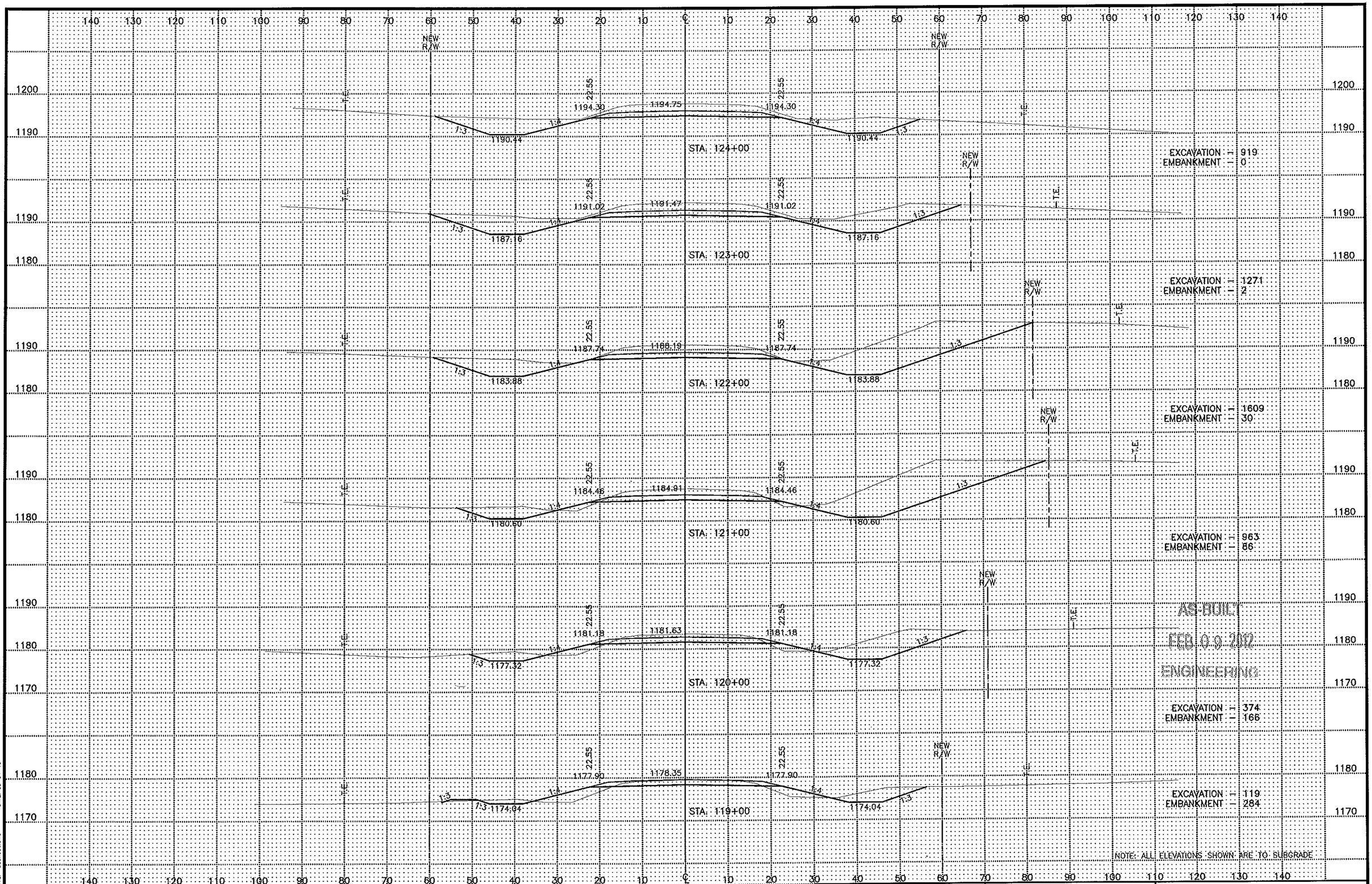
-10.85% -6.00%

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 130 of 299 Sheets

DATE: 03-04-10

FILE NAME: P26SX05.DWG



DATE: 03-04-10

FILE NAME: P306\006.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 131 of 299 Sheets

NEW R/W

STA. 128+15.06
DRIVEWAY RT.

1205.73 -1.00% +3.24% T.E.

STA. 128+05.33
DRIVEWAY LT.

T.E. Approx. +1.53% 1205.54

STA. 128+00

T.E. 22.55 1205.00 1205.44 1205.00 22.55 T.E.
Approx. 1:4 1:4 1:4 1:4
1202.13 1201.13

STA. 127+00

T.E. 22.55 1202.90 1203.35 1202.90 22.55 T.E.
1:4 1:4 1:4 1:4
1199.54 1199.04

NEW R/W

STA. 126+00

T.E. 22.55 1200.42 1200.86 1200.42 22.55 T.E.
1:3 1:4 1:4 1:3
1196.56 1196.03

STA. 125+00

T.E. 22.55 1197.63 1197.98 1197.63 22.55 T.E.
1:3 1:4 1:4 1:3
1193.67 1193.67

AS-BUILT
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EXCAVATION – 589
EMBANKMENT – 44

EXCAVATION – 1171 ②
EMBANKMENT – 660 ②

② INCLUDES QUANTITIES FOR 25TH ST.
STA. 126+95.10 – LT. & RT.

EXCAVATION – 422
EMBANKMENT – 22

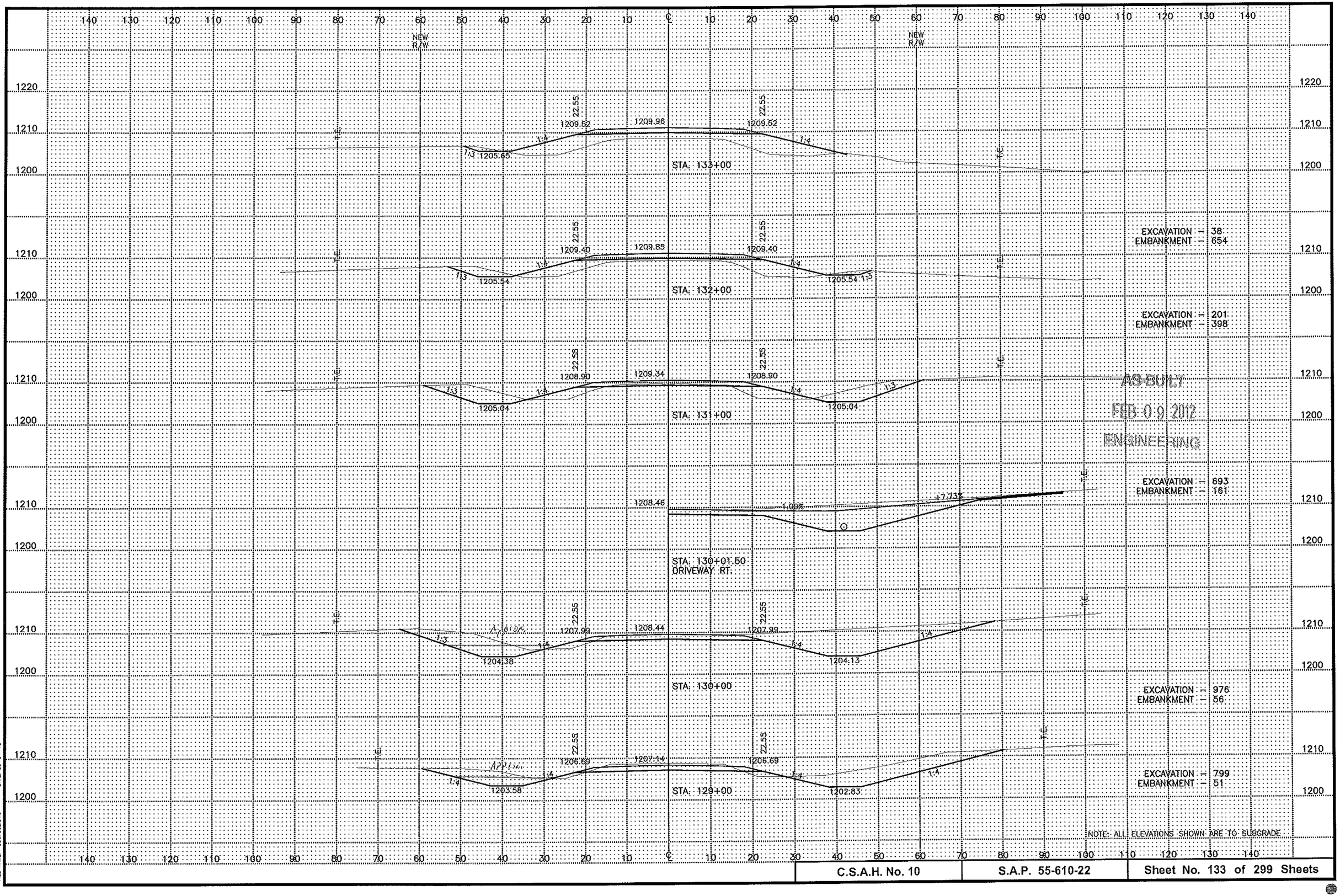
EXCAVATION – 645
EMBANKMENT – 4

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: PS0610007.DWG

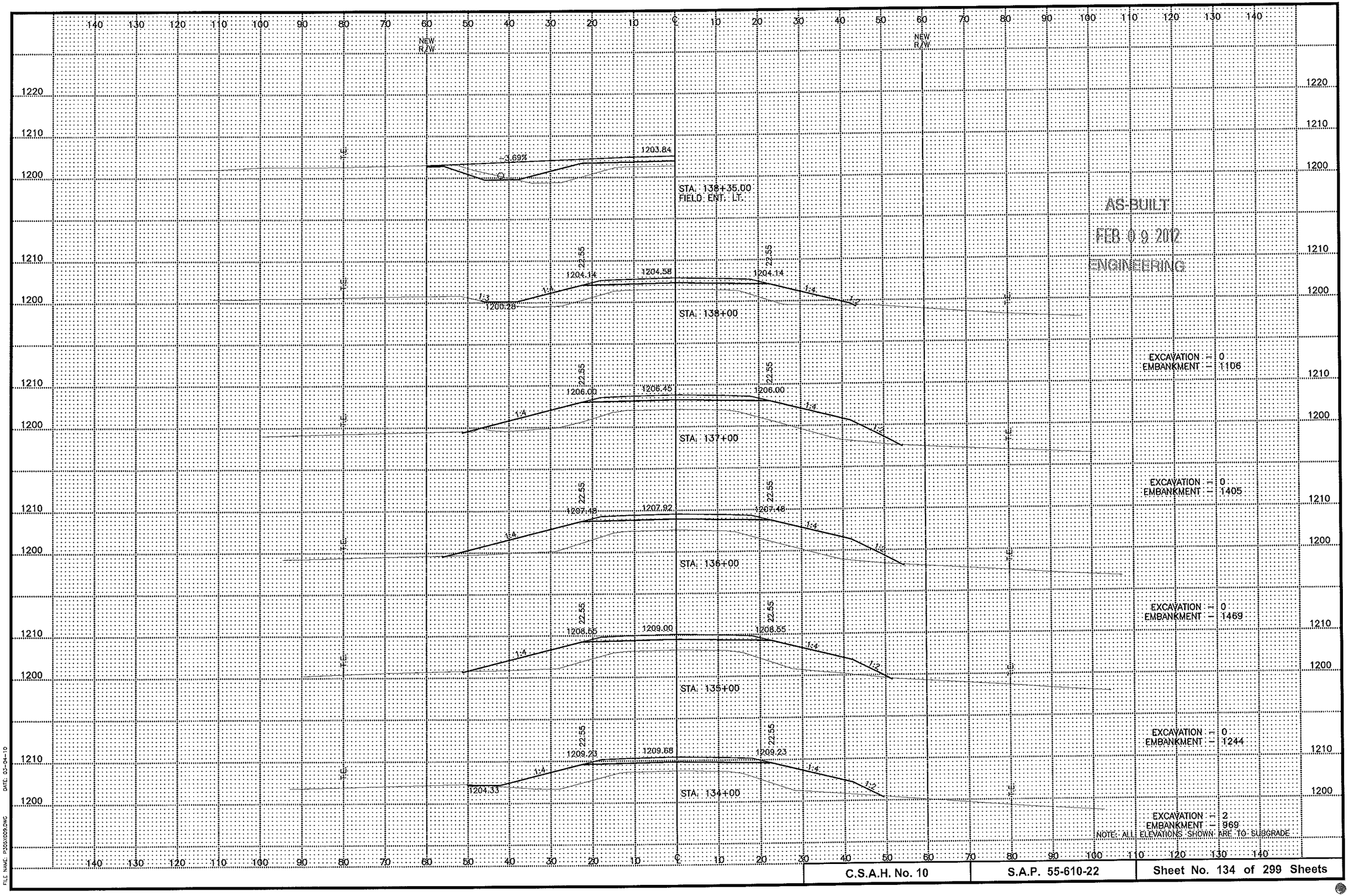
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 132 of 299 Sheets



DATE: 03-04-10

FILE NAME: P:\06K0028.DWG

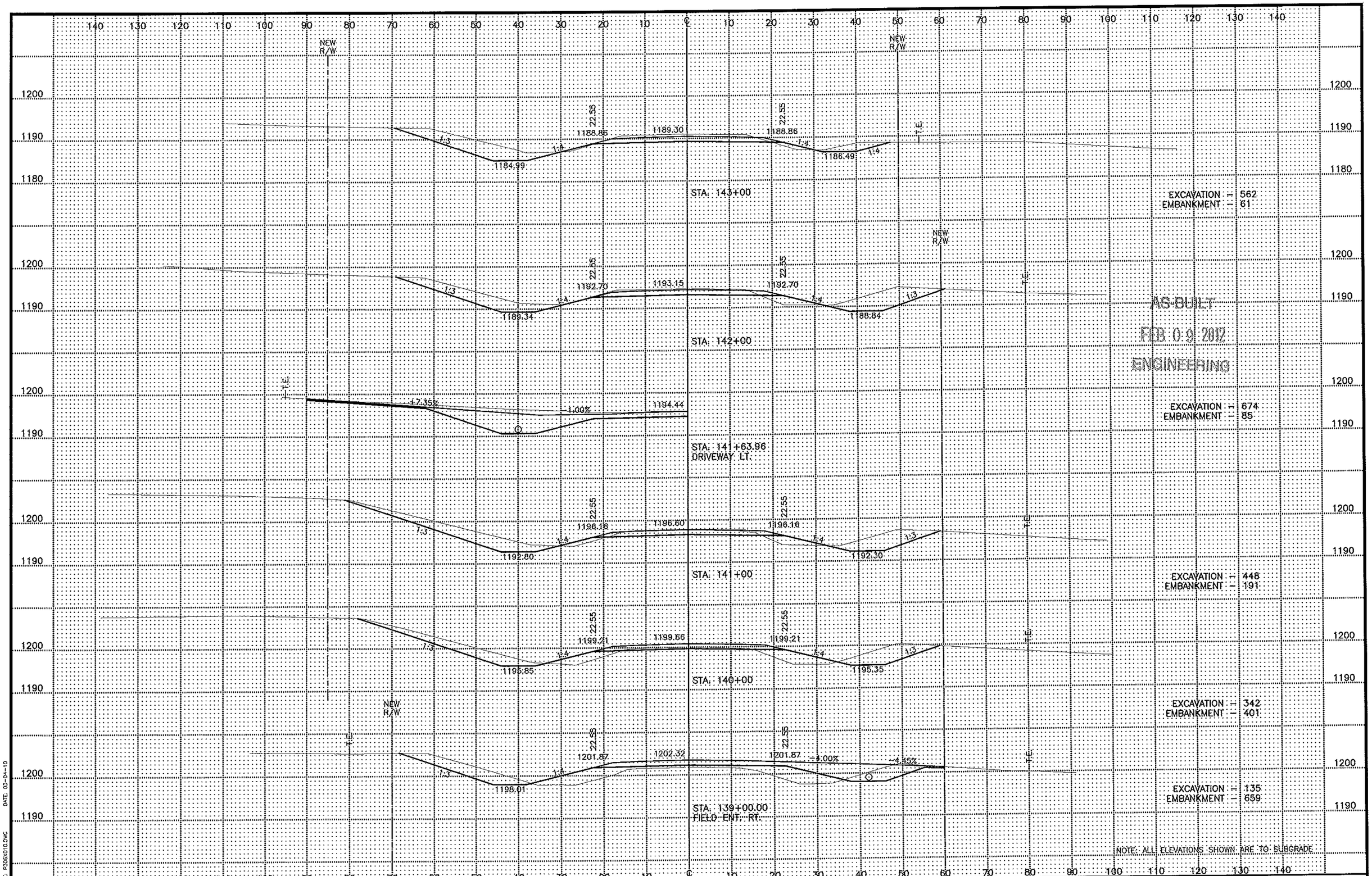
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 133 of 299 Sheets



DATE: 03-04-10

FILE NAME: P305V009.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 134 of 299 Sheets

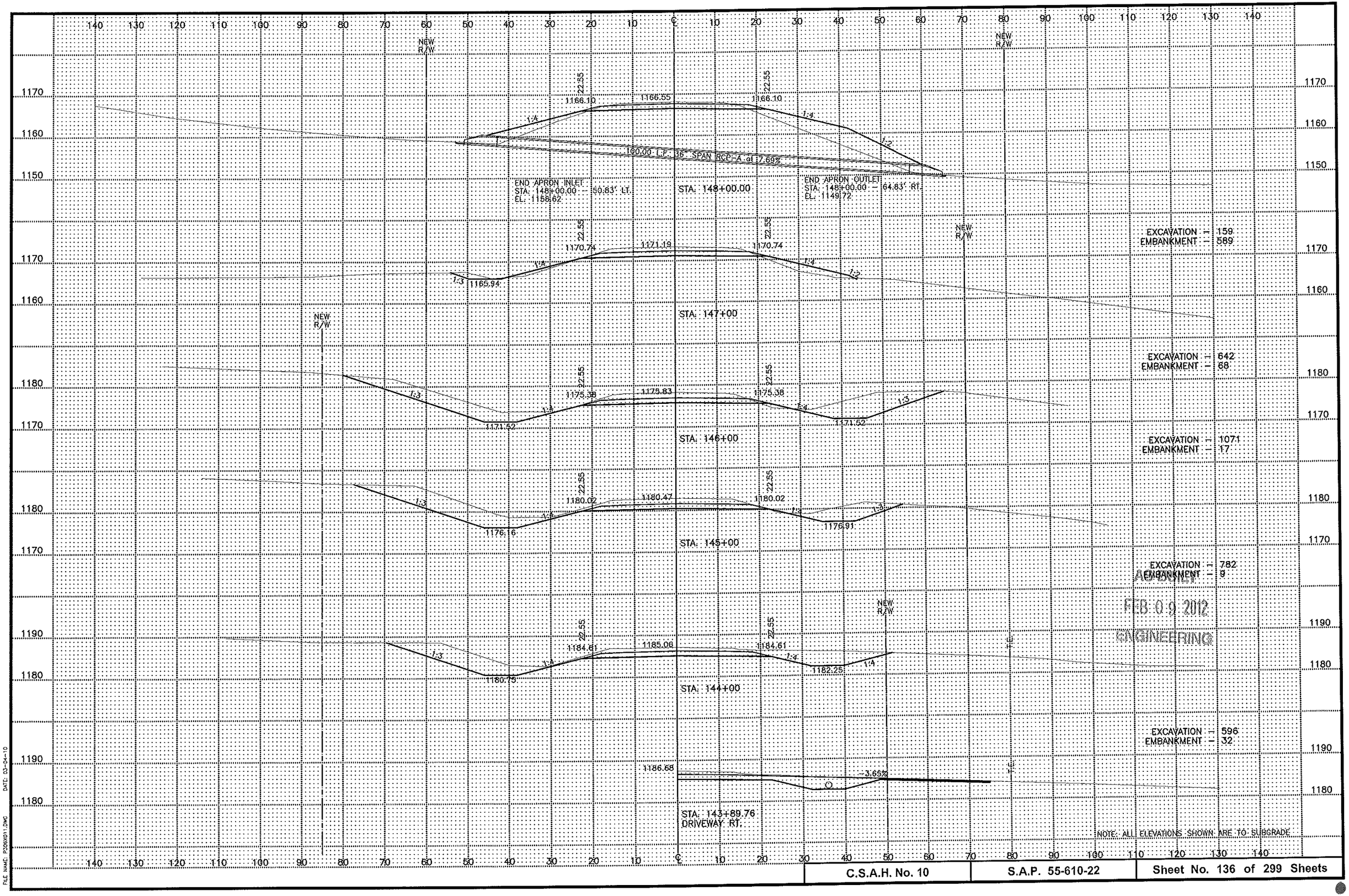


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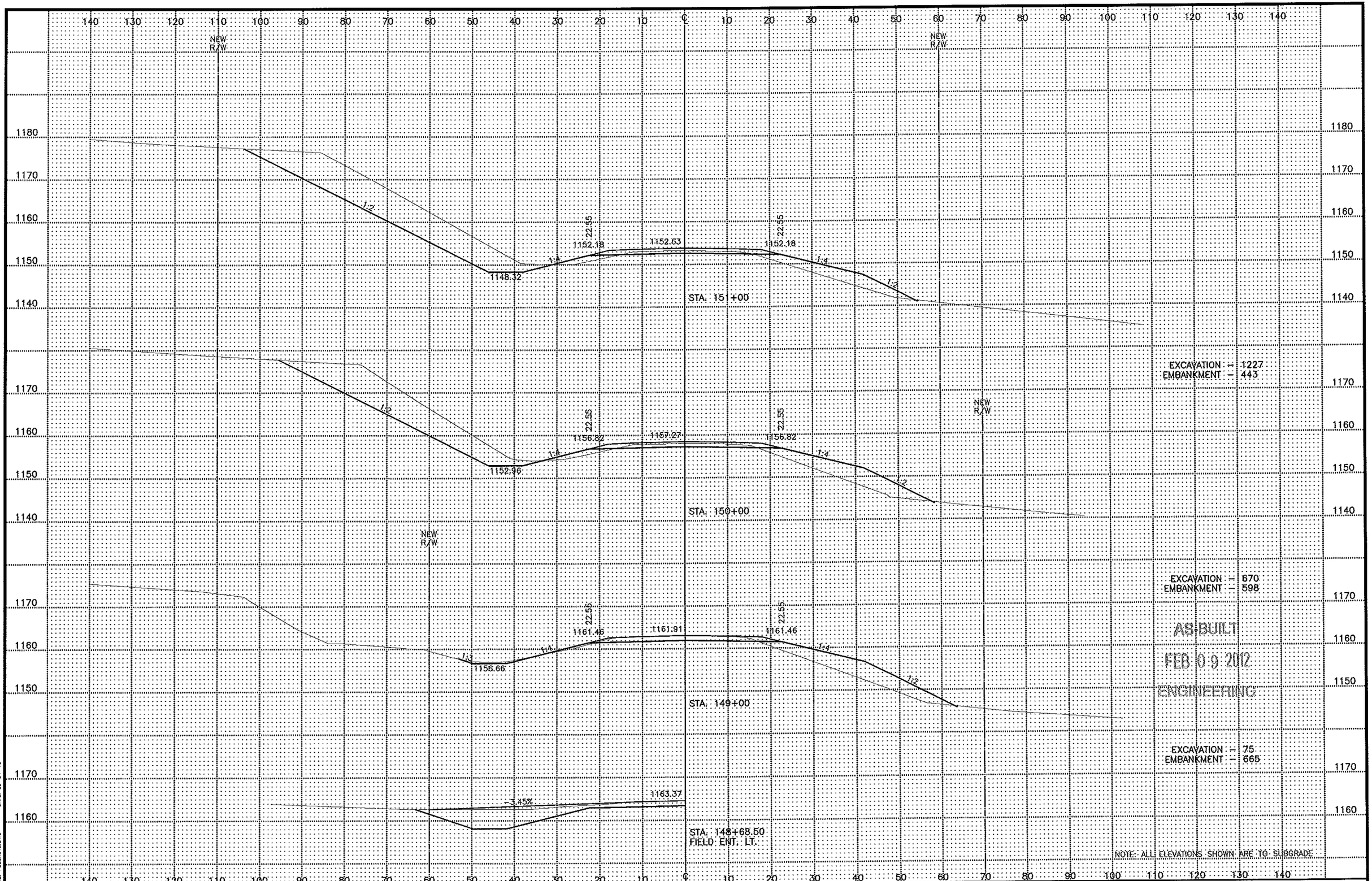
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 135 of 299 Sheets

DATE: 03-04-10
FILE NAME: P305X010.DWG



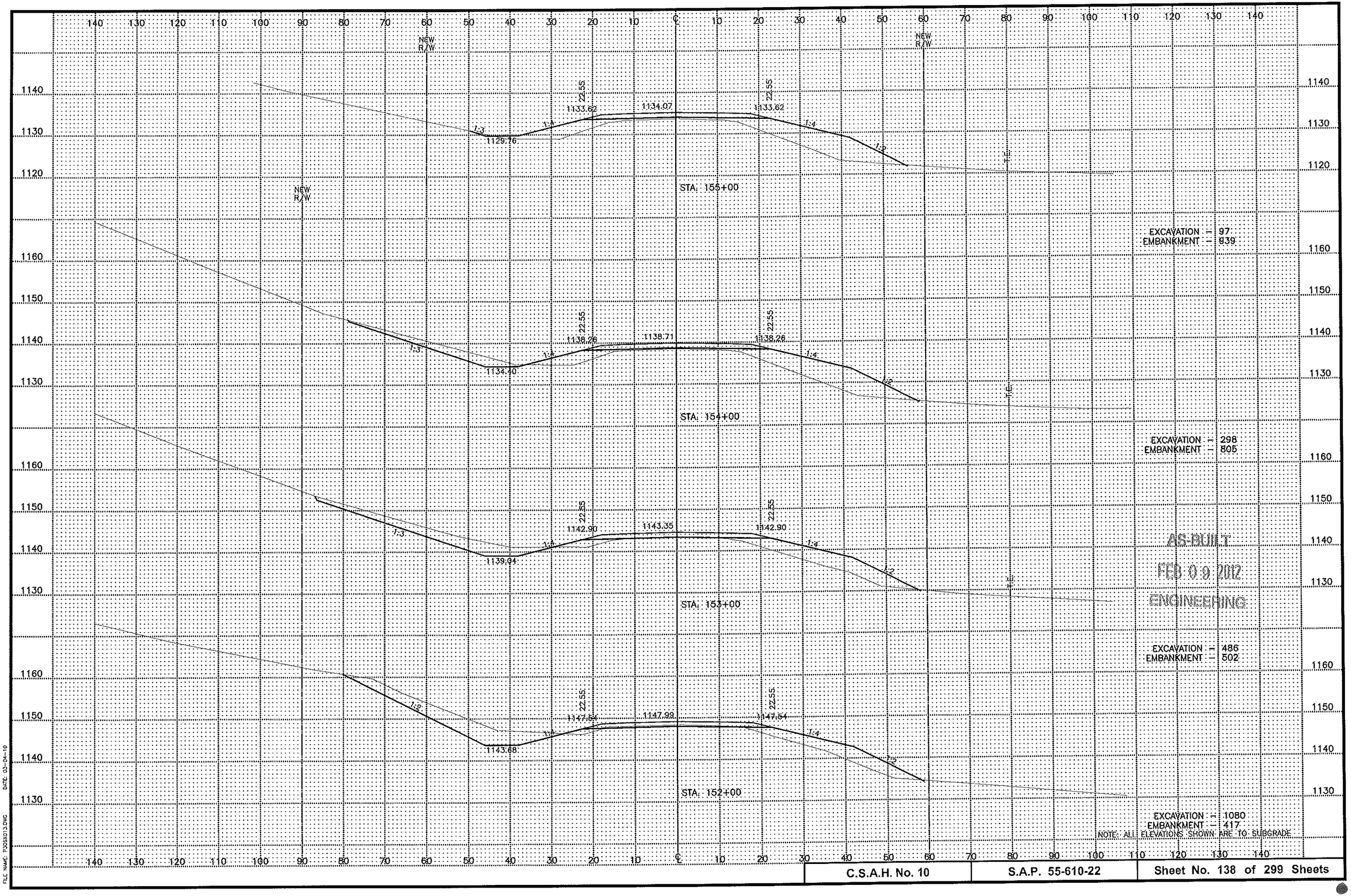
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 136 of 299 Sheets

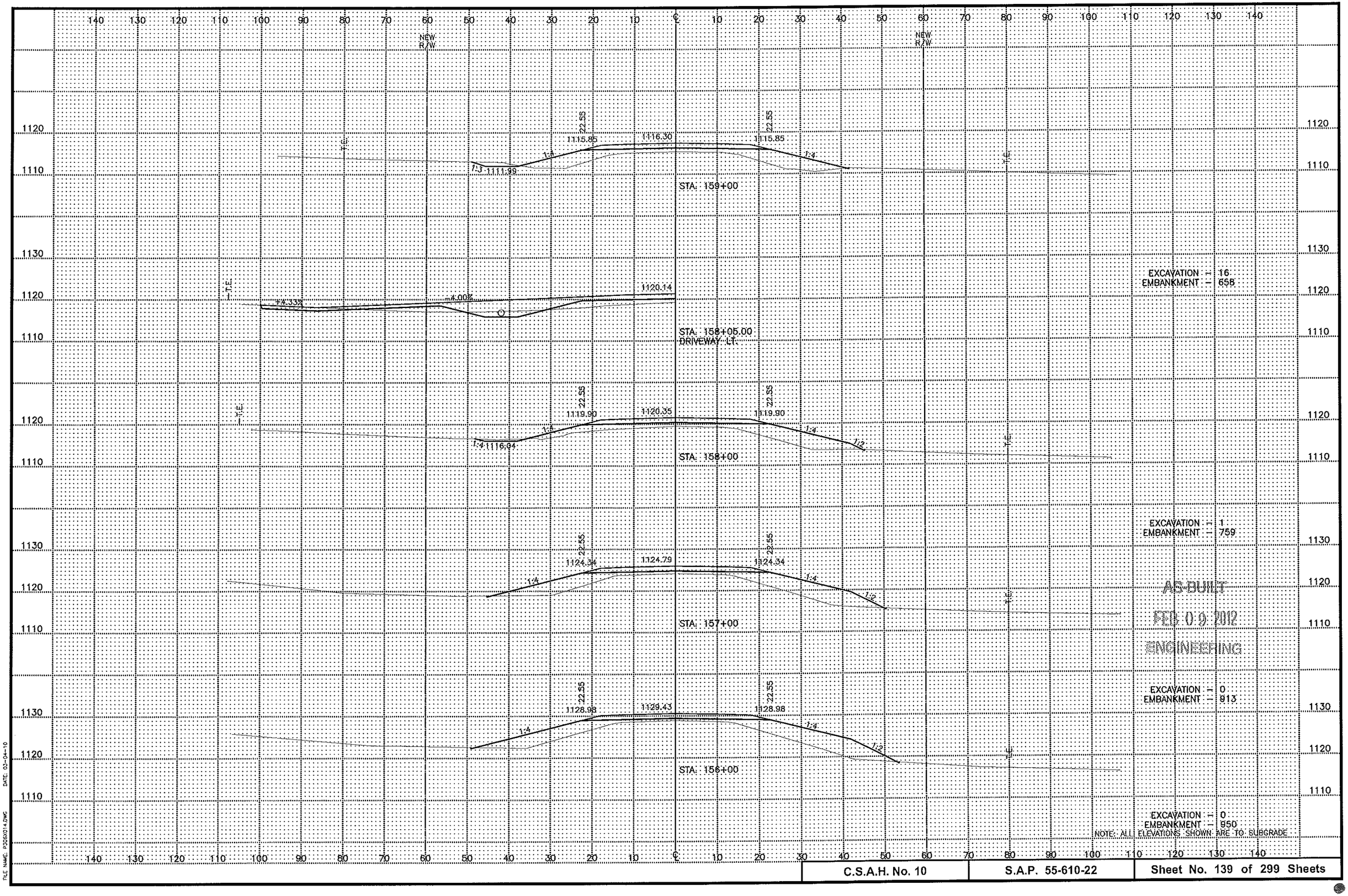


DATE: 03-04-10

FILE NAME: P306X012.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 137 of 299 Sheets

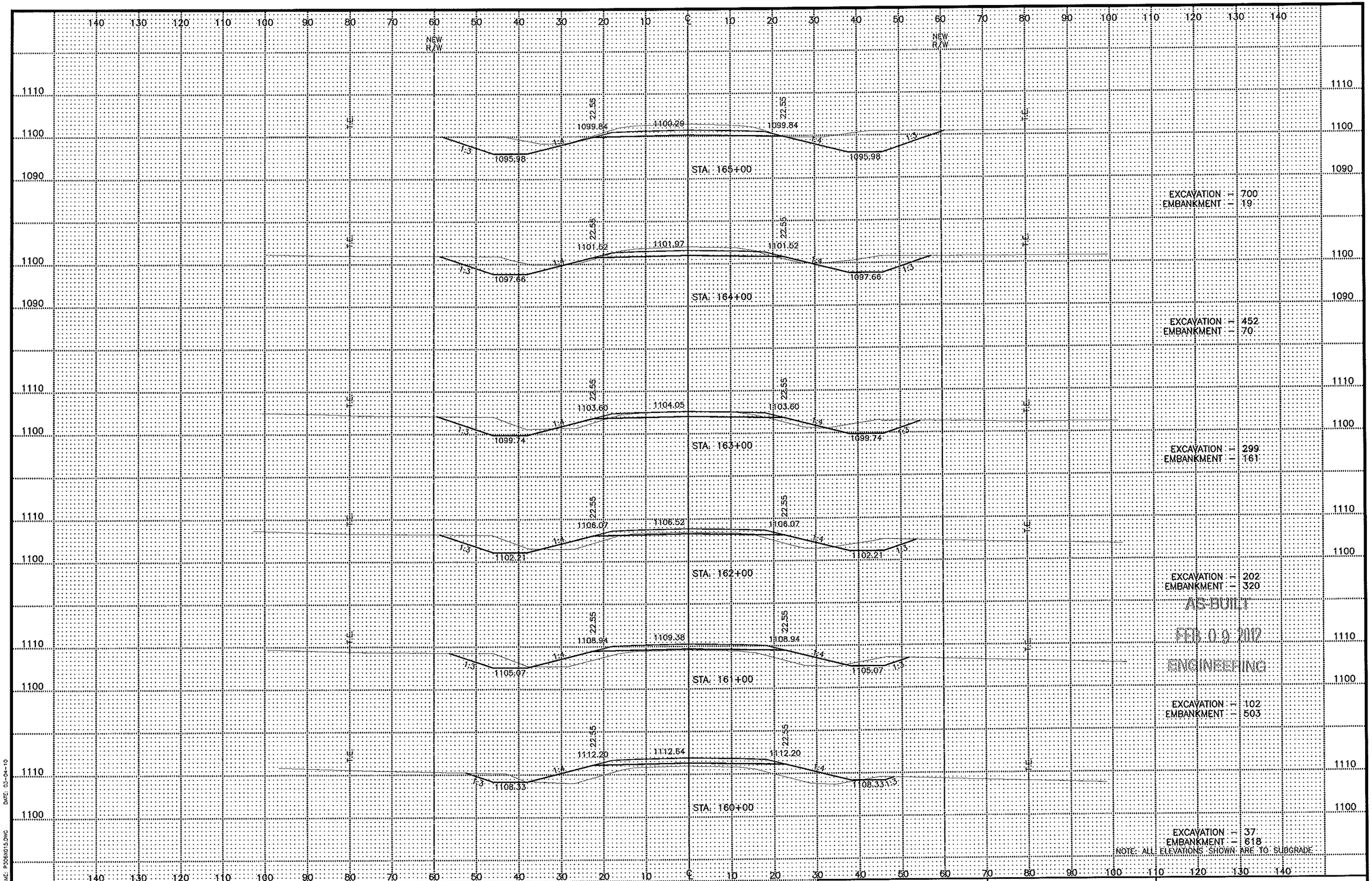

NEW R/W
NEW R/W
NEW R/W
22.55
1133.62
1134.07
1129.76
1:3
1:4
STA. 155+00
EXCAVATION – 97
EMBANKMENT – 939
22.55
1138.26
1138.71
1134.40
STA. 154+00
EXCAVATION – 298
EMBANKMENT – 805
22.55
1142.90
1143.35
1139.04
STA. 153+00
EXCAVATION – 486
EMBANKMENT – 502
22.55
1147.54
1147.99
1143.68
STA. 152+00
EXCAVATION – 1080
EMBANKMENT – 417
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE
T.E.
AS-BUILT
FEB 09 2012
ENGINEERING
C.S.A.H. No. 10
S.A.P. 55-610-22
Sheet No. 138 of 299 Sheets
DATE: 03-04-10
FILE NAME: P305X0138.DWG



DATE: 03-04-10

FILE NAME: P305X014.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 139 of 299 Sheets



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FEB 09 2012

ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 140 of 299 Sheets

DATE: 03-04-10

FILE NAME: P3060013.DWG

NEW R/W

NEW R/W

STA. 170+00

1097.34 1097.79 1097.34
1093.24 1093.24
1:3 1:4 1:4 1:3 1:3
22.55 22.55
T.E. T.E.

EXCAVATION = 115
EMBANKMENT = 177

STA. 169+00

1097.09 1097.50 1097.09
1093.74 1093.74
1:3 1:4 1:4 1:3 1:3
22.55 22.55
T.E. T.E.

EXCAVATION = 230
EMBANKMENT = 60

STA. 168+00

1097.15 1097.60 1097.15
1094.24 1094.24
1:3 1:4 1:4 1:3
22.55 22.55
T.E. T.E.

EXCAVATION = 354
EMBANKMENT = 10

STA. 167+00

1097.65 1098.10 1097.65
1094.74 1094.74
1:3 1:4 1:4 1:3
22.55 22.55
T.E. T.E.

EXCAVATION = 563
EMBANKMENT = 1

STA. 166+00

1098.55 1099.00 1098.55
1095.24 1095.24
1:3 1:4 1:4 1:3
22.55 22.55
T.E. T.E.

EXCAVATION = 824
EMBANKMENT = 1

STA. 165+90.84
SHARED FIELD ENT. LT.
SHARED FIELD ENT. RT.

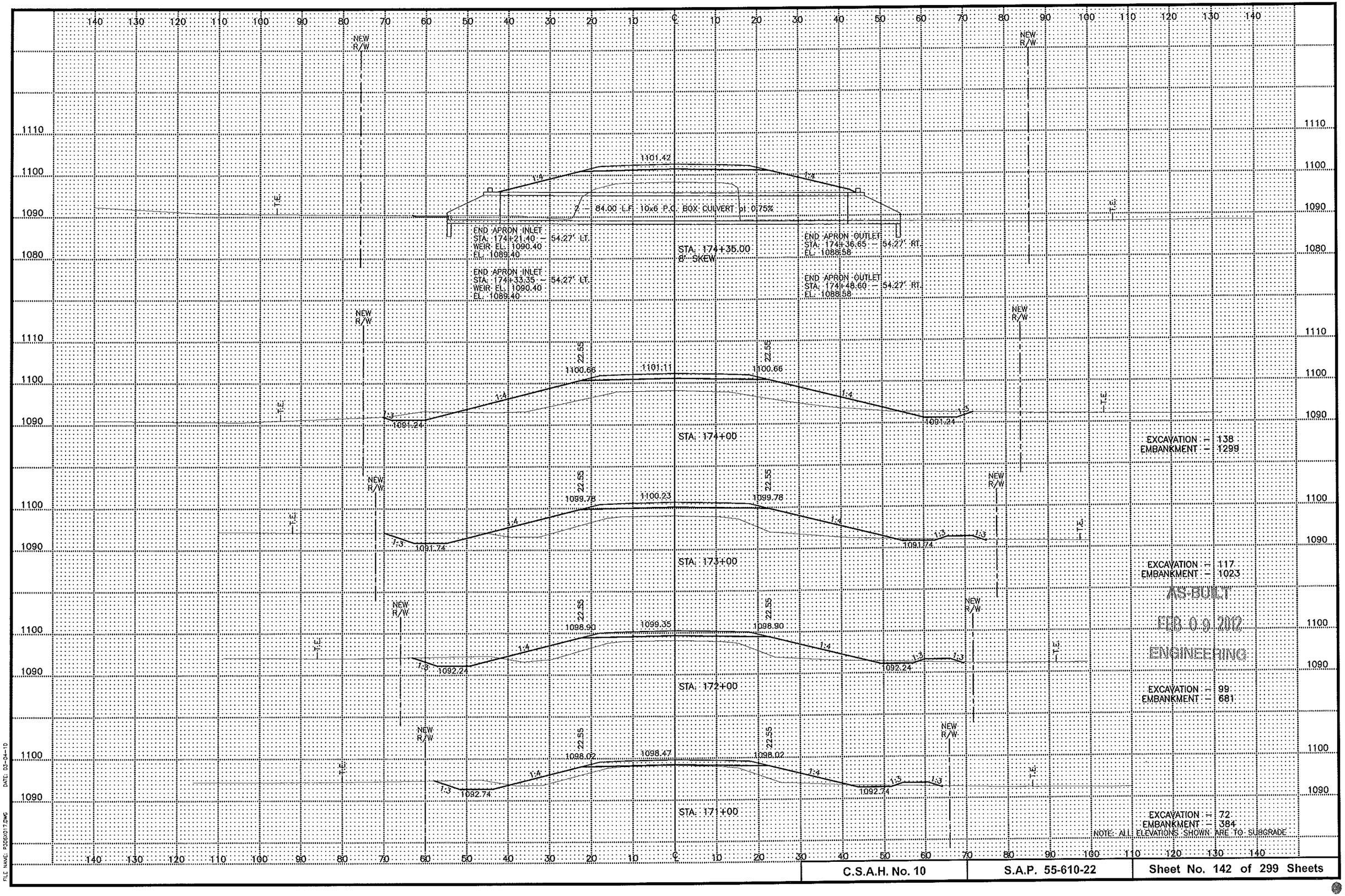
1099.10
-1.05% +1.00% -3.05%
T.E. T.E.

AS-BUILT
FEB 09 2012
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10
FILE NAME: P3680016.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 141 of 299 Sheets



AS-BUILT

FEB 09 2012

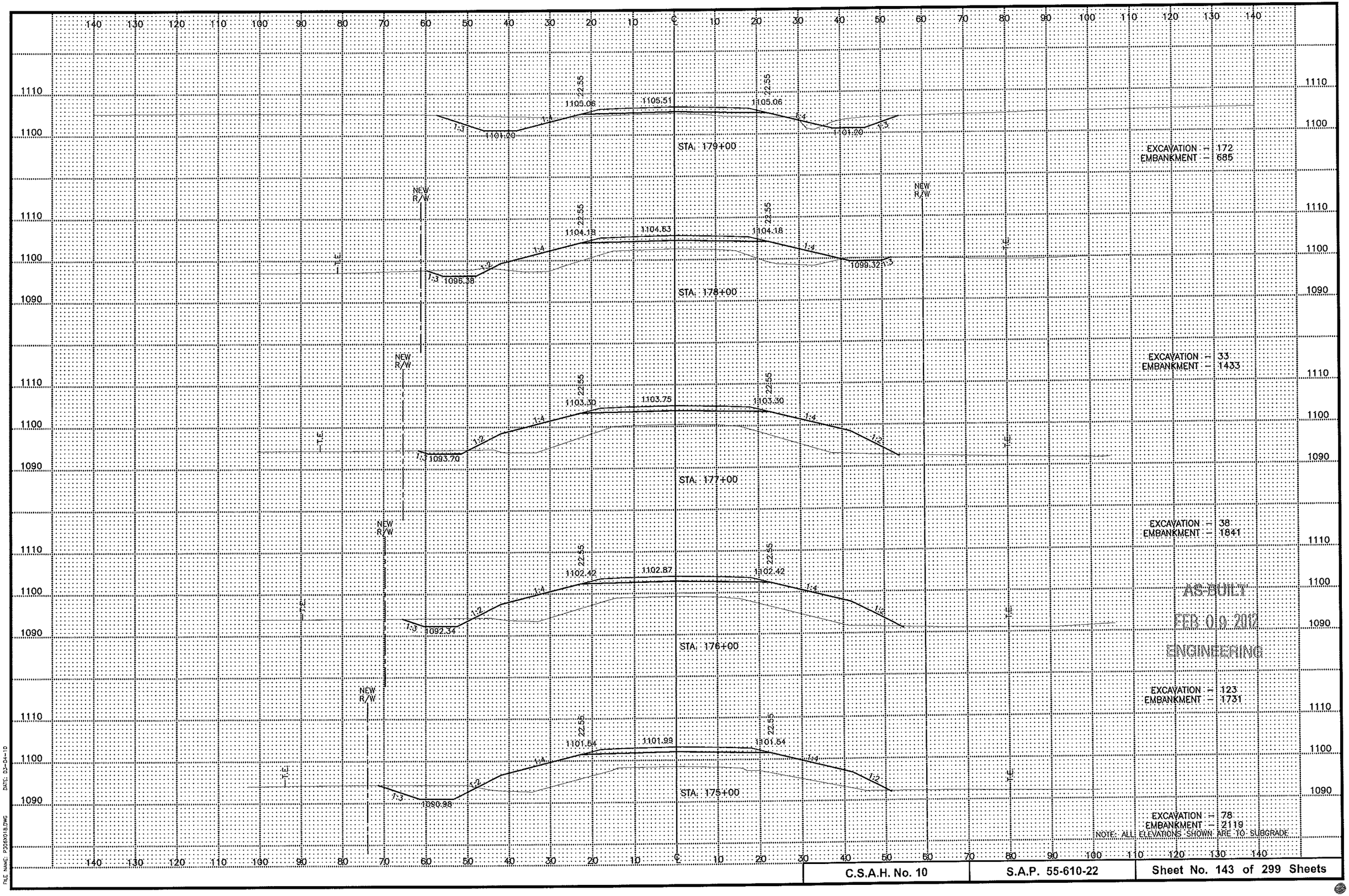
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P306X017.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 142 of 299 Sheets

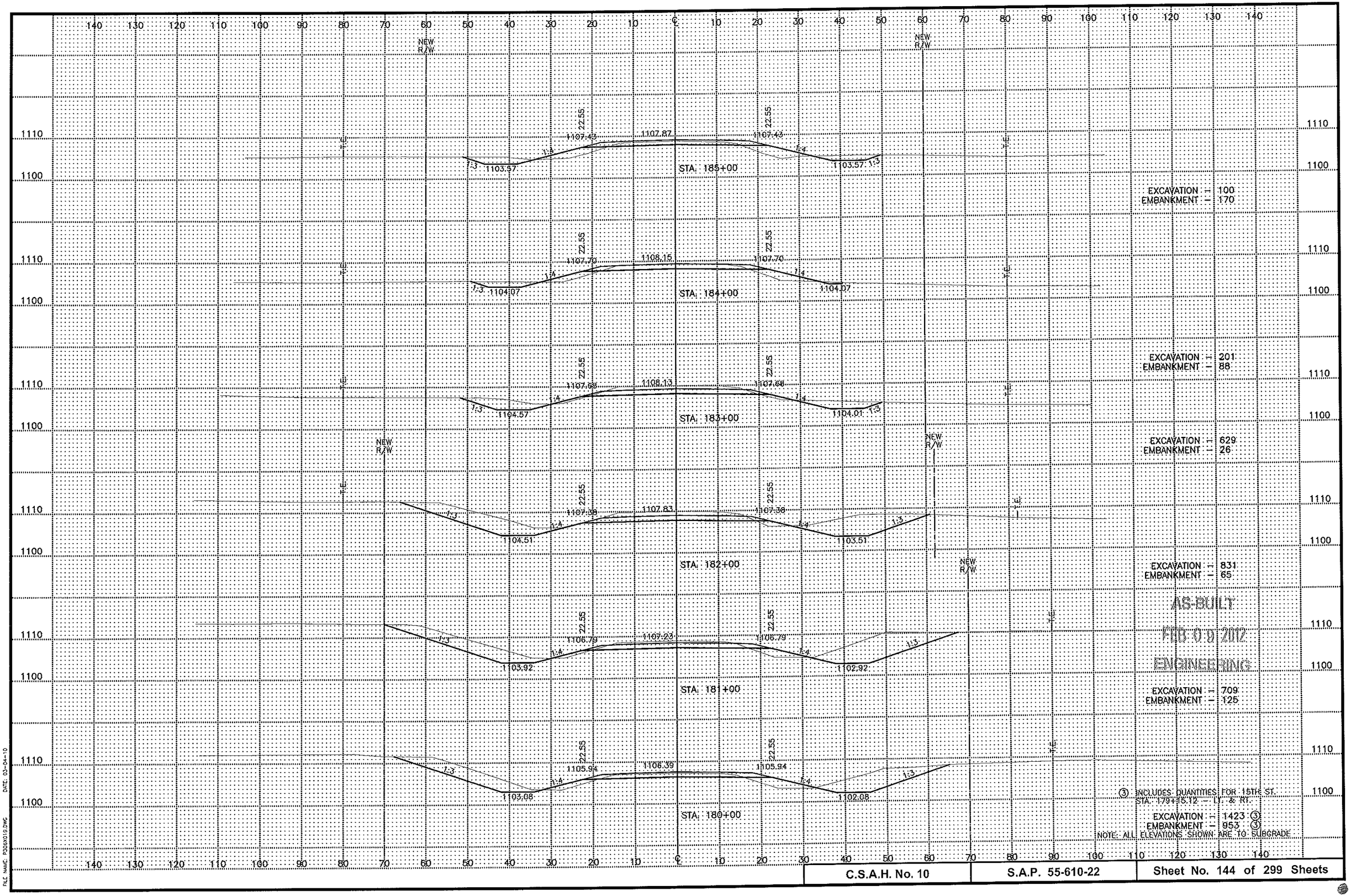


NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

AS-BUILT
FEB 01 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P306X018.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 143 of 299 Sheets



AS-BUILT
FEB 09 2012
ENGINEERING

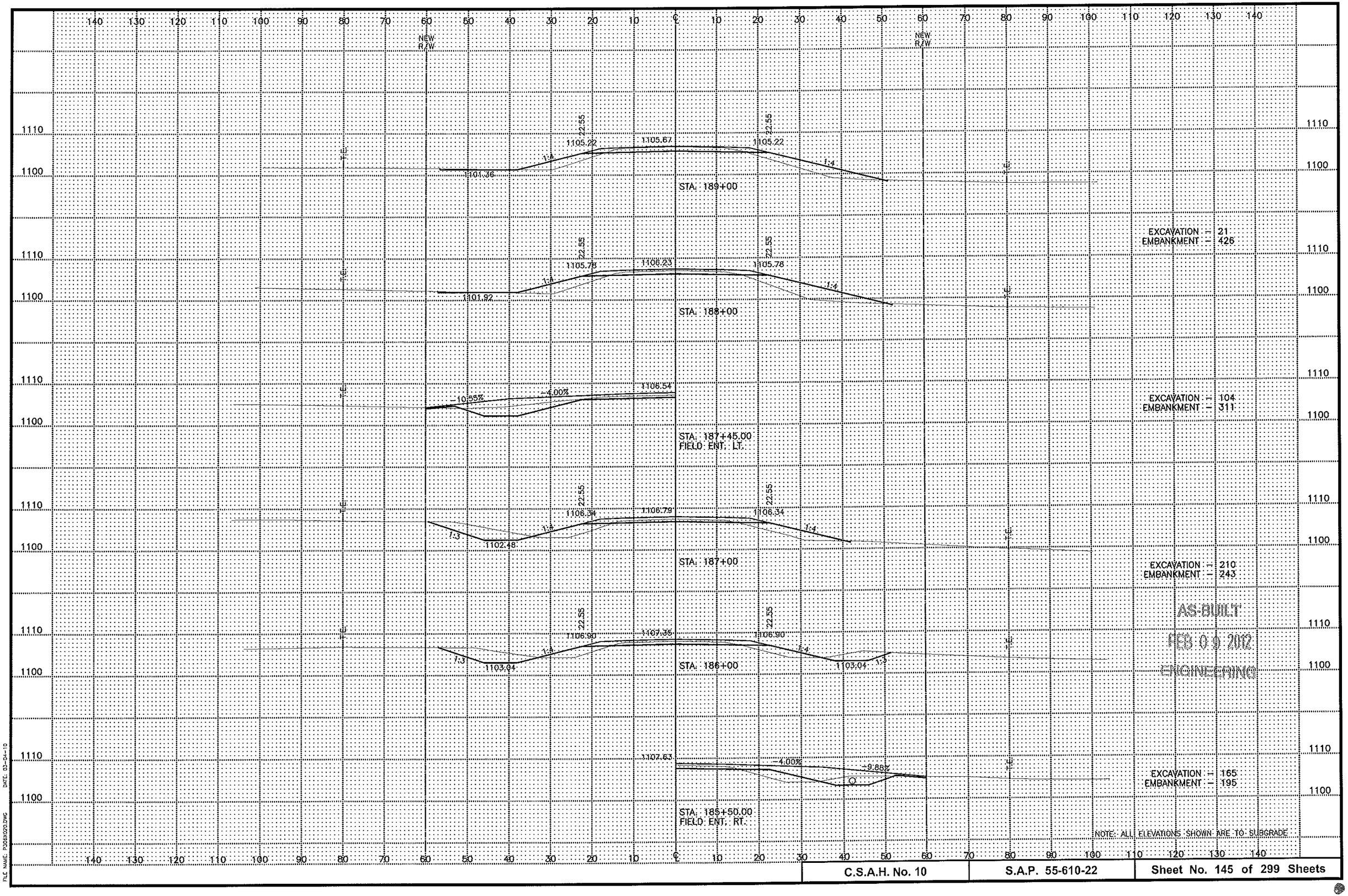
③ INCLUDES QUANTITIES FOR 15TH ST. STA. 179+15.12 – Lt. & Rt.

EXCAVATION – 1423 ③
EMBANKMENT – 953 ③

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 144 of 299 Sheets

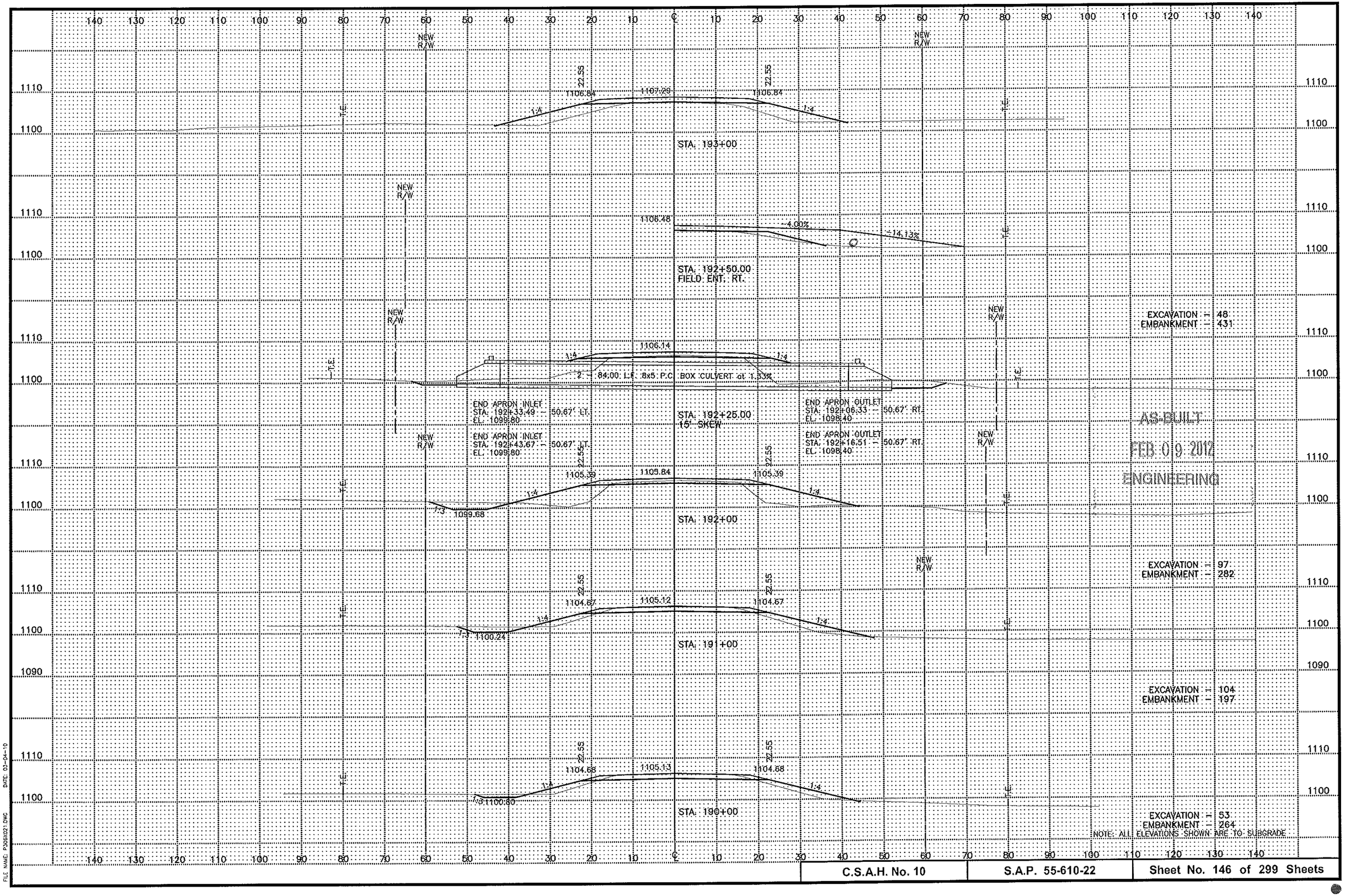
DATE: 03-04-10
FILE NAME: P30BX019.DWG



AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P266X020.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 145 of 299 Sheets



NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

AS-BUILT

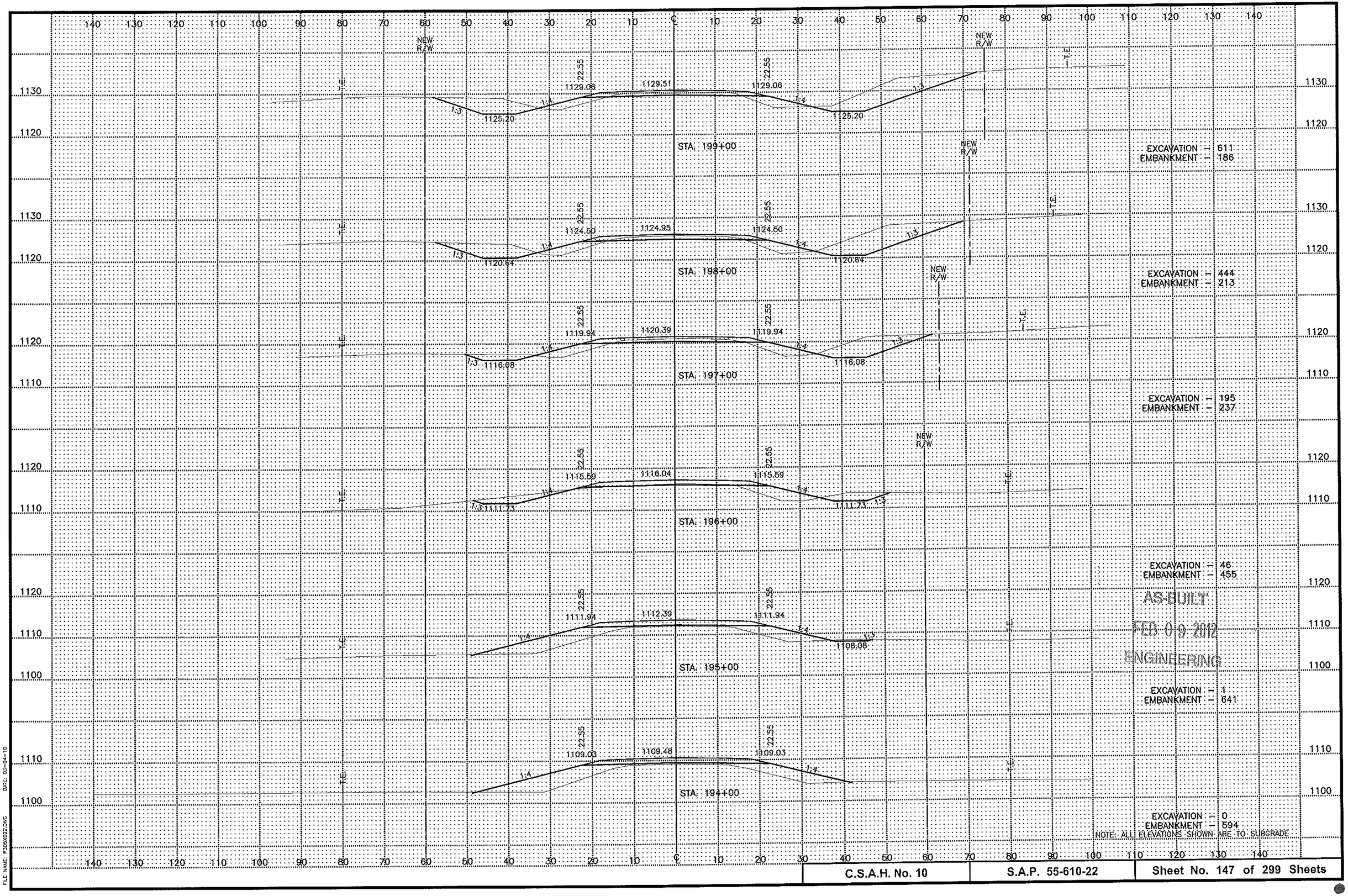
FEB 09 2012

ENGINEERING

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 146 of 299 Sheets

DATE: 03-04-10

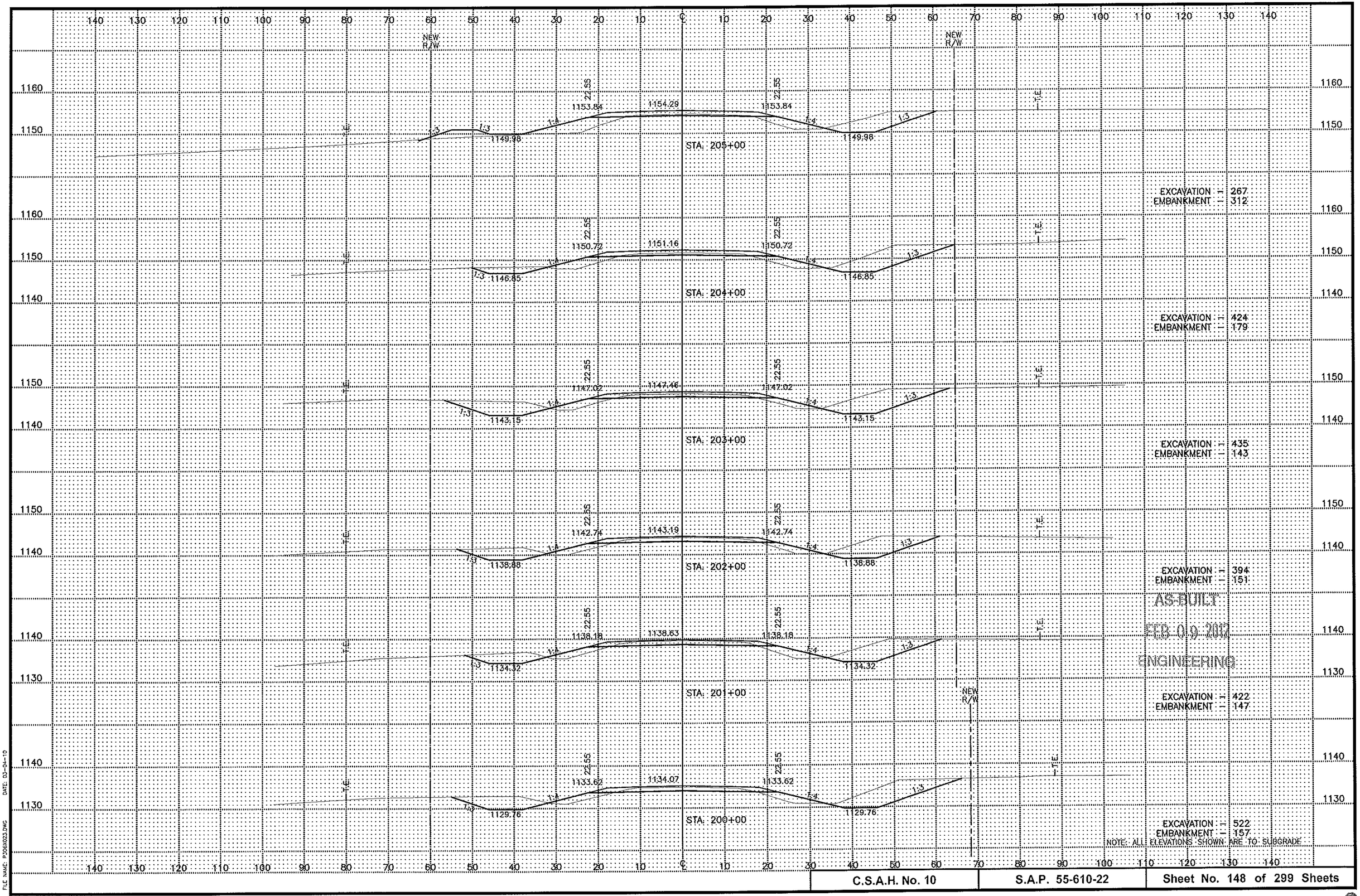
FILE NAME: P:\05\021.DWG



DATE: 03-04-10

FILE NAME: P305X022.DWG

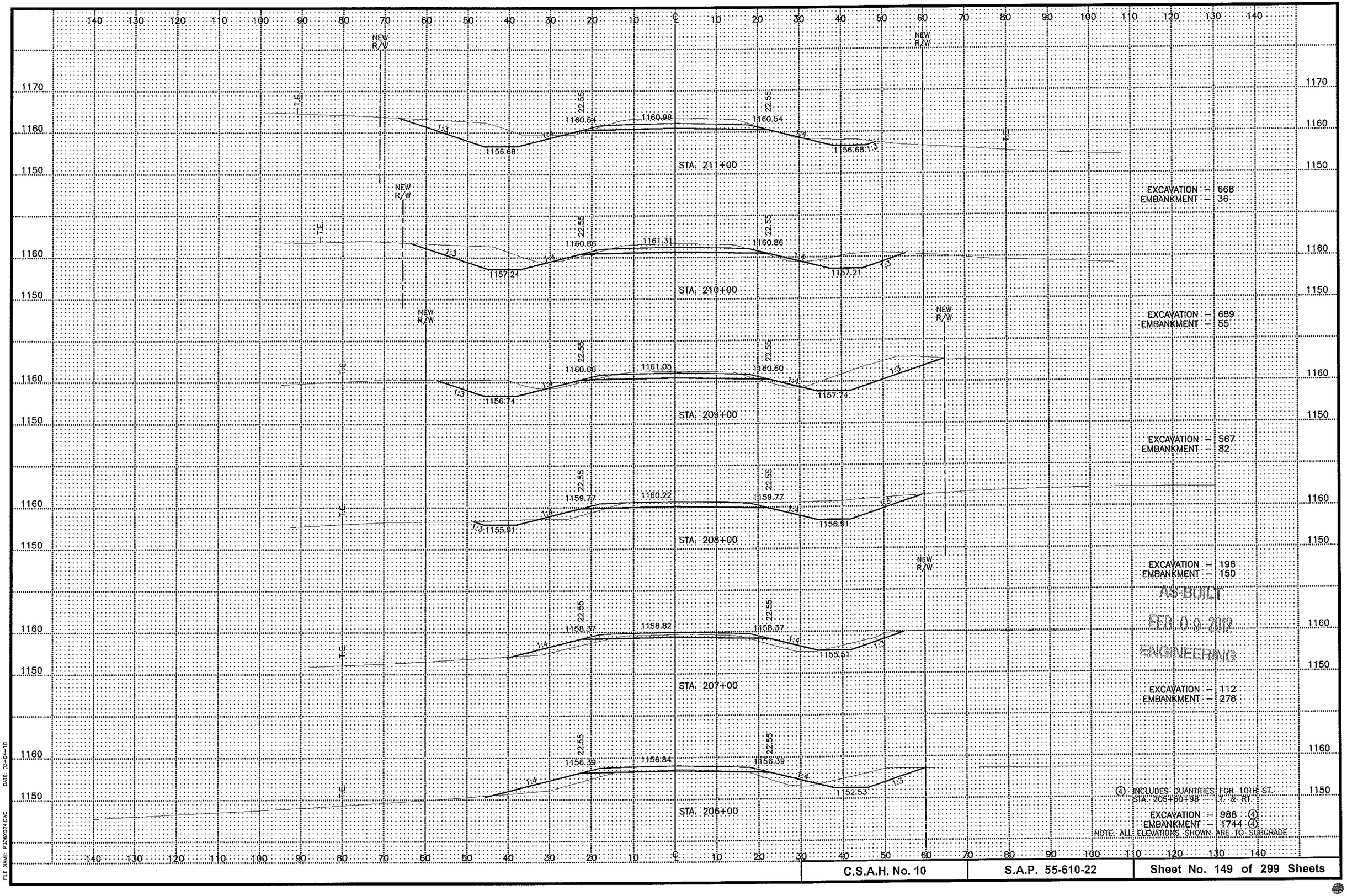
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 147 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X023.DWG

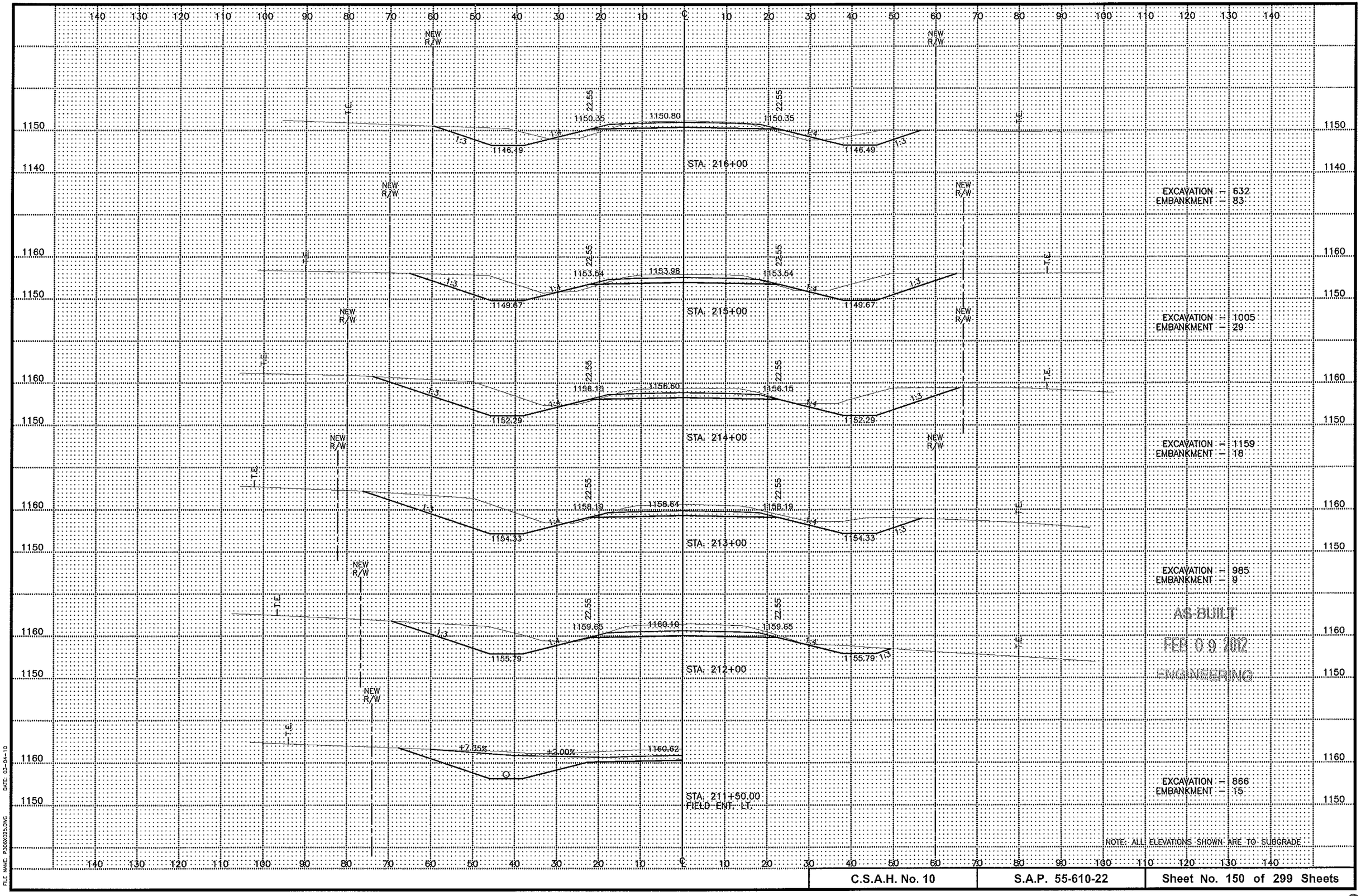
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 148 of 299 Sheets



AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P06SX024.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 149 of 299 Sheets



DATE: 03-04-10

FILE NAME: P356X025.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 150 of 299 Sheets

NEW R/W

NEW R/W

STA: 220+32.00
FIELD ENT.: LT.

-6.00%

-4.00%

1135.63

T.E.

STA: 220+00

22.55

1136.02

1136.47

1136.02

1132.16

1135.31

1:3

1:4

STA: 219+34.00
FIELD ENT.: RT.

1138.45

-4.00%

-13.86%

EXCAVATION = 247
EMBANKMENT = 162

STA: 219+00

1139.17

1139.62

1139.17

1135.51

1135.31

EXCAVATION = 299
EMBANKMENT = 143

AS-BUILT

FEB 09 2012

ENGINEERING

STA: 218+00

1142.90

1143.35

1142.90

1139.04

1139.04

EXCAVATION = 285
EMBANKMENT = 161

STA: 217+00

1146.66

1147.11

1146.66

1142.60

1142.60

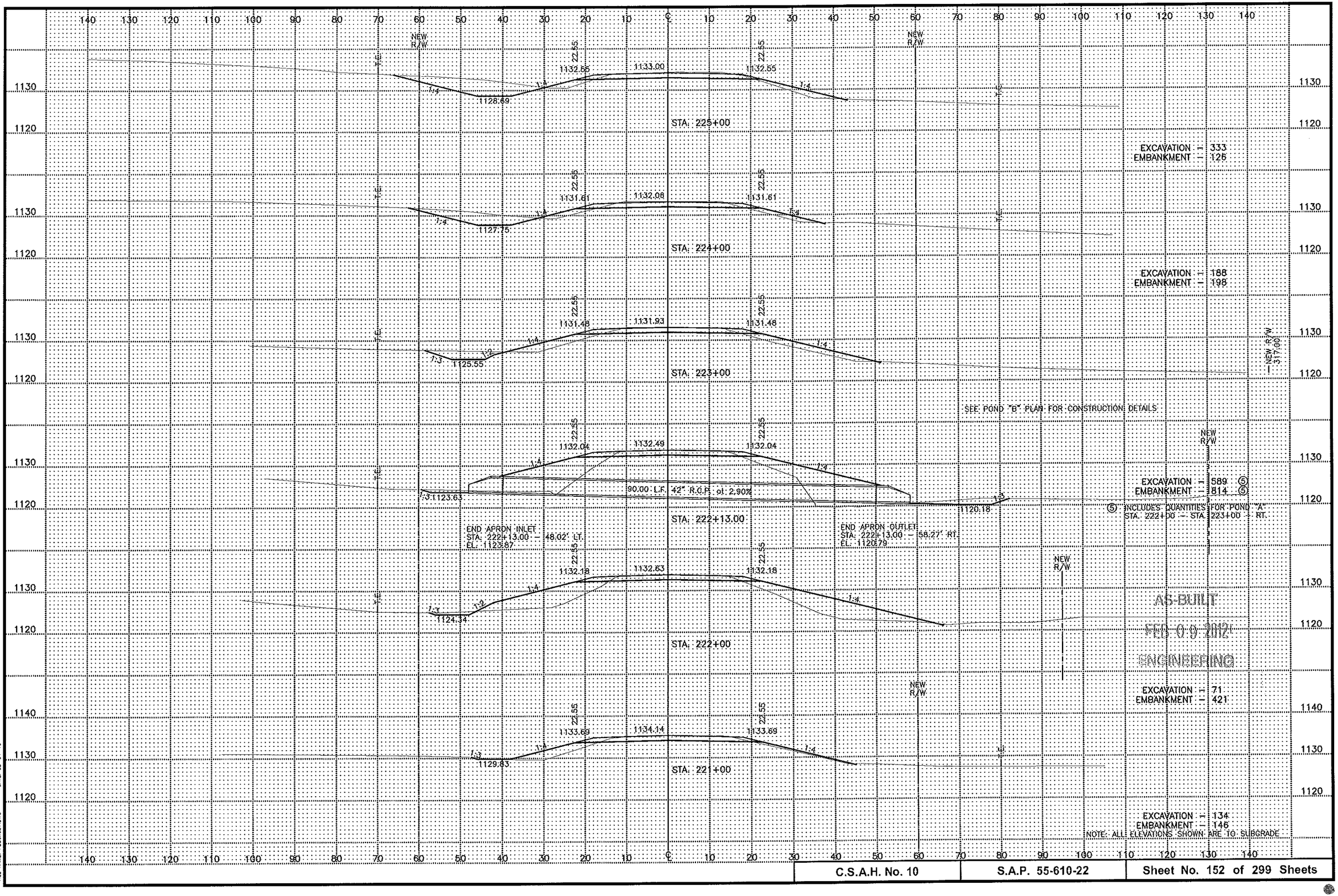
EXCAVATION = 383
EMBANKMENT = 114

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P3060026.DWG

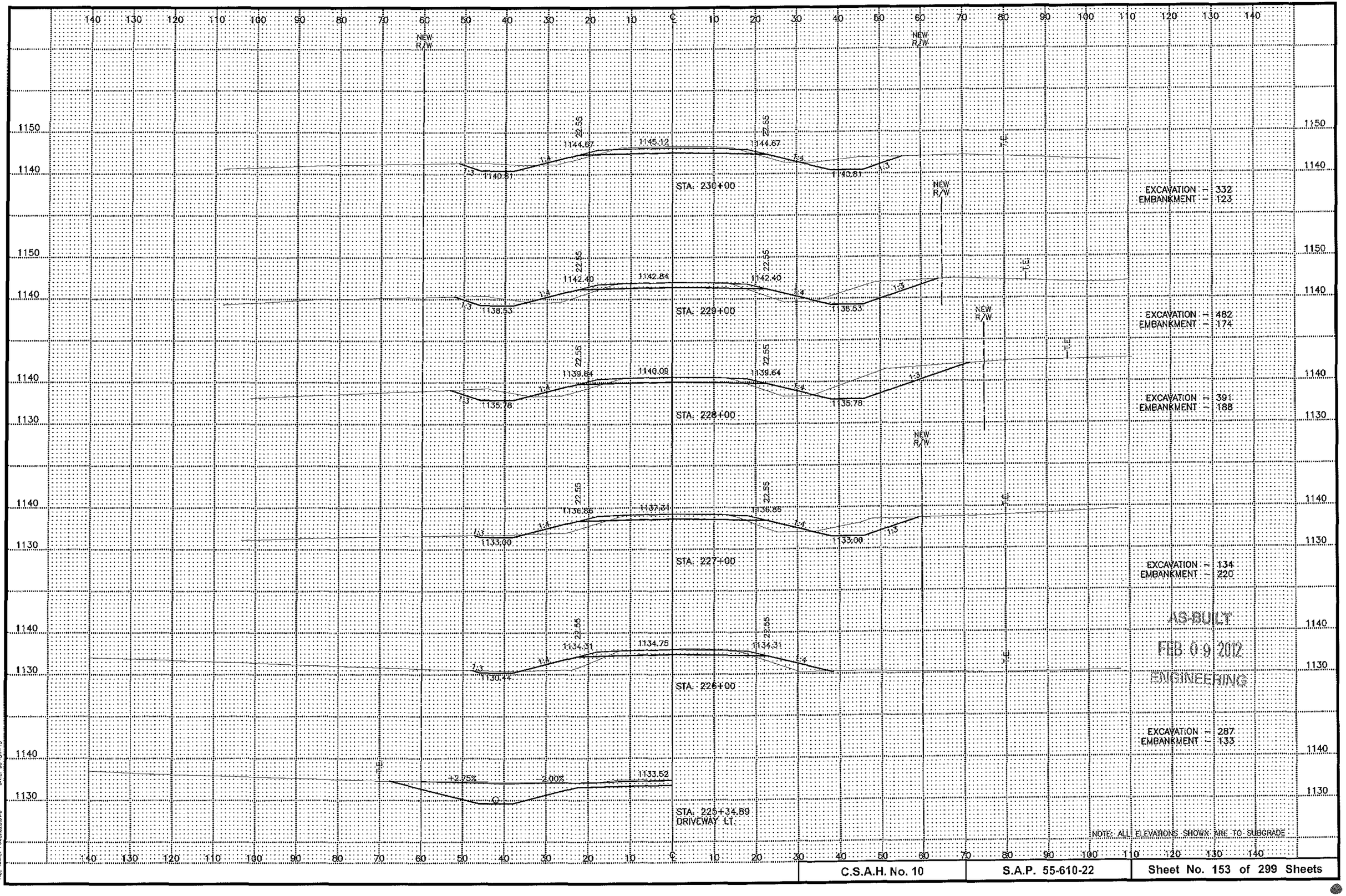
C.S.A.H. No. 10 | S.A.P. 55-610-22 | Sheet No. 151 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306027.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 152 of 299 Sheets



DATE: 03-01-10

FILE NAME: P060K029.DWG

C.S.A.H. No. 10 | S.A.P. 55-610-22 | Sheet No. 153 of 299 Sheets

STA. 235+00

EXCAVATION = 1384
EMBANKMENT = 9

STA. 234+00

EXCAVATION = 1365
EMBANKMENT = 3

STA. 233+00

EXCAVATION = 1156
EMBANKMENT = 7

STA. 232+00

EXCAVATION = 799
EMBANKMENT = 30

STA. 231+80.00
FIELD ENT. LT.
FIELD ENT. RT.

STA. 231+00

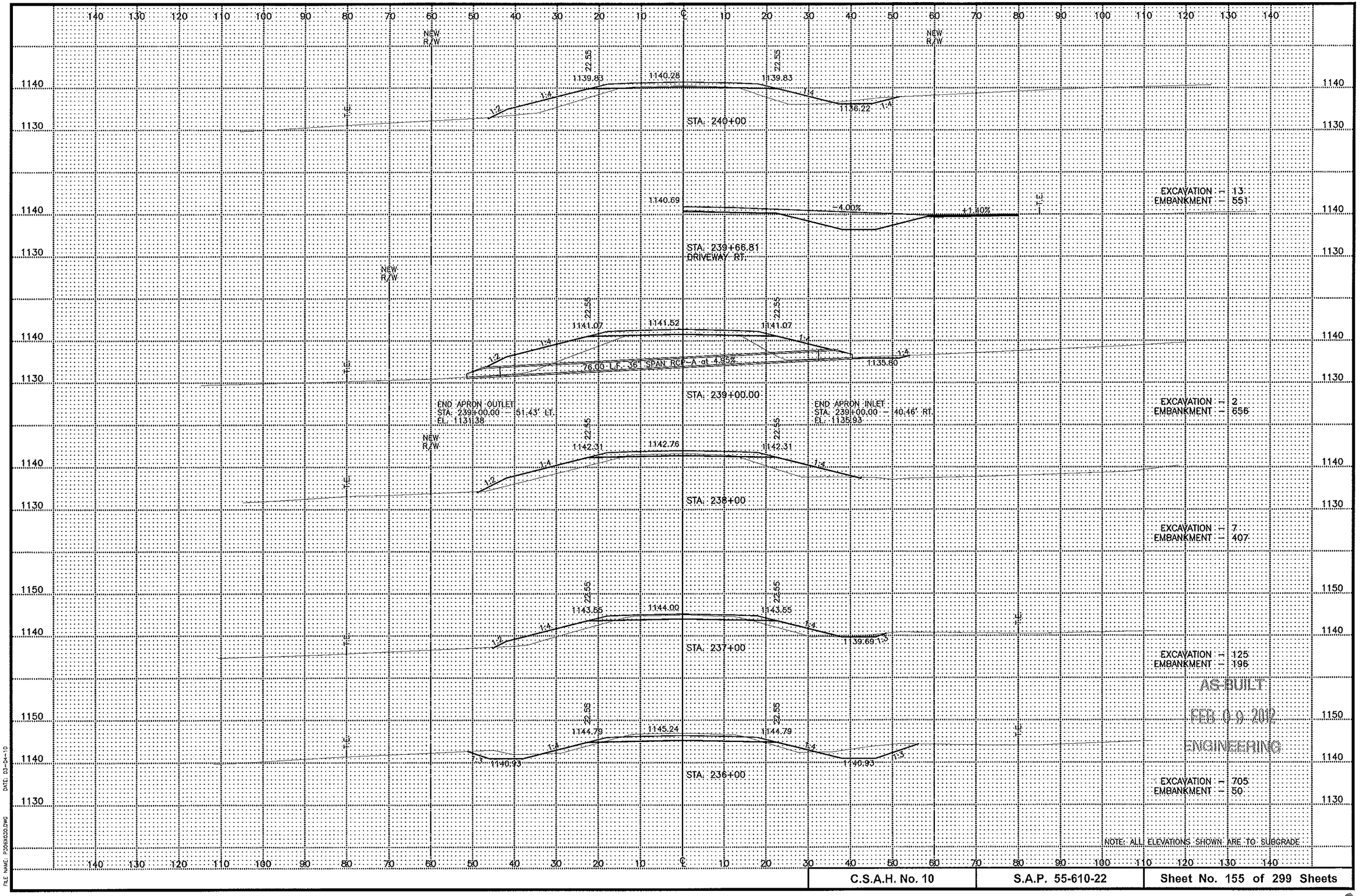
EXCAVATION = 386
EMBANKMENT = 65

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE.

AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P306Y225.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 154 of 299 Sheets



AS-BUILT

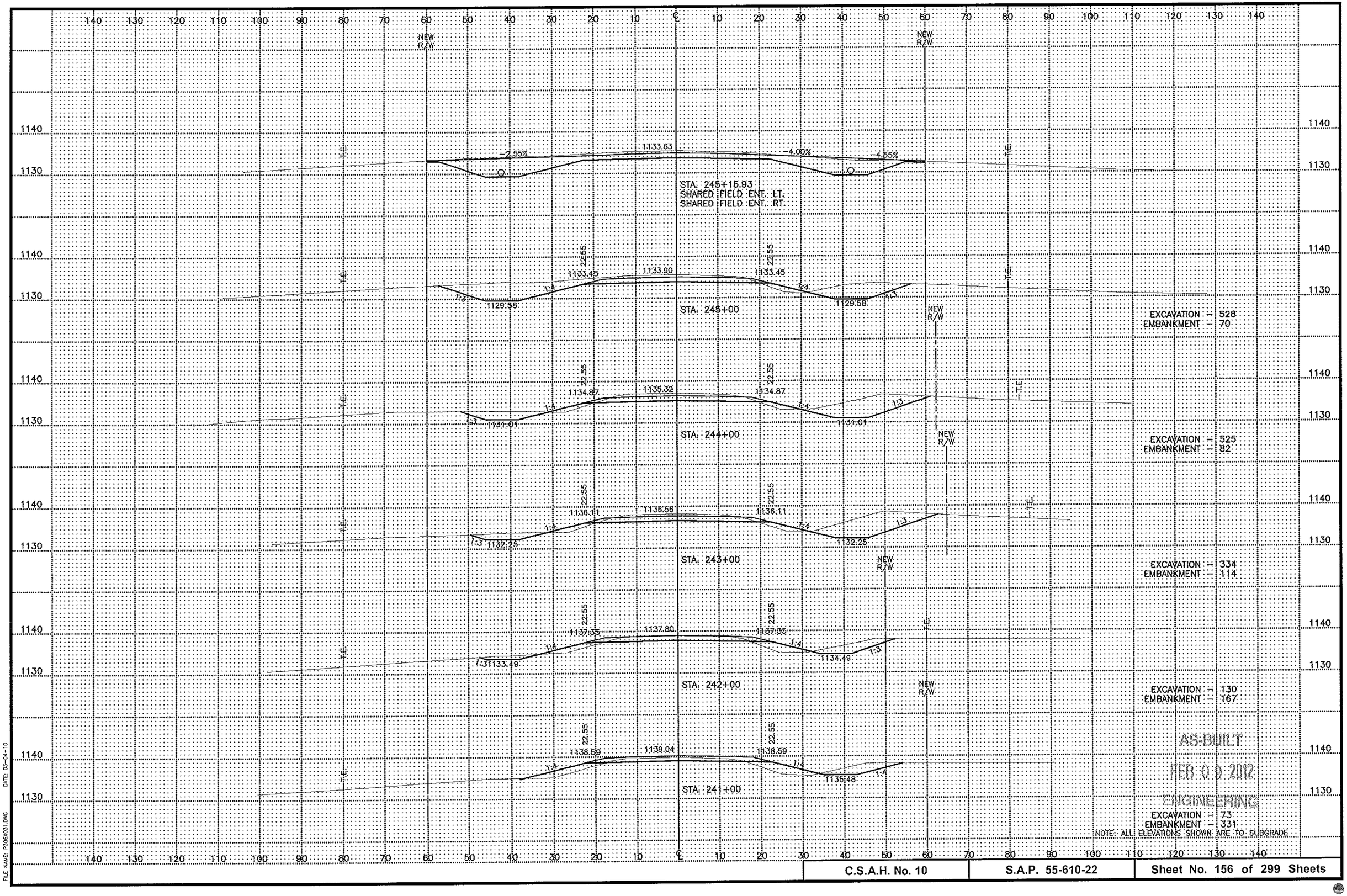
FEB 09 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P306X020.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 155 of 299 Sheets



AS-BUILT

FEB 09 2012

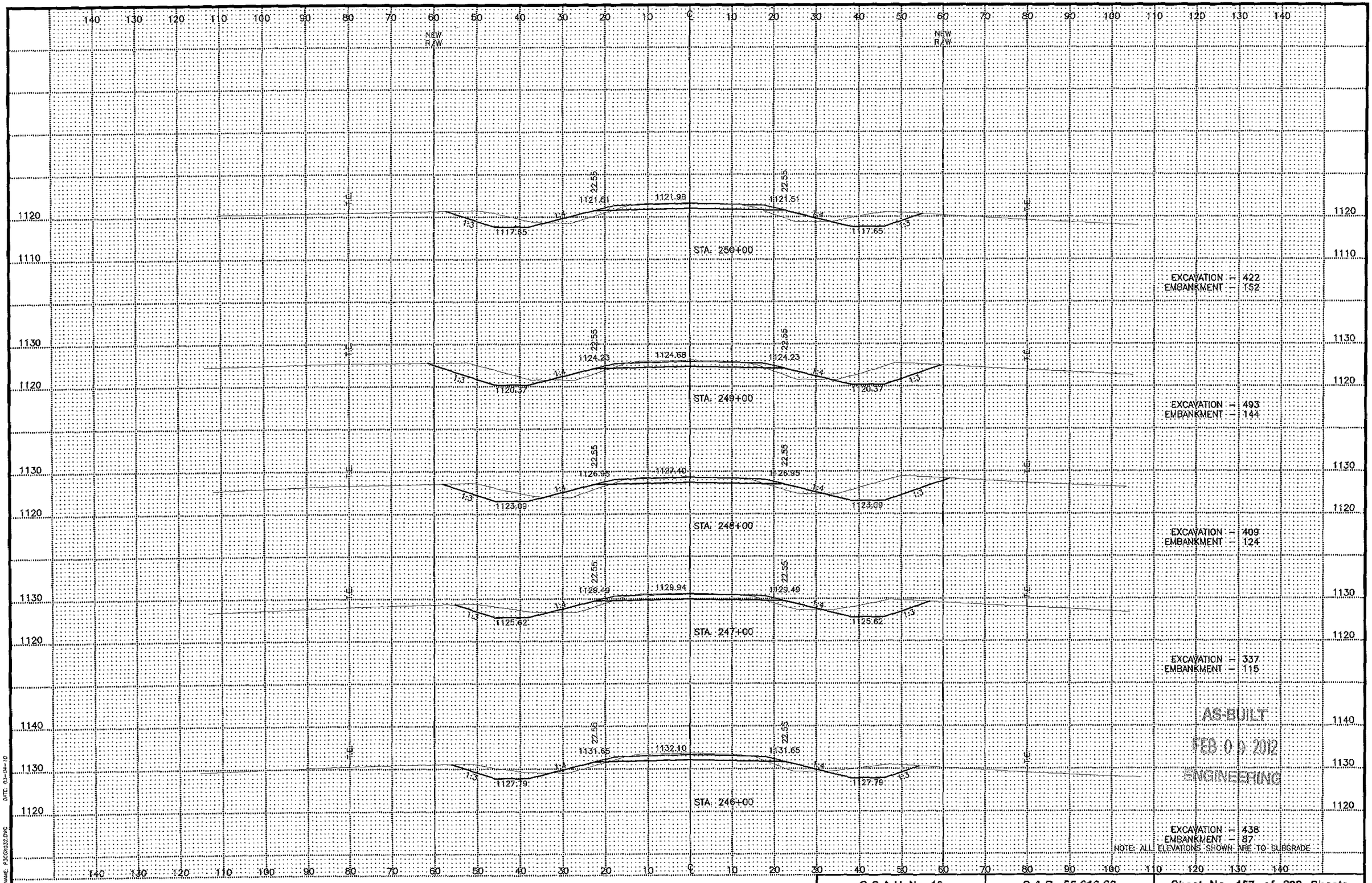
ENGINEERING

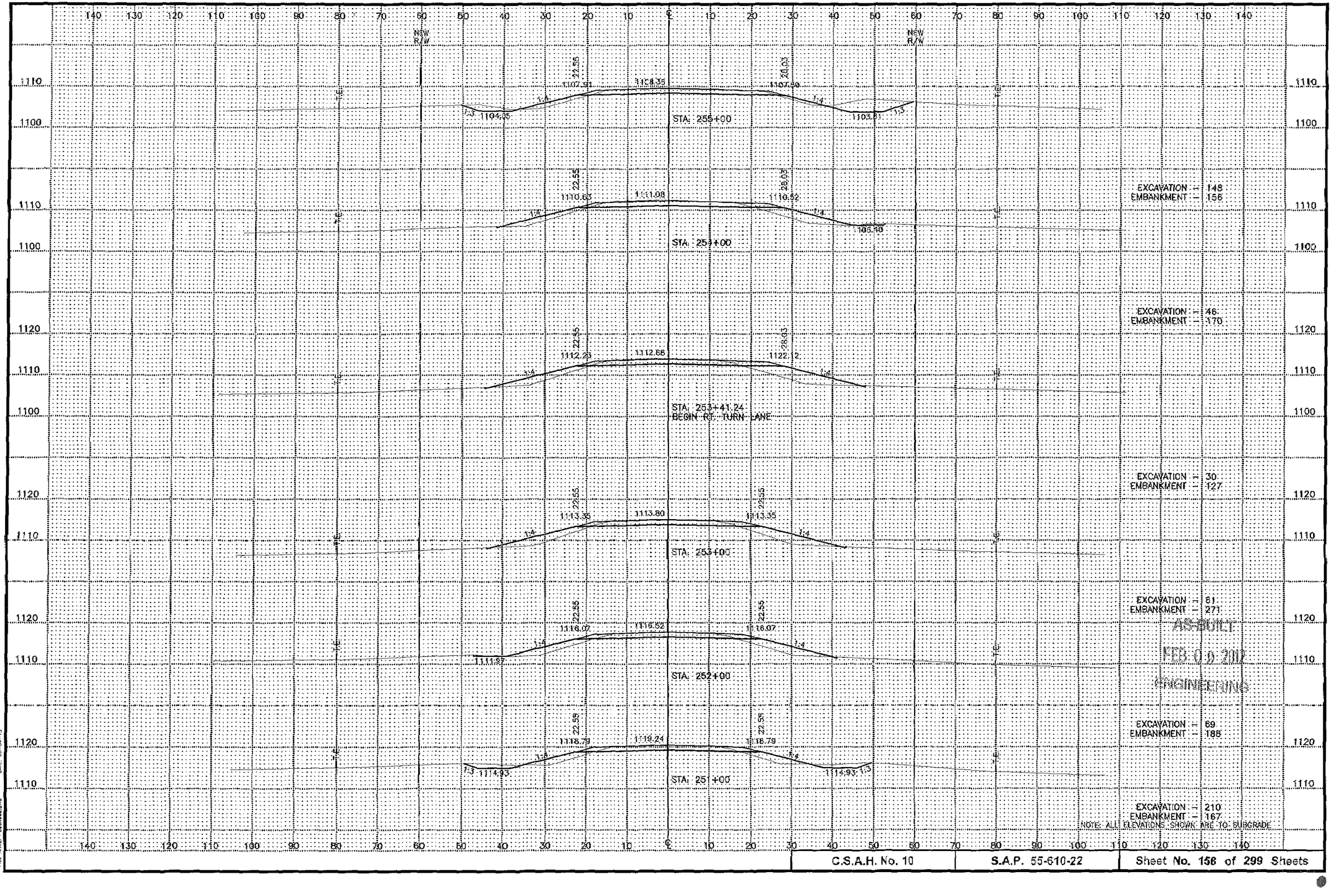
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

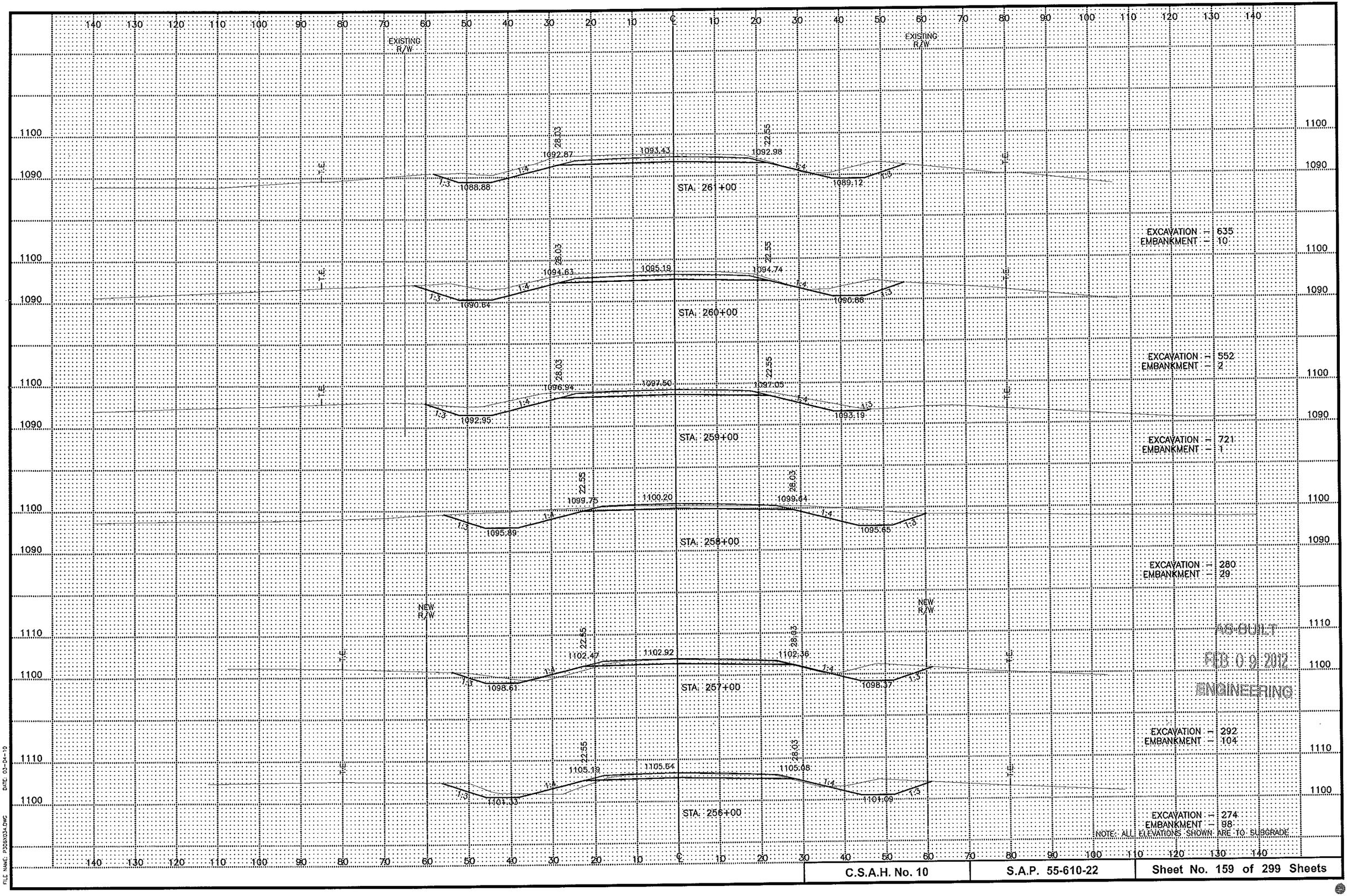
FILE NAME: P3060031.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 156 of 299 Sheets


NEW R/W
NEW R/W
1121.61
1121.98
1121.51
1117.65
1117.65
22.55
STA. 250+00
EXCAVATION = 422
EMBANKMENT = 152
1124.23
1124.68
1124.23
1120.37
1120.37
STA. 249+00
EXCAVATION = 493
EMBANKMENT = 144
1126.95
1127.40
1126.95
1123.09
1123.09
STA. 248+00
EXCAVATION = 409
EMBANKMENT = 124
1129.49
1129.94
1129.49
1125.62
1125.62
STA. 247+00
EXCAVATION = 337
EMBANKMENT = 115
1131.65
1132.10
1131.65
1127.79
1127.79
STA. 246+00
EXCAVATION = 438
EMBANKMENT = 87
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE
AS-BUILT
FEB 0 9 2012
ENGINEERING
DATE 03-04-10
FILE NAME P305R332.DWG
C.S.A.H. No. 10
S.A.P. 55-610-22
Sheet No. 157 of 299 Sheets



C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 156 of 299 Sheets



AS-BUILT

FEB 09 2012

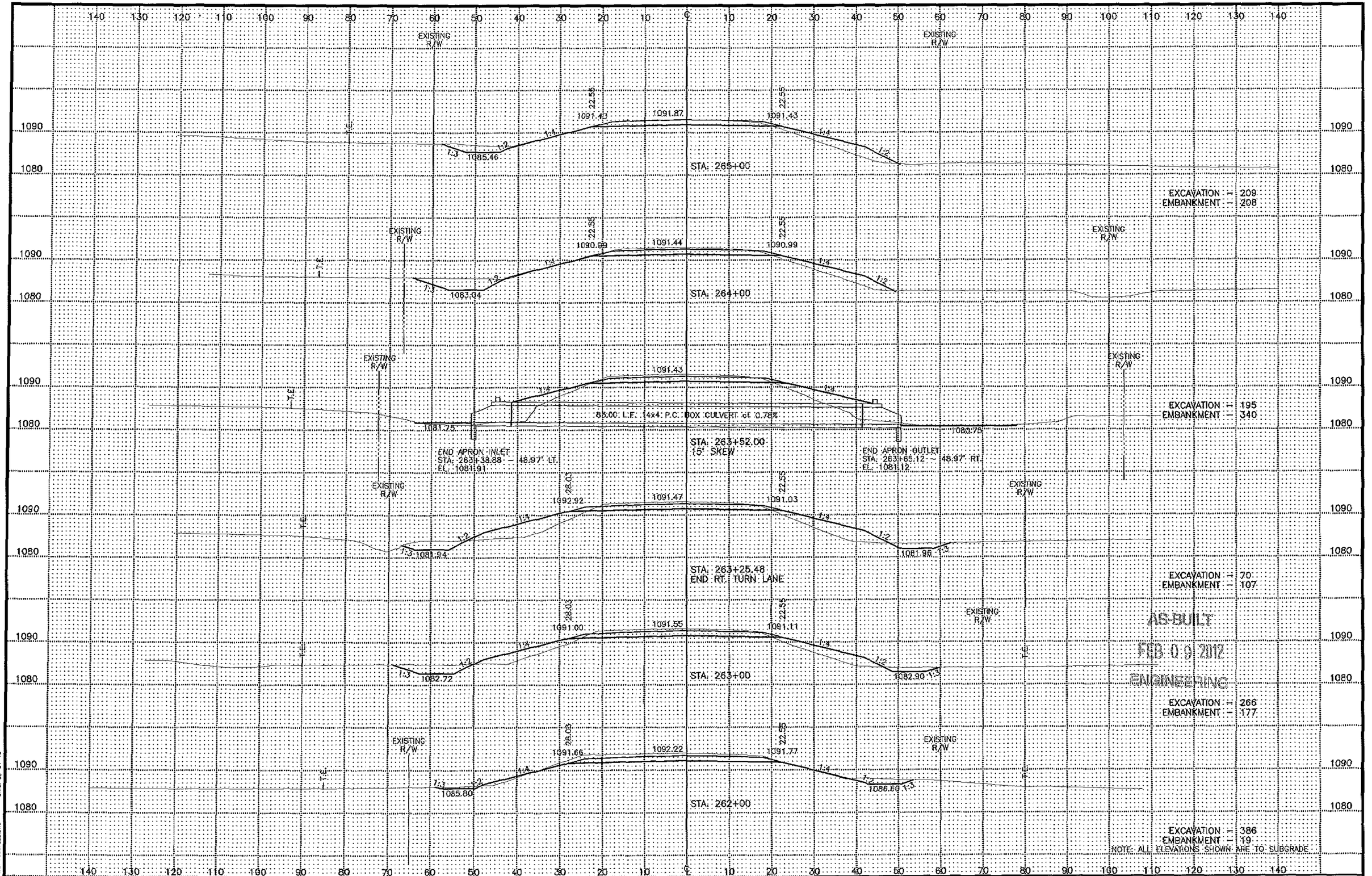
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 159 of 299 Sheets

DATE: 03-04-10

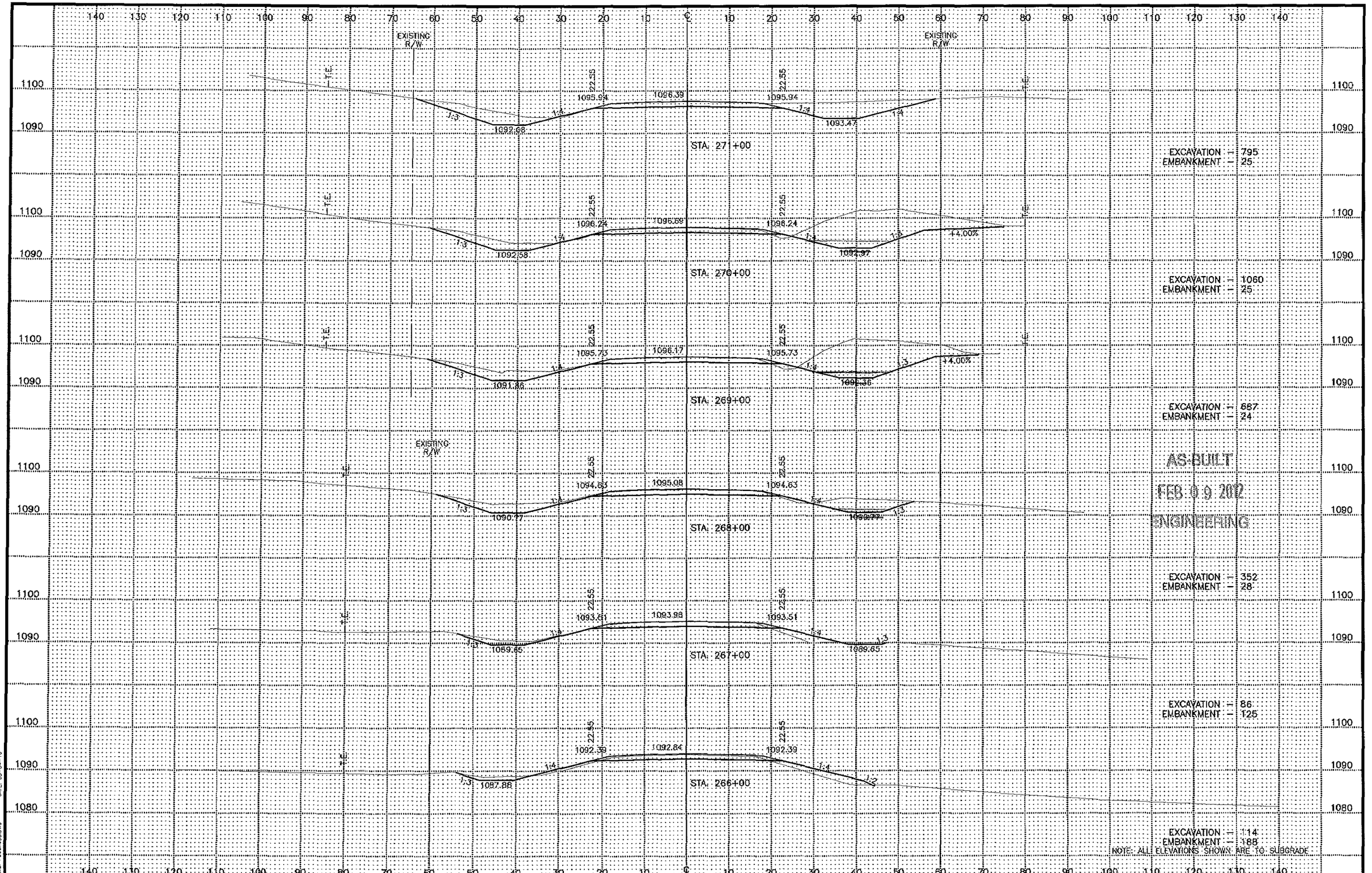
FILE NAME: P:\06X034.DWG



AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P:\060035.DWG

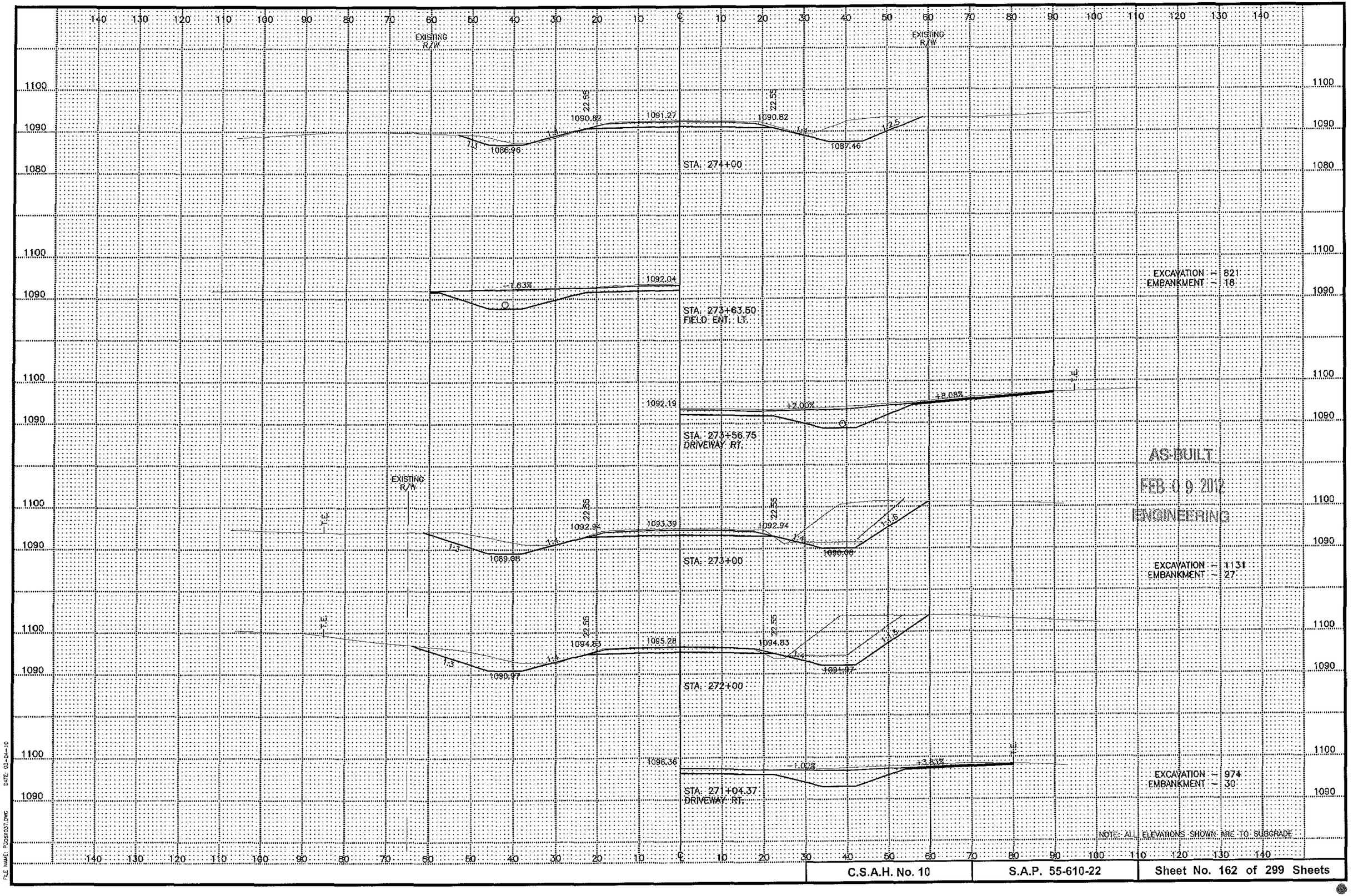
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 160 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306K03S.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 161 of 299 Sheets



DATE: 03-04-10

FILE NAME: PQ06X037.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 162 of 299 Sheets

STA. 106+94.94 – STA. 277+96.25
UNCLASSIFIED EXC. = 70683 CU. YDS.
TOPSOIL EXC. = 15103 CU. YDS.
EMBANKMENT = 52997 CU. YDS.

EXISTING R/W

1085.62

STA. 277+96.25 – 30° SKEW
BEGIN BRIDGE No. 55583

EXISTING R/W

EXCAVATION = 0
EMBANKMENT = 0

EXISTING R/W

T.E. 1086.82

21.46

1085.64 1086.06 1085.64

21.46

STA. 277+00

AS-BUILT

FEB 09 2012

ENGINEERING

DRIVEWAY GRADED UNDER PREVIOUS CONTRACT

-4.56%

1086.75

STA. 276+45.00
DRIVEWAY LT.

EXCAVATION = 0
EMBANKMENT = 0

21.46

1087.11 1087.54 1087.11

21.46

STA. 276+00

EXISTING R/W

EXCAVATION = 31
EMBANKMENT = 28

22.55

1088.70 1089.15 1088.70

22.55

1:4

1:4

1083.20

STA. 275+00

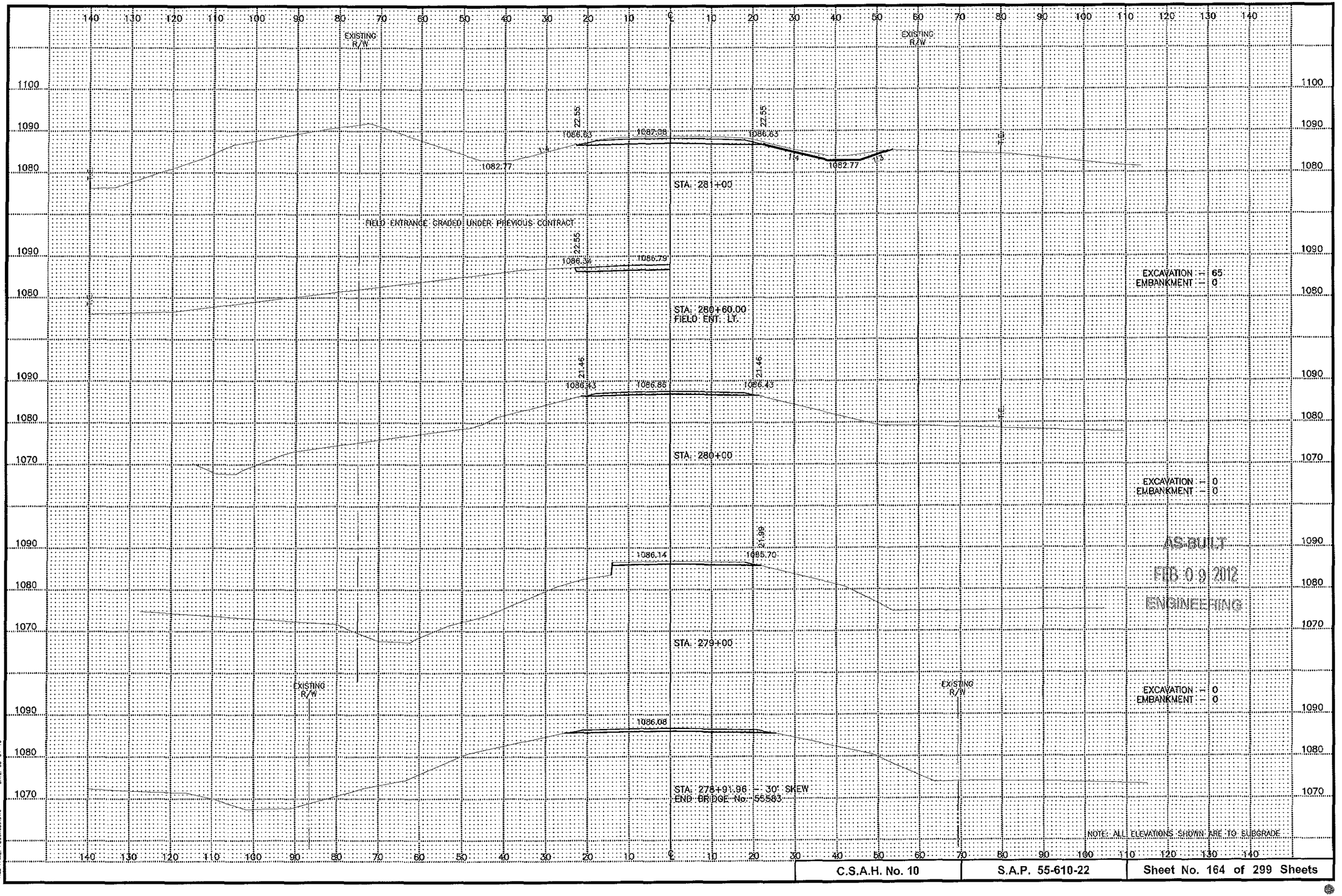
EXCAVATION = 269
EMBANKMENT = 73

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P5060538.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 163 of 299 Sheets



DATE: 03-04-10

FILE NAME: P:\55610\03\03.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 164 of 299 Sheets

NEW R/W

EXISTING R/W

STA. 285+00

1084.93 | 1089.51 | 1089.96 | 1089.51 | 1084.11

22.55 | 22.55

1:2.5 | 1:4 | 1:4 | 1:3

T.E.

EXCAVATION = 1835
EMBANKMENT = 0

STA. 284+00

1084.93 | 1088.79 | 1089.24 | 1088.79 | 1084.93

22.55 | 22.55

1:2 | 1:4 | 1:4 | 1:3

STA. 283+70.50
FIELD: ENT. RT.

1089.03 | 4.00% | -5.90%

EXCAVATION = 1942
EMBANKMENT = 0

STA. 283+00

1084.21 | 1088.07 | 1088.52 | 1088.07 | 1084.21

22.55 | 22.55

1:2 | 1:4 | 1:4 | 1:3

AS-BUILT
FEB 09 2012
ENGINEERING

EXCAVATION = 1533
EMBANKMENT = 0

STA. 282+00

1083.49 | 1087.35 | 1087.80 | 1087.35 | 1083.49

22.55 | 22.55

1:2.5 | 1:4 | 1:4 | 1:3

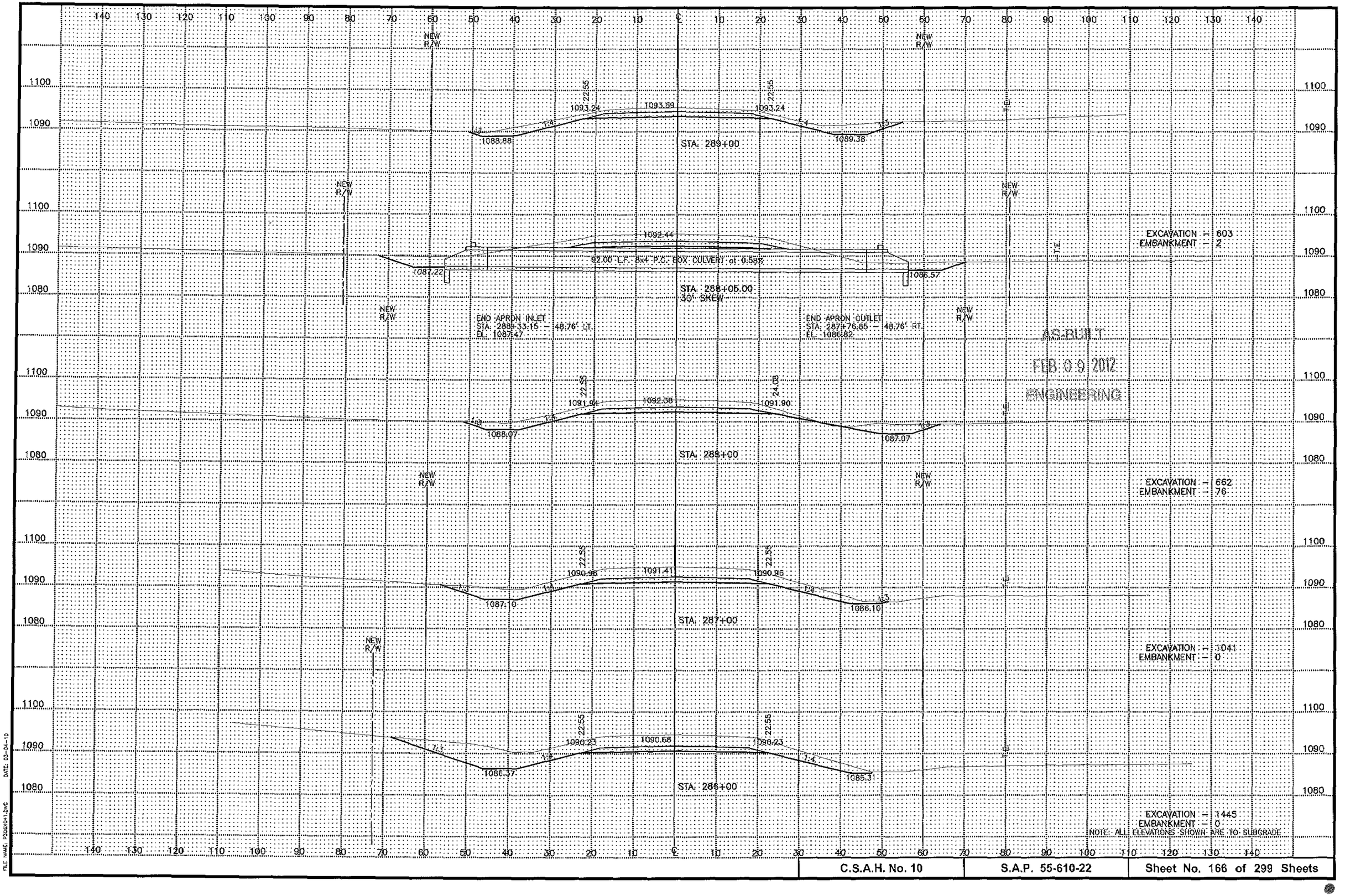
EXCAVATION = 661
EMBANKMENT = 0

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P3000040.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 165 of 299 Sheets



DATE: 03-04-10

FILE NAME: P2610041.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 166 of 299 Sheets

STA. 295+00

NEW R/W

22.55

1106.37 — 1106.82 — 1106.37

1102.51 — 1102.51

1:3 — 1:4 — 1:4 — 1:4

T.E.

EXCAVATION – 463
EMBANKMENT – 16

STA. 294+00

22.55

1103.97 — 1104.42 — 1103.97

1100.11 — 1100.11

7:3 — 1:4 — 1:4 — 1:3

T.E.

AS-BUILT
FEB 09 2012
ENGINEERING

EXCAVATION – 261
EMBANKMENT – 19

STA. 293+00

NEW R/W

22.55

1101.57 — 1102.02 — 1101.57

1096.22 — 1097.71

1:4 — 1:4 — 1:4 — 1:3

T.E.

EXCAVATION – 349
EMBANKMENT – 31

STA. 292+00

NEW R/W

22.55

1099.17 — 1099.62 — 1099.17

1093.92 — 1095.31

1:4 — 1:4 — 1:4 — 1:3

T.E.

EXCAVATION – 469
EMBANKMENT – 37

STA. 291+00

NEW R/W

22.55

1096.87 — 1097.31 — 1096.87

1091.24 — 1093.00

1:4 — 1:4 — 1:4 — 1:3

T.E.

EXCAVATION – 430
EMBANKMENT – 20

STA. 290+00.00
FIELD ENT. RT.

22.55

1094.89 — 1095.33 — −1.00% — +4.60%

1089.81

1:4 — 1:4

T.E.

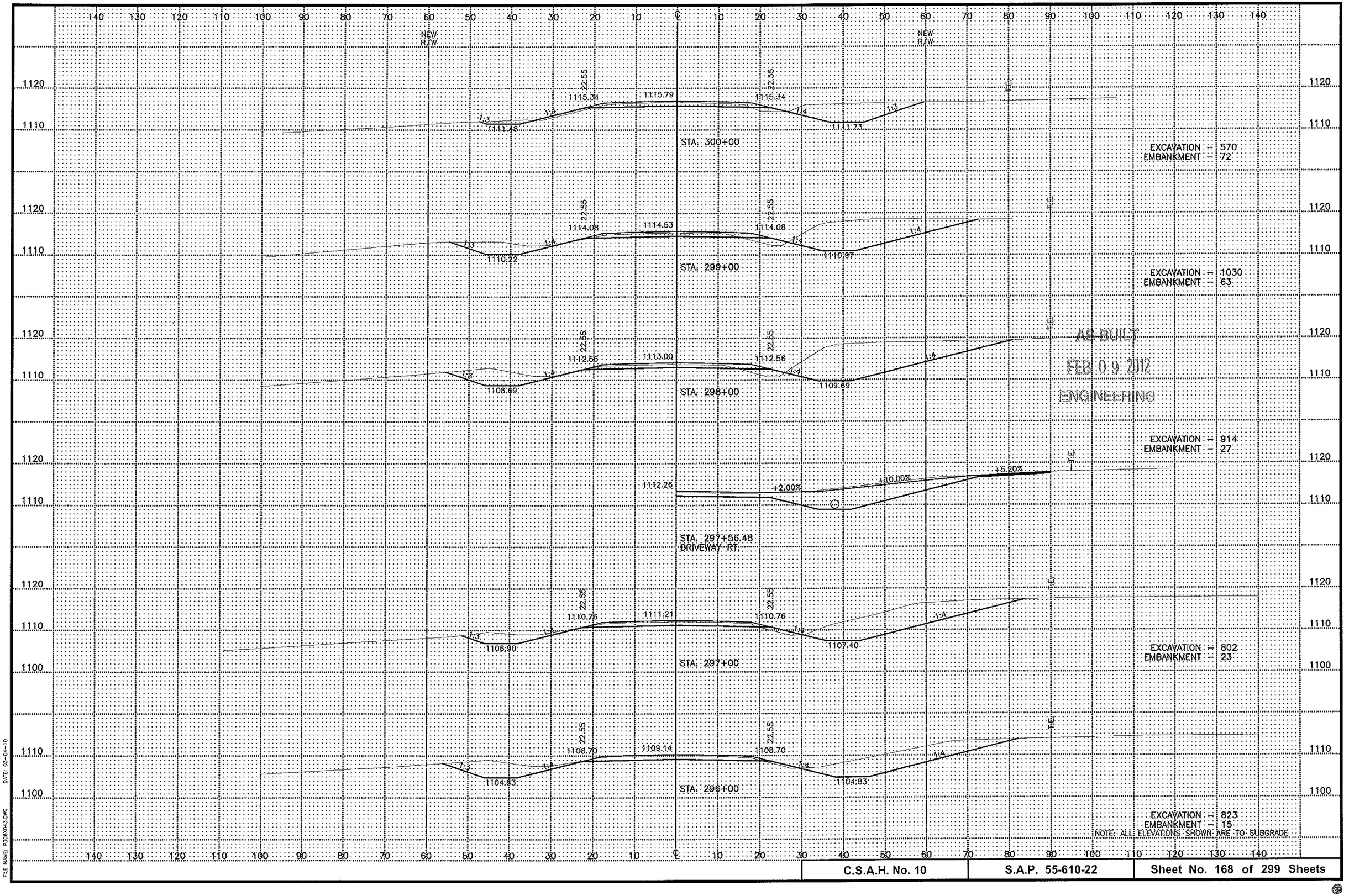
EXCAVATION – 447
EMBANKMENT – 1

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 167 of 299 Sheets

DATE: 03-04-10

FILE NAME: P0060042.DWG



DATE: 03-04-10

FILE NAME: P:\06K\CK-3.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 168 of 299 Sheets

NEW R/W

NEW R/W

1118.61

-4.00%

-10.20%

STA. 304+50.00
FIELD ENT. RT.

22.55

1118.10

1118.55

1118.10

1:3

1:4

1:4

1:3

1114.24

1114.24

STA. 304+00

AS-BUILT

FEB 09 2012

ENGINEERING

EXCAVATION – 168
EMBANKMENT – 164

22.55

1117.68

1118.03

1117.68

1:3

1:4

1:4

1:3

1113.72

1113.72

STA. 303+00

EXCAVATION – 129
EMBANKMENT – 178

22.55

1117.05

1117.50

1117.05

1:3

1:4

1:4

1:3

1113.19

1113.19

STA. 302+00

-2.83%

1117.23

STA. 301+58.16
DRIVEWAY LT.

EXCAVATION – 220
EMBANKMENT – 115

22.55

1116.33

1116.78

1116.33

1:4

1:4

1:3

1112.47

STA. 301+00

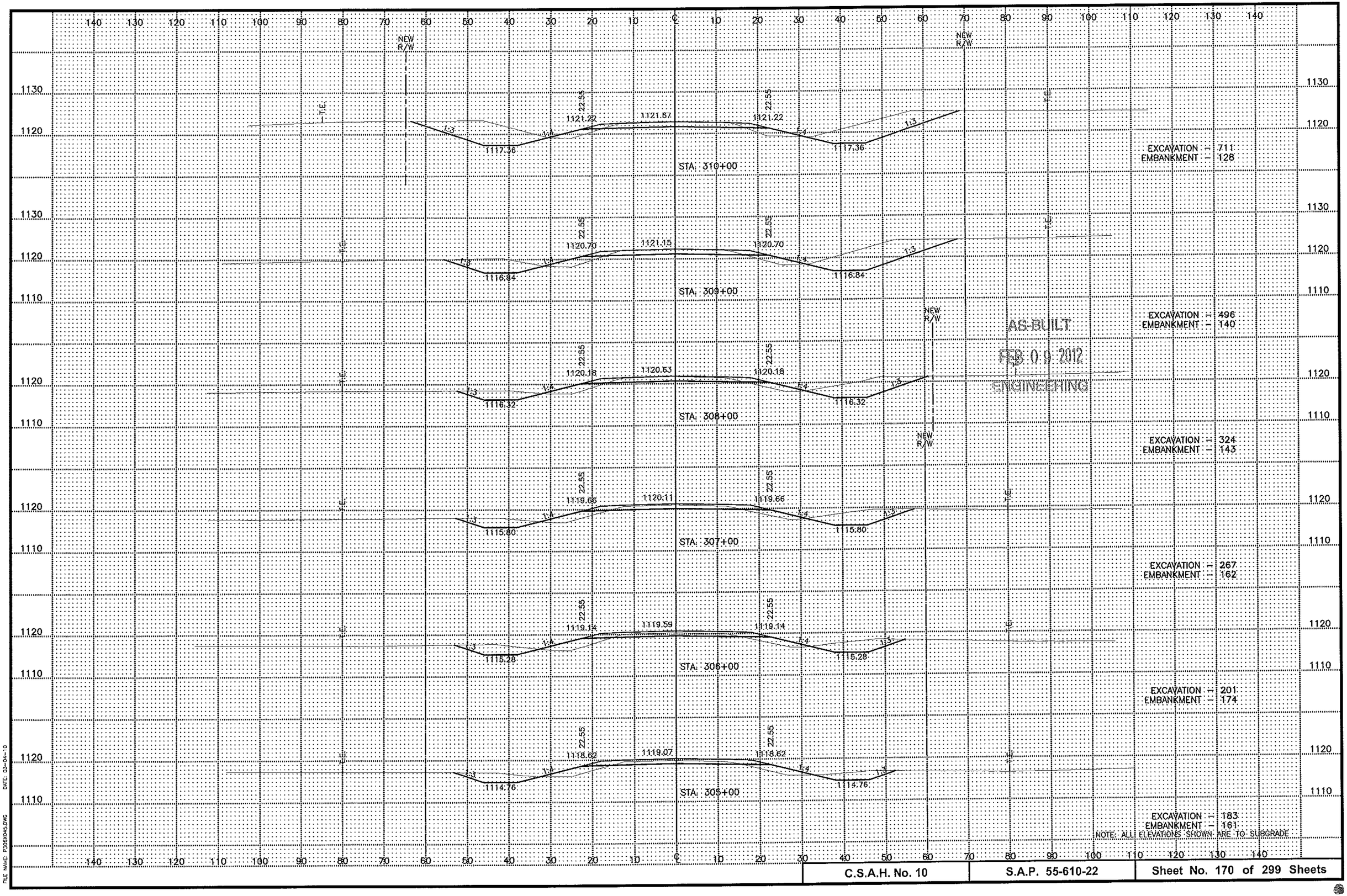
EXCAVATION – 249
EMBANKMENT – 131

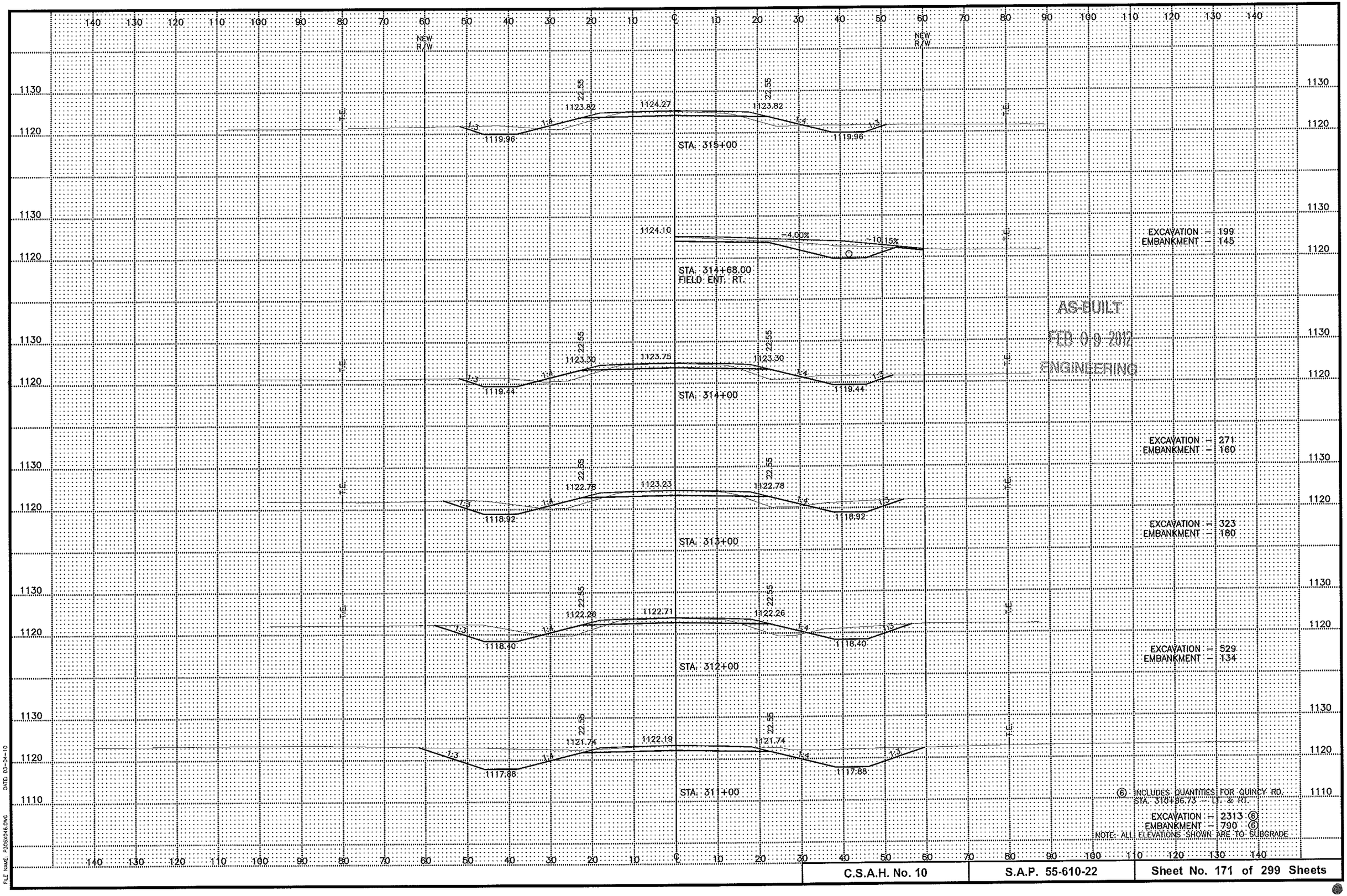
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 169 of 299 Sheets

DATE: 03-04-10

FILE NAME: P3060044.DWG


140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140
1130
1120
1110
NEW R/W
T.E.
22.55
1121.22
1121.67
1117.36
STA. 310+00
EXCAVATION = 711
EMBANKMENT = 128
1120.70
1121.15
1116.84
STA. 309+00
EXCAVATION = 496
EMBANKMENT = 140
1120.18
1120.63
1116.32
STA. 308+00
EXCAVATION = 324
EMBANKMENT = 143
1119.66
1120.11
1115.80
STA. 307+00
EXCAVATION = 267
EMBANKMENT = 162
1119.14
1119.59
1115.28
STA. 306+00
EXCAVATION = 201
EMBANKMENT = 174
1118.62
1119.07
1114.76
STA. 305+00
EXCAVATION = 183
EMBANKMENT = 161
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE
AS-BUILT
FEB 09 2012
ENGINEERING
DATE: 03-04-10
FILE NAME: P306X045.DWG
C.S.A.H. No. 10
S.A.P. 55-610-22
Sheet No. 170 of 299 Sheets



AS BUILT
FEB 09 2017
ENGINEERING

⑥ INCLUDES QUANTITIES FOR QUINCY RD. STA. 310+86.73 — Lt. & Rt.

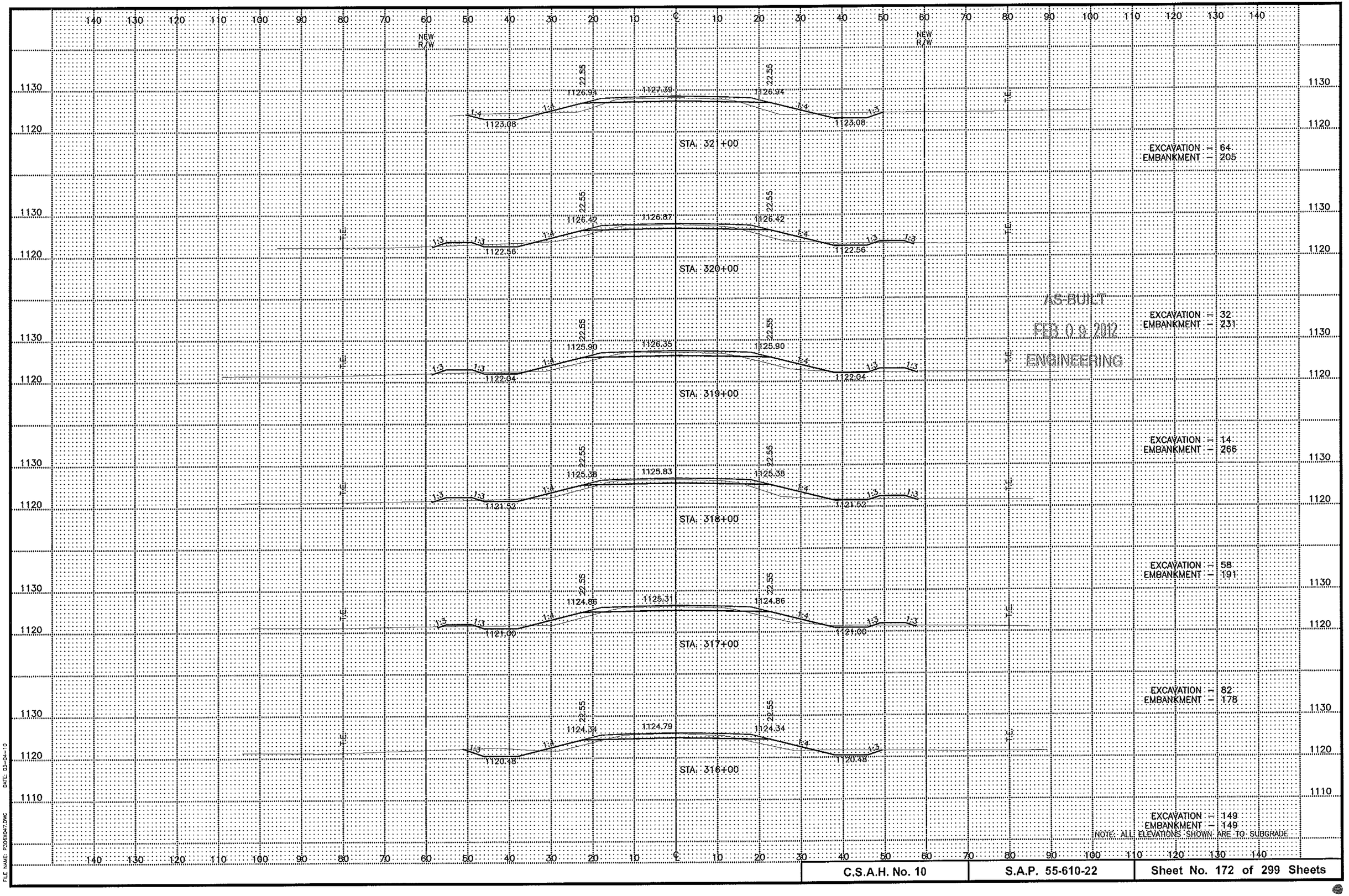
EXCAVATION = 2313 ⑥
EMBANKMENT = 790 ⑥

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P305A046.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 171 of 299 Sheets

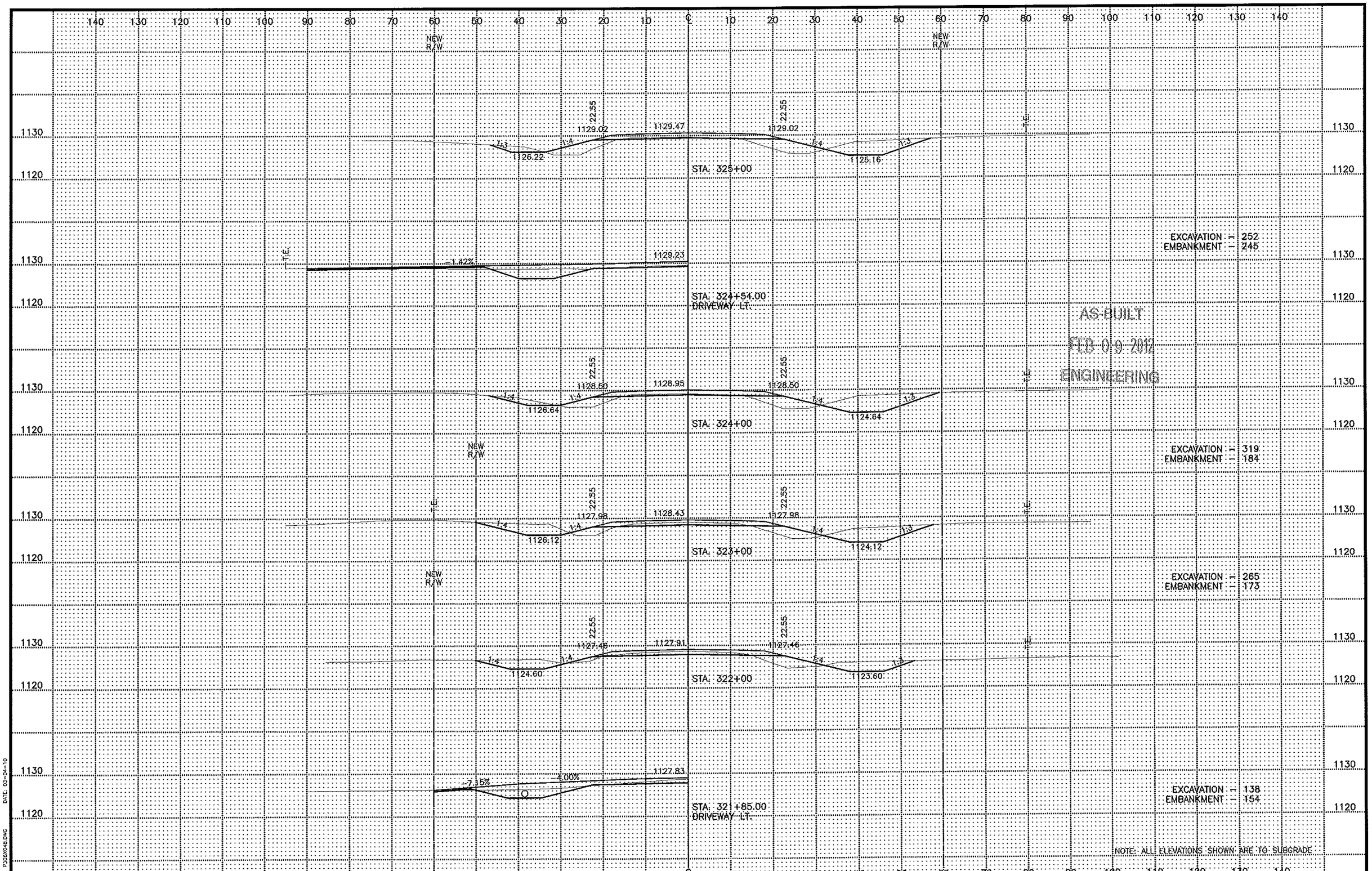


AS-BUILT
FEB 0 9 2012
ENGINEERING

DATE: 03-04-10

FILE NAME: P3080047.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 172 of 299 Sheets

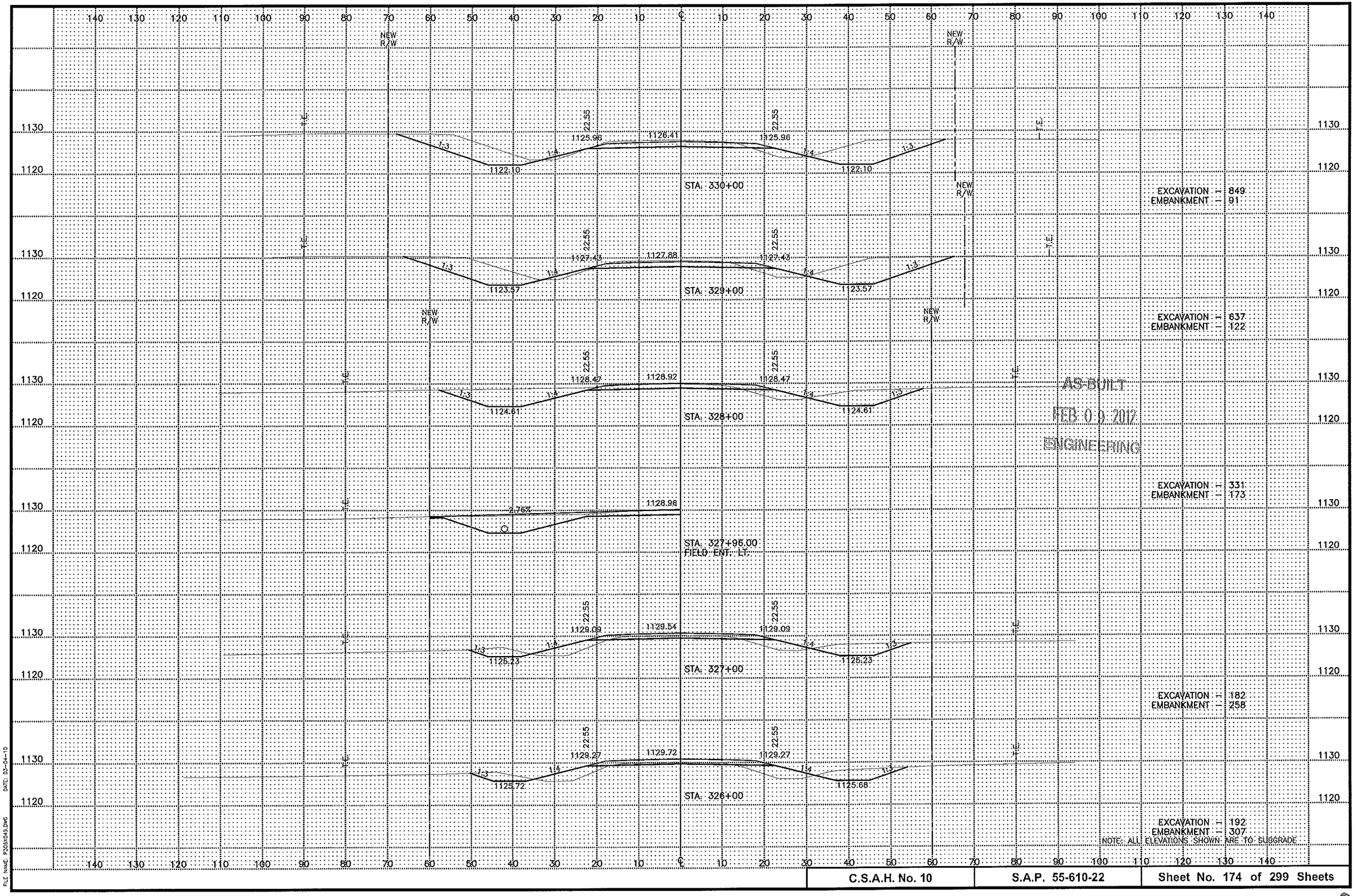


AS-BUILT
FEB 09 2012
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10
FILE NAME: P:\DGN\048.DWG

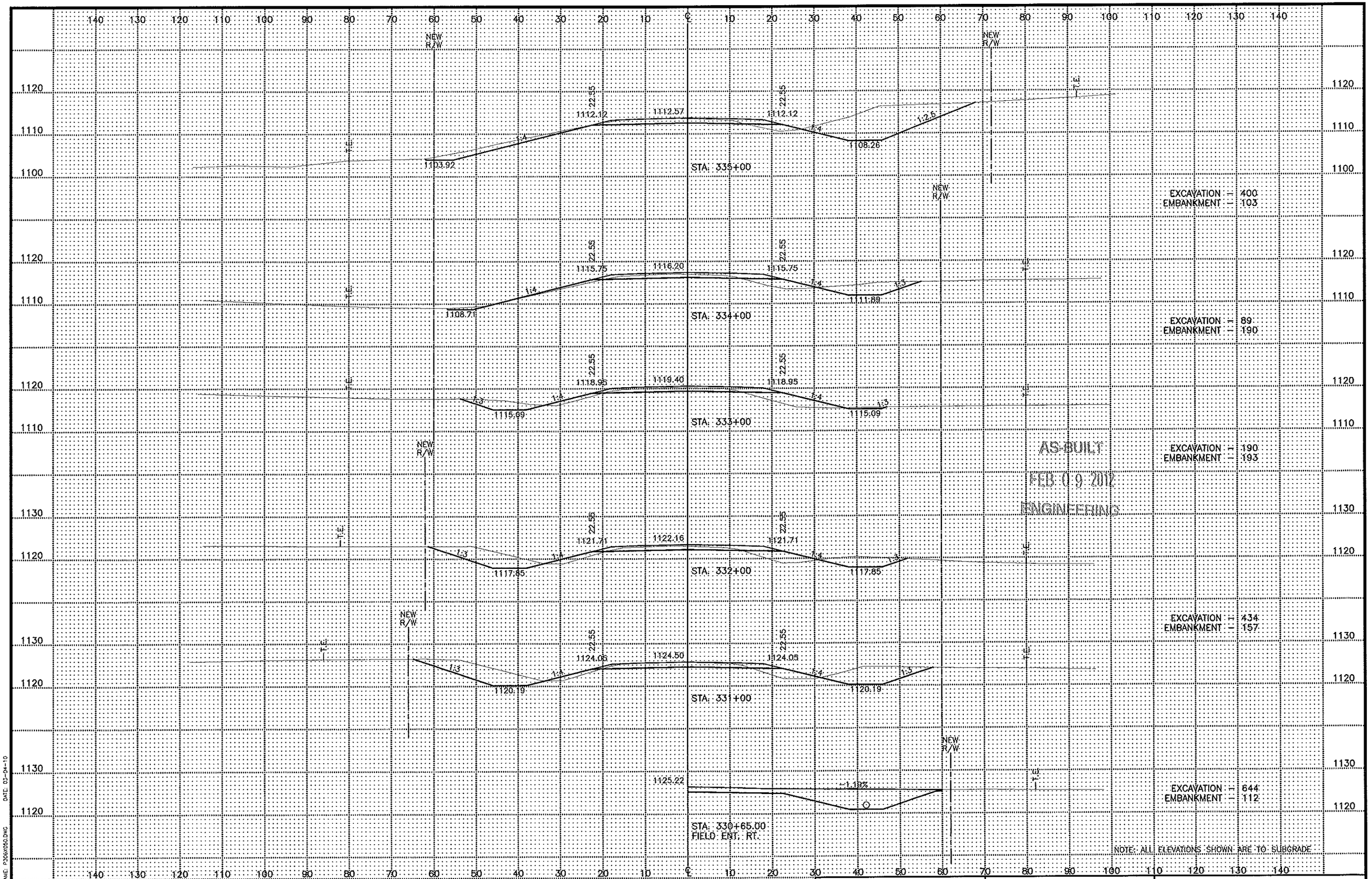
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 173 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X049.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 174 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306#050.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 175 of 299 Sheets

END APRON INLET
STA: 339+36.33 – 48.67' LT.
WEIR EL. 1089.60
EL. 1087.10

END APRON OUTLET
STA: 340+33.67 – 48.67' RT.
EL. 1086.70

NEW R/W

105.00 L.F. 14x4 P.C. BOX CULVERT at 0.29%

STA: 339+85.00
45° SKEW

1095.63

T.E.

STA: 339+00

1097.33 1097.78 1097.33 1092.88 1089.35

22.55

1:4 1:4 1:3 1:2

EXCAVATION – 159
EMBANKMENT – 387

STA: 338+00

1100.81 1100.96 1100.51 1096.65

EXCAVATION – 948
EMBANKMENT – 140

STA: 337+00

1104.32 1104.77 1104.32 1100.46 1097.66

EXCAVATION – 1349
EMBANKMENT – 36

STA: 336+00

1108.22 1108.67 1108.22 1104.36 1104.36

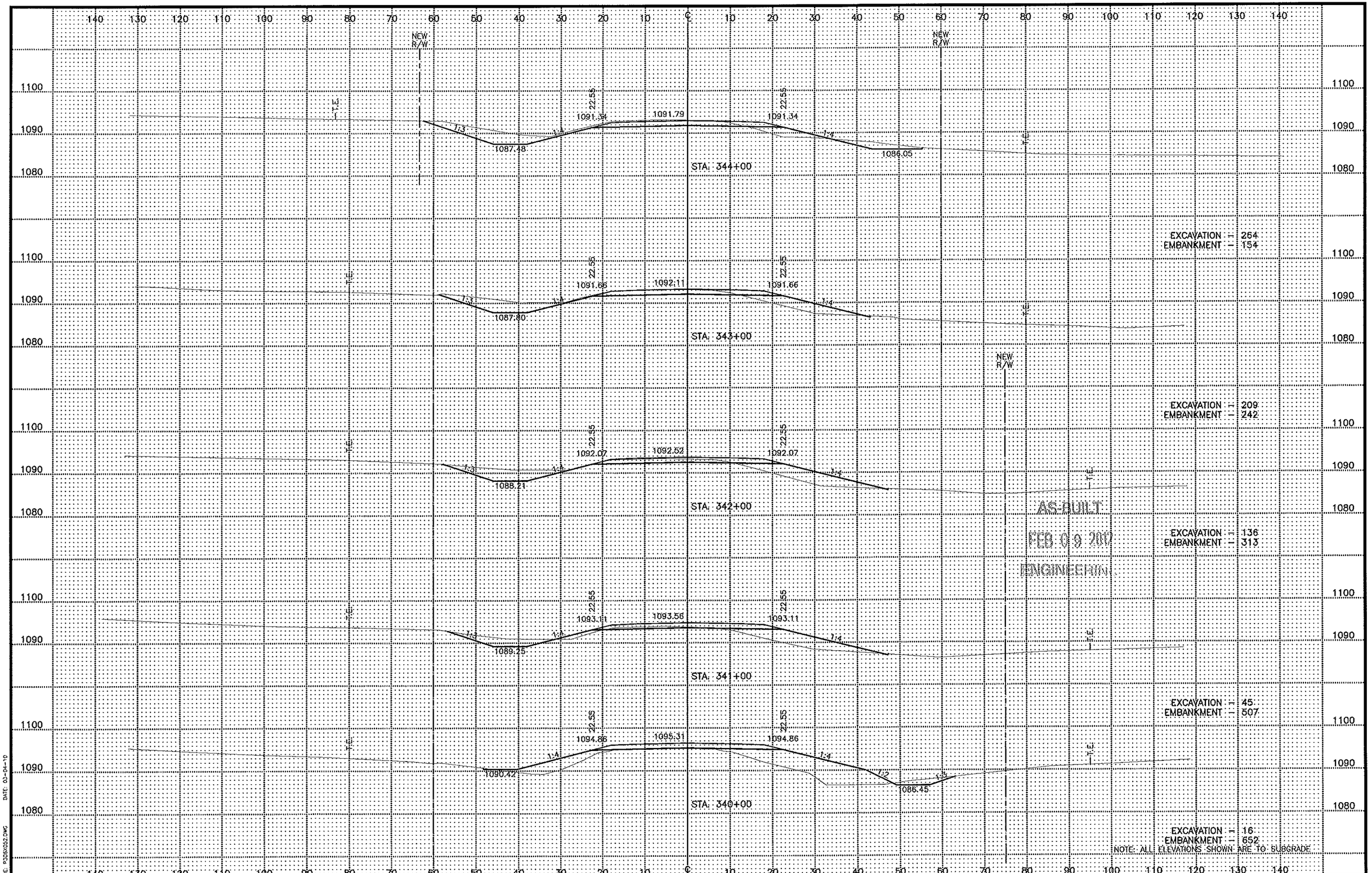
EXCAVATION – 1073
EMBANKMENT – 39

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P306X051.DWG

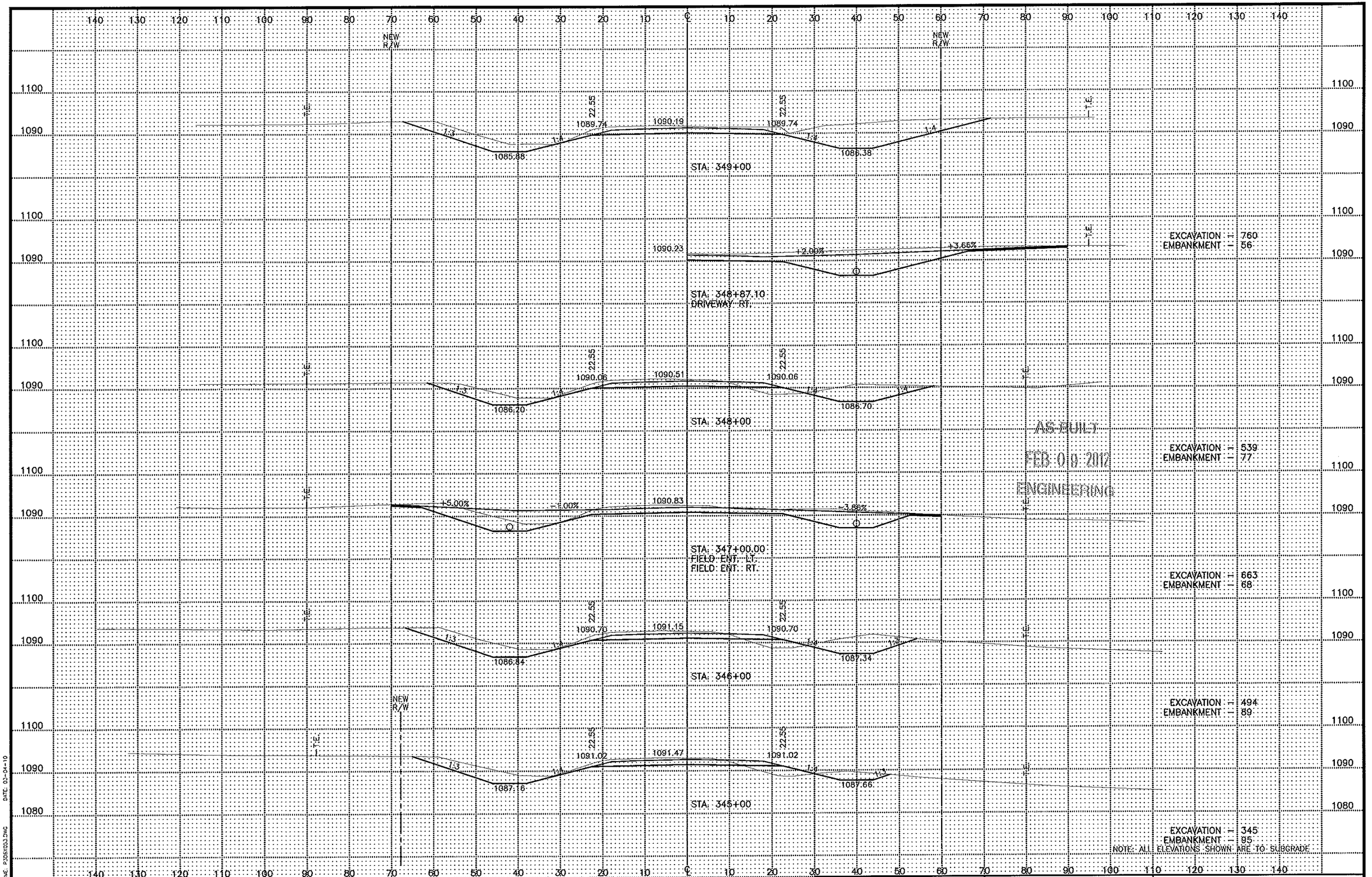
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 176 of 299 Sheets



DATE: 03-04-10

FILE NAME: P305X052.DWG

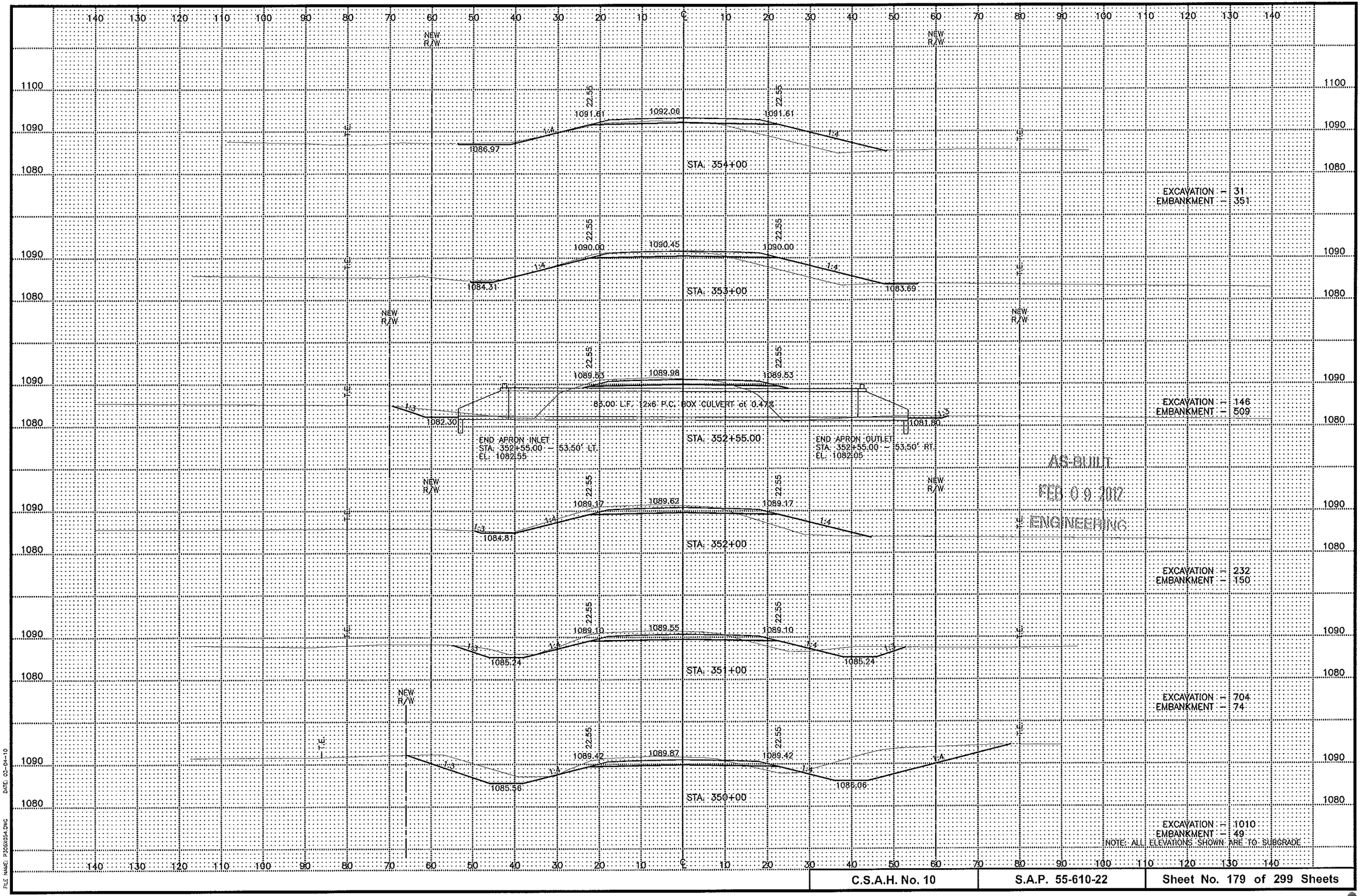
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 177 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306053.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 178 of 299 Sheets



AS-BUILT

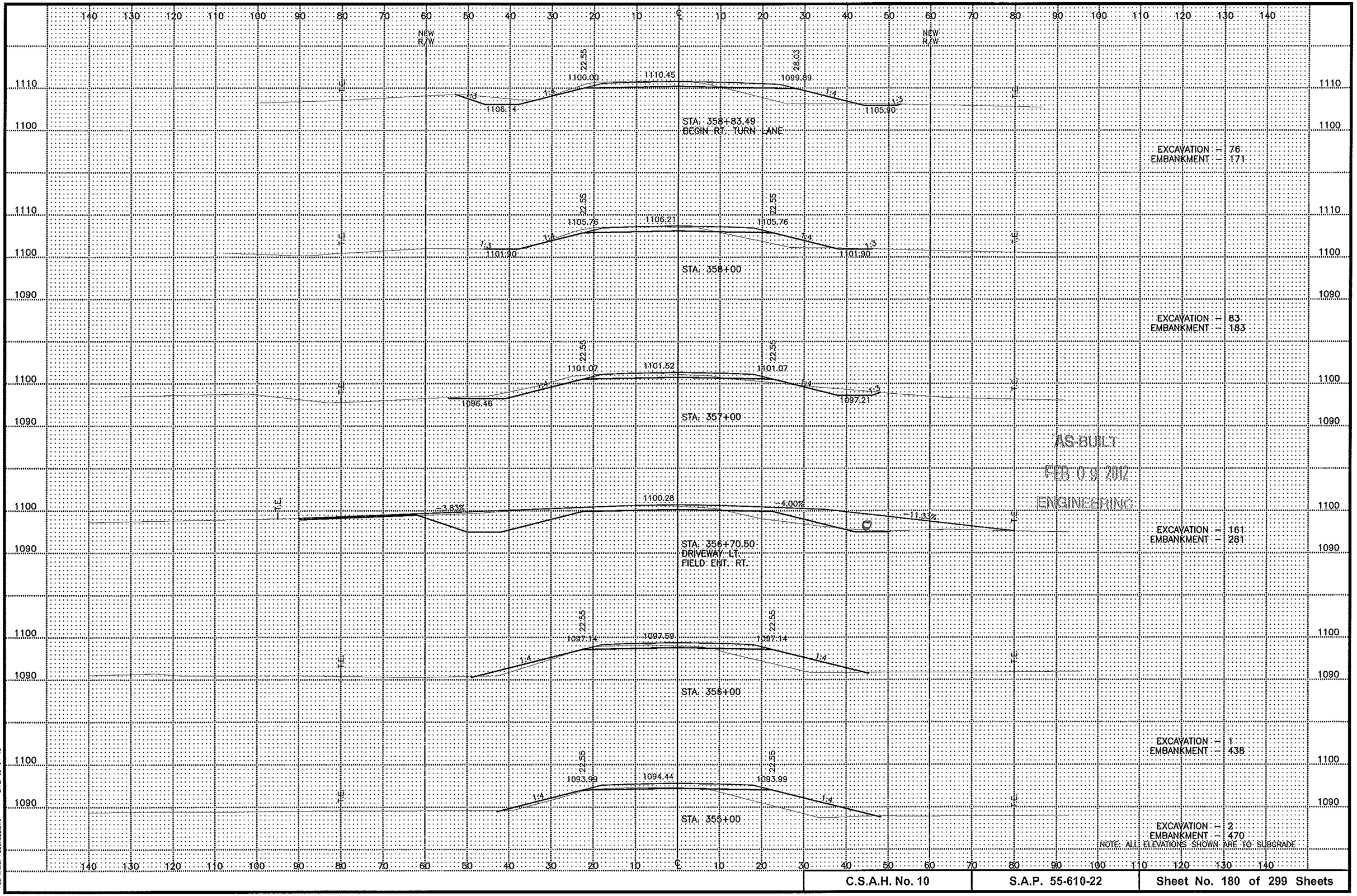
FEB 09 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P356X054.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 179 of 299 Sheets

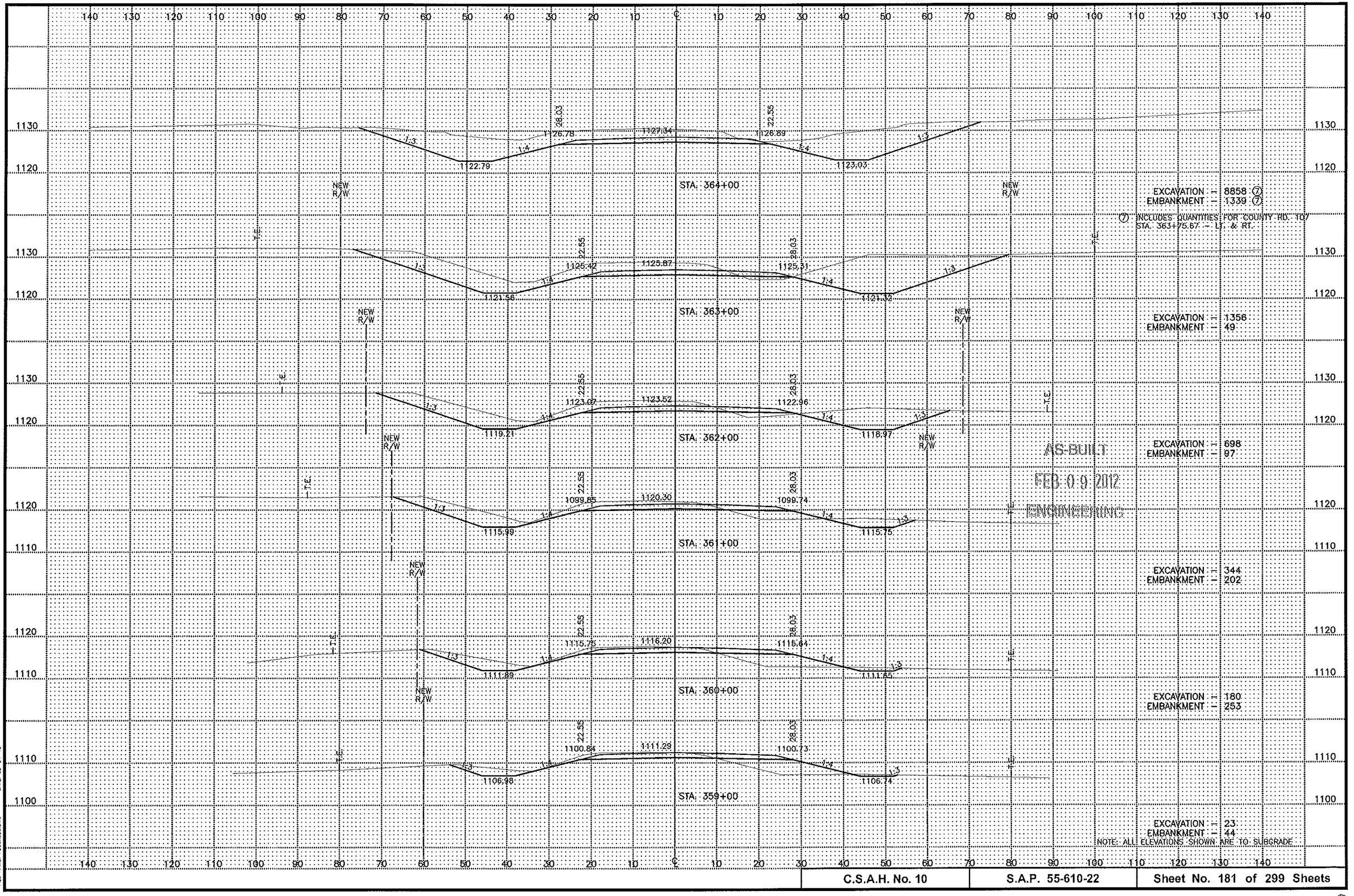


AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10

FILE NAME: P206X035.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 180 of 299 Sheets



AS-BUILT

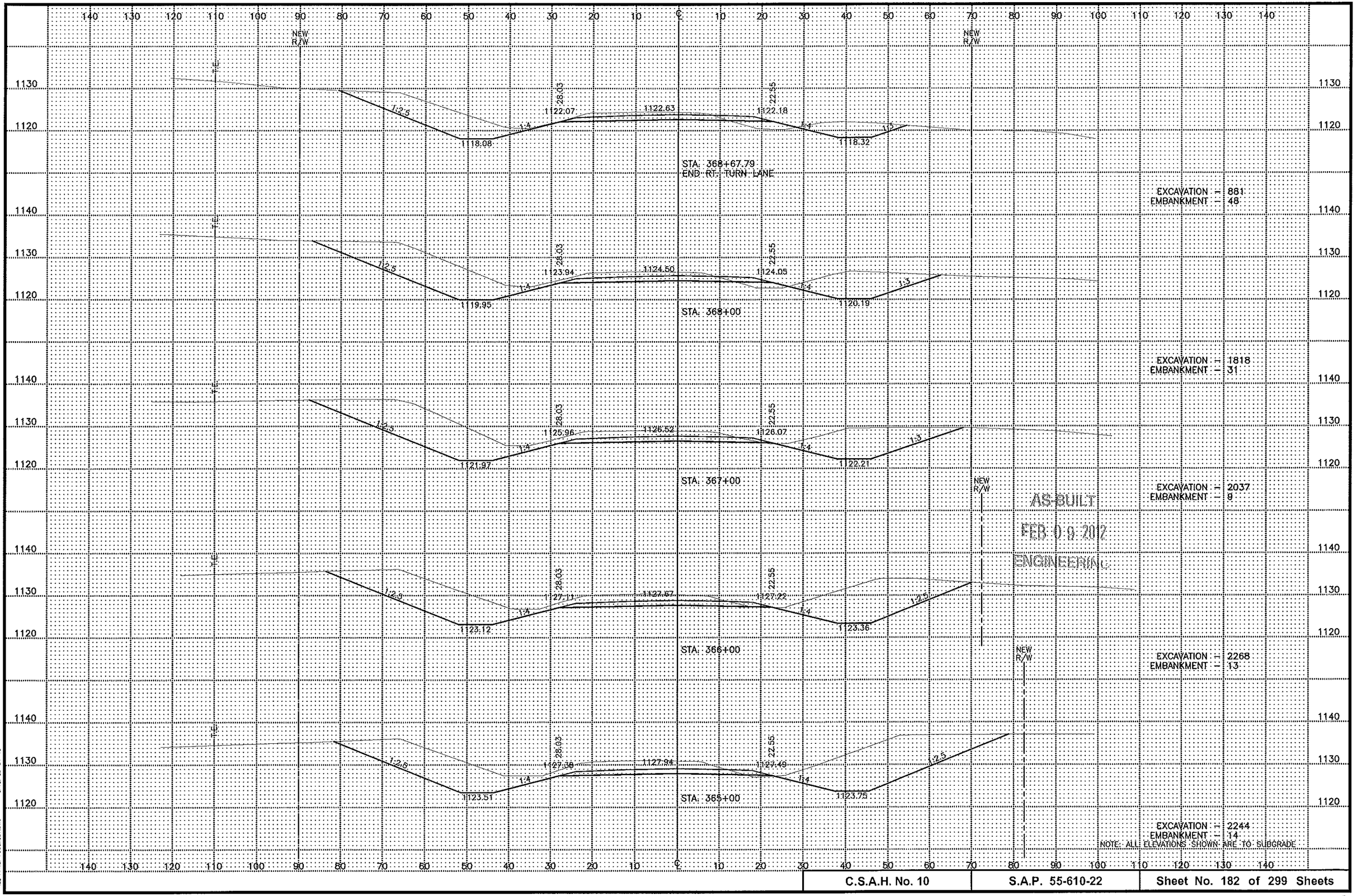
FEB 09 2012

ENGINEERING

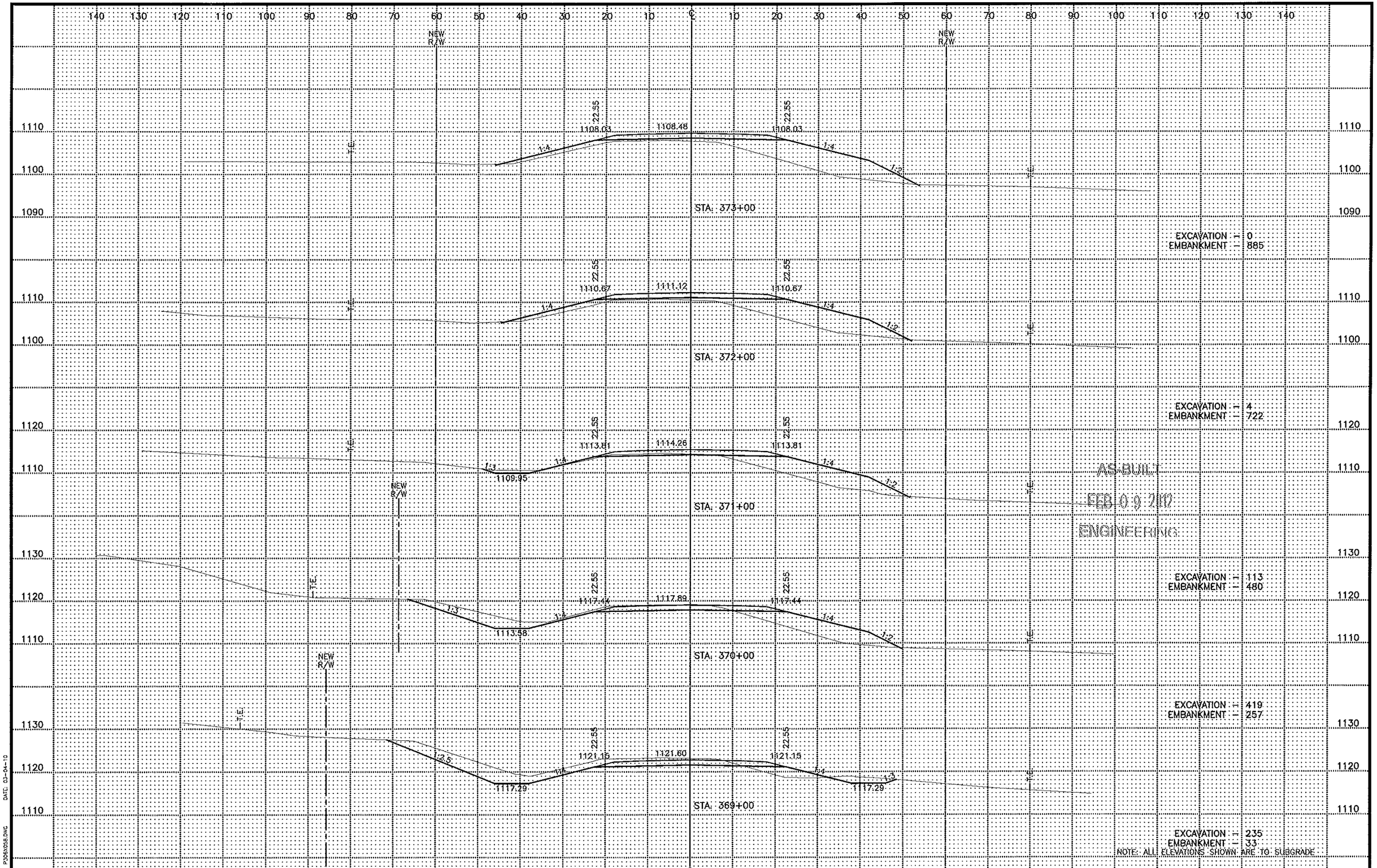
DATE: 03-04-10

FILE NAME: P206X056.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 181 of 299 Sheets



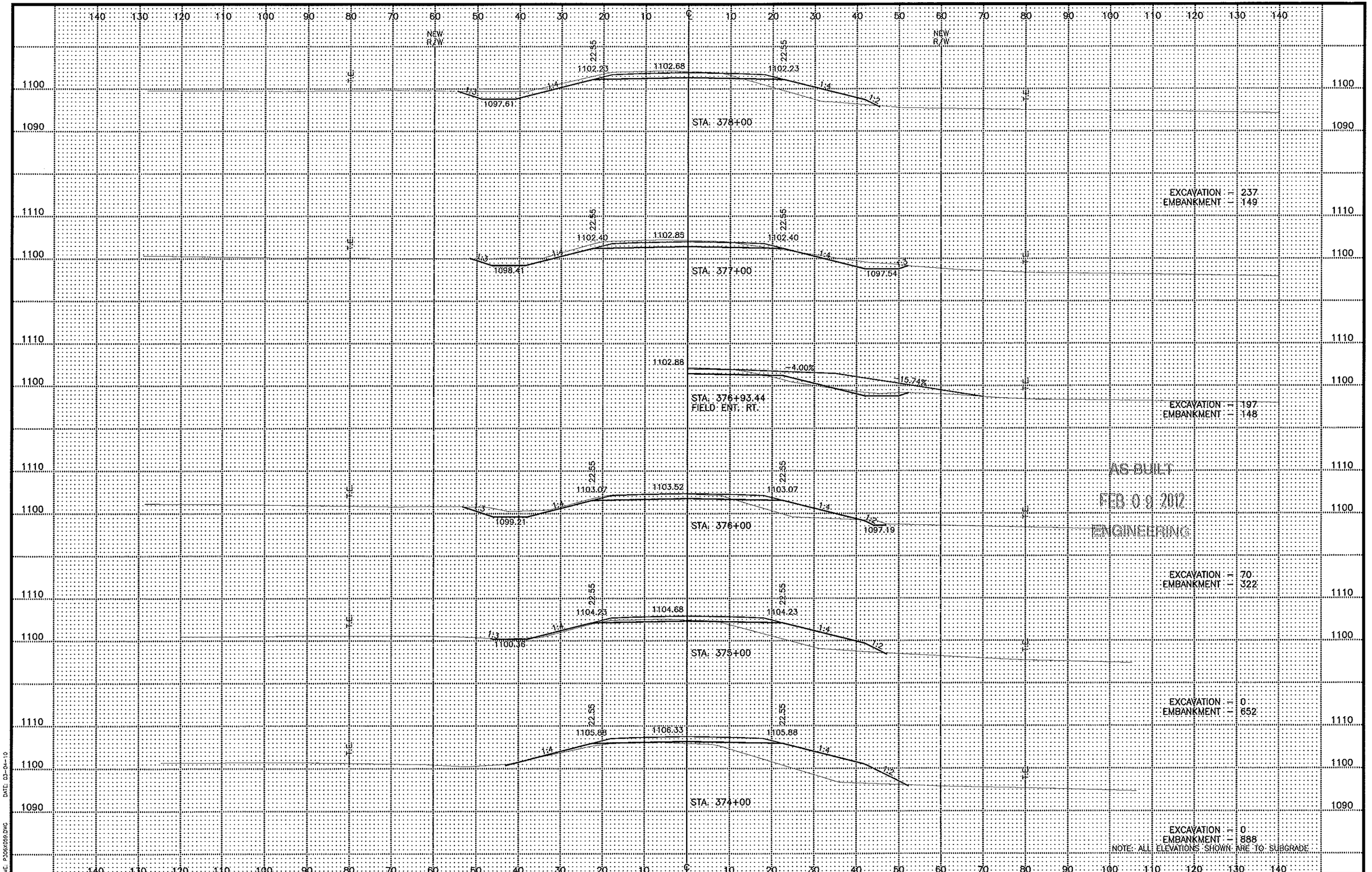
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 182 of 299 Sheets



DATE: 03-04-10

FILE NAME: P3065058.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 183 of 299 Sheets



AS-BUILT

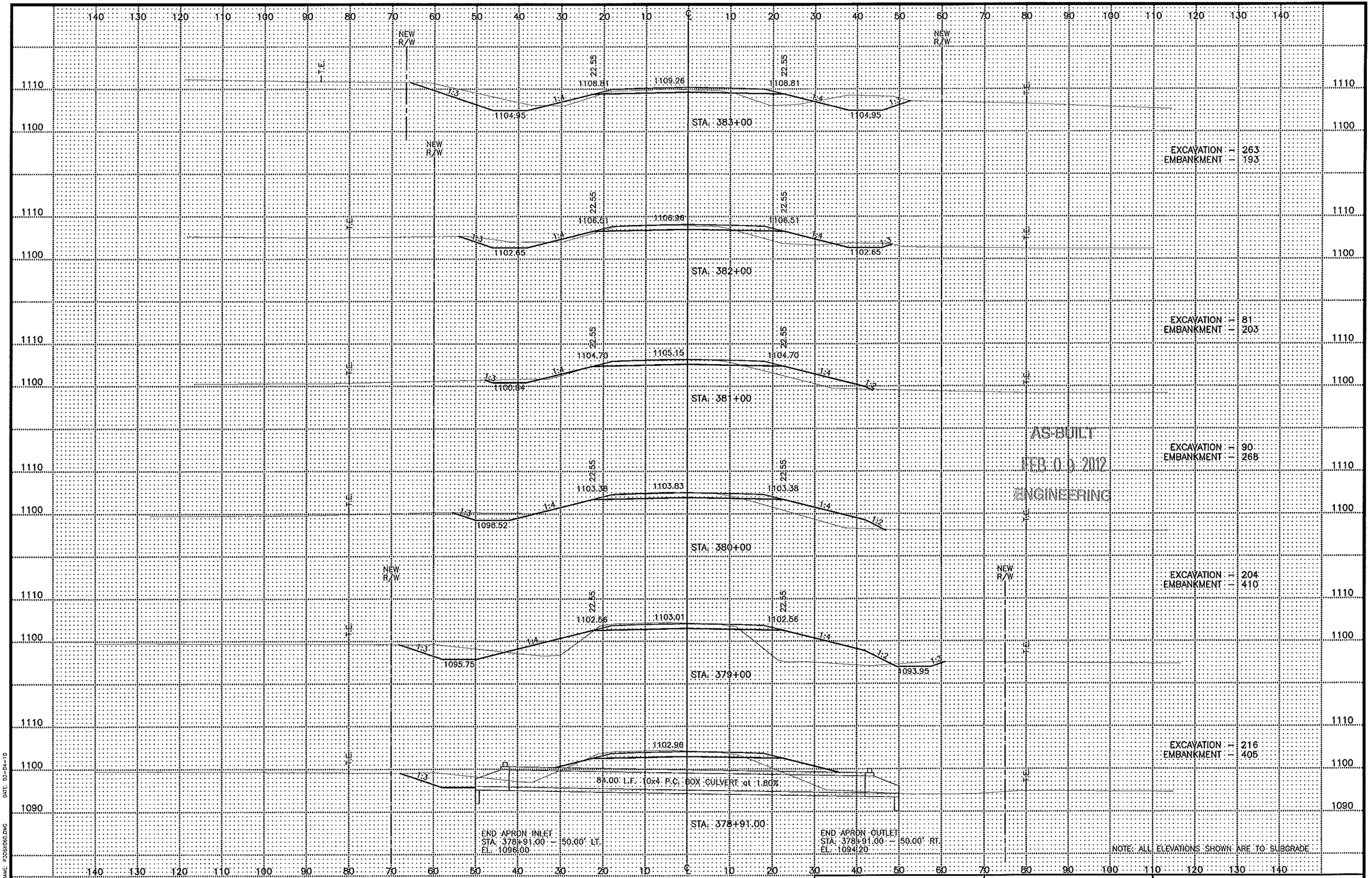
FEB 0 9 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P306705b.DWG

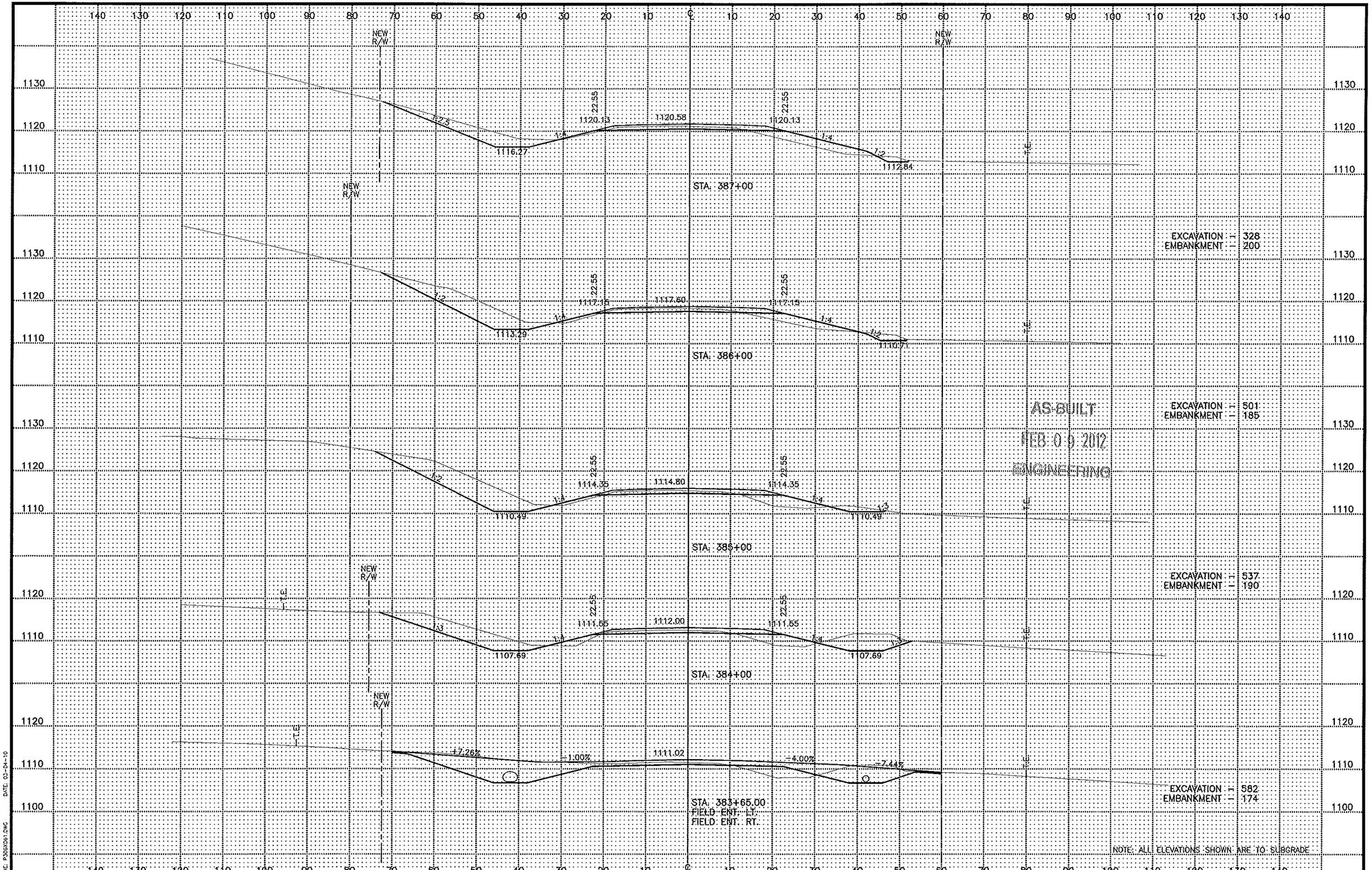
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 184 of 299 Sheets



DATE: 03-04-10

FILE NAME: P305X060.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 185 of 299 Sheets



FILE NAME: P305D061.DWG DATE: 03-04-10

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 186 of 299 Sheets

NEW R/W

NEW R/W

22.55

1138.37

1138.82

1138.37

1:4

1:4

1:2

T.E.

STA. 391+00

EXCAVATION = 0
EMBANKMENT = 746

1135.16

-4.00%

-15.69%

T.E.

STA. 390+35.00
FIELD ENT. RT.

AS-BUILT

FEB 09 2012

ENGINEERING

22.55

1132.85

1133.30

1132.85

1127.60

1:4

1:4

1:2

T.E.

STA. 390+00

EXCAVATION = 3
EMBANKMENT = 689

22.55

1127.97

1128.42

1127.97

1:3

1124.11

1:4

1:4

1:2

1119.63

T.E.

STA. 389+00

EXCAVATION = 34
EMBANKMENT = 562

22.55

1123.73

1124.18

1123.73

1:3

1119.67

1:4

1:4

1:2

1118.65

T.E.

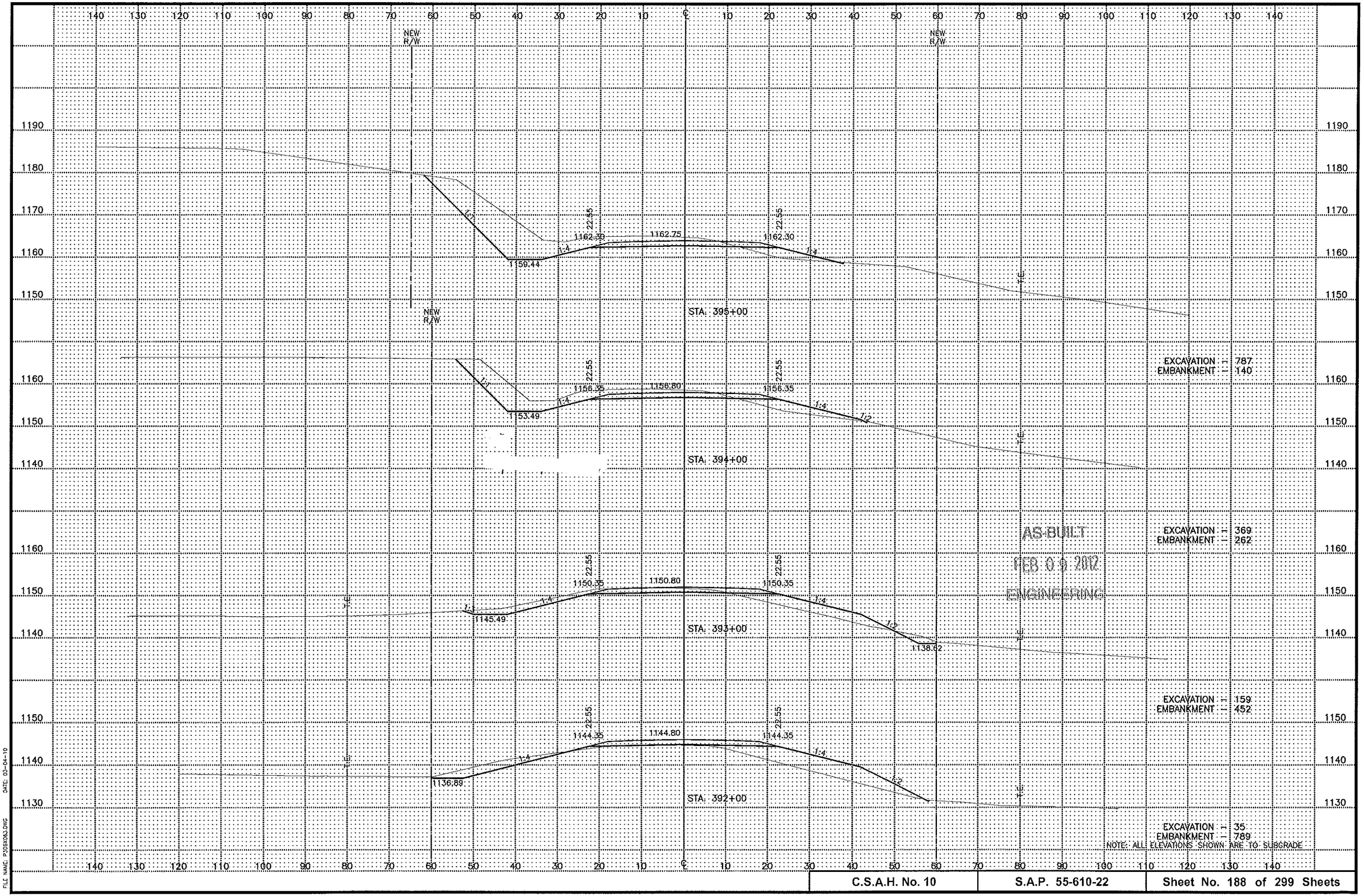
STA. 388+00

EXCAVATION = 194
EMBANKMENT = 353

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 187 of 299 Sheets

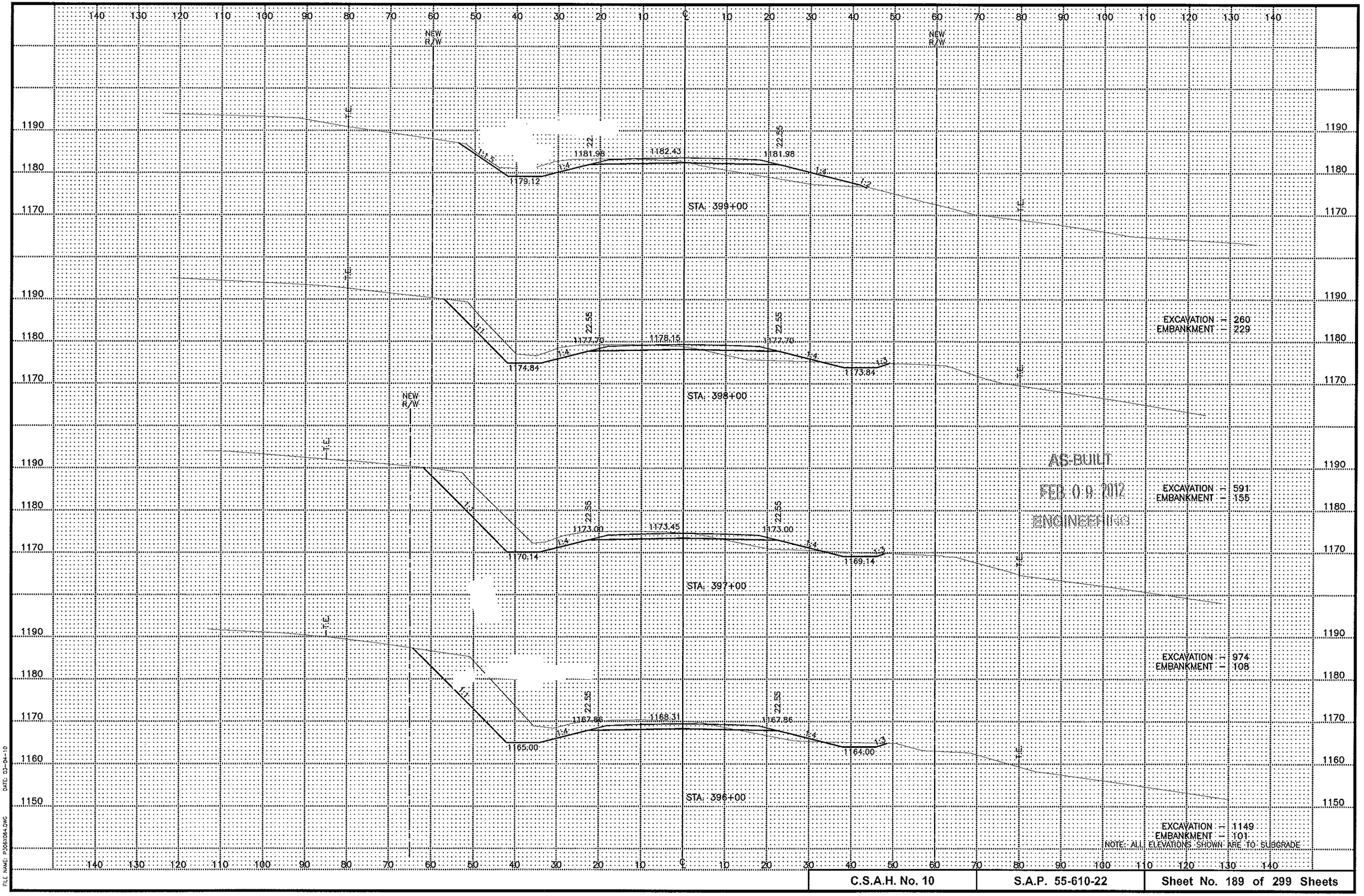
FILE NAME: P306X062.DWG DATE: 03-04-10



DATE: 03-04-10

FILE NAME: P305X063.DWG

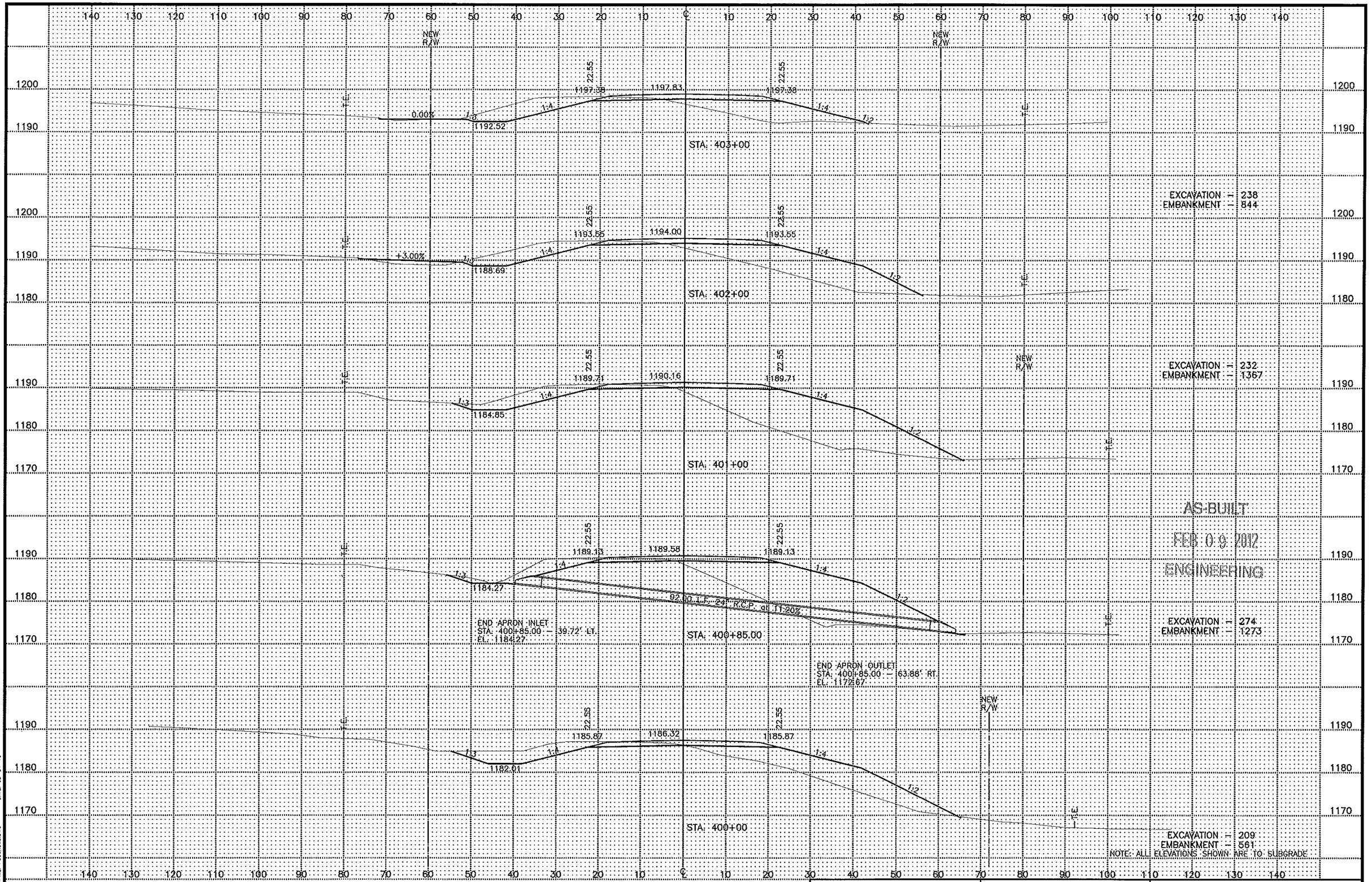
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 188 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X084.DWG

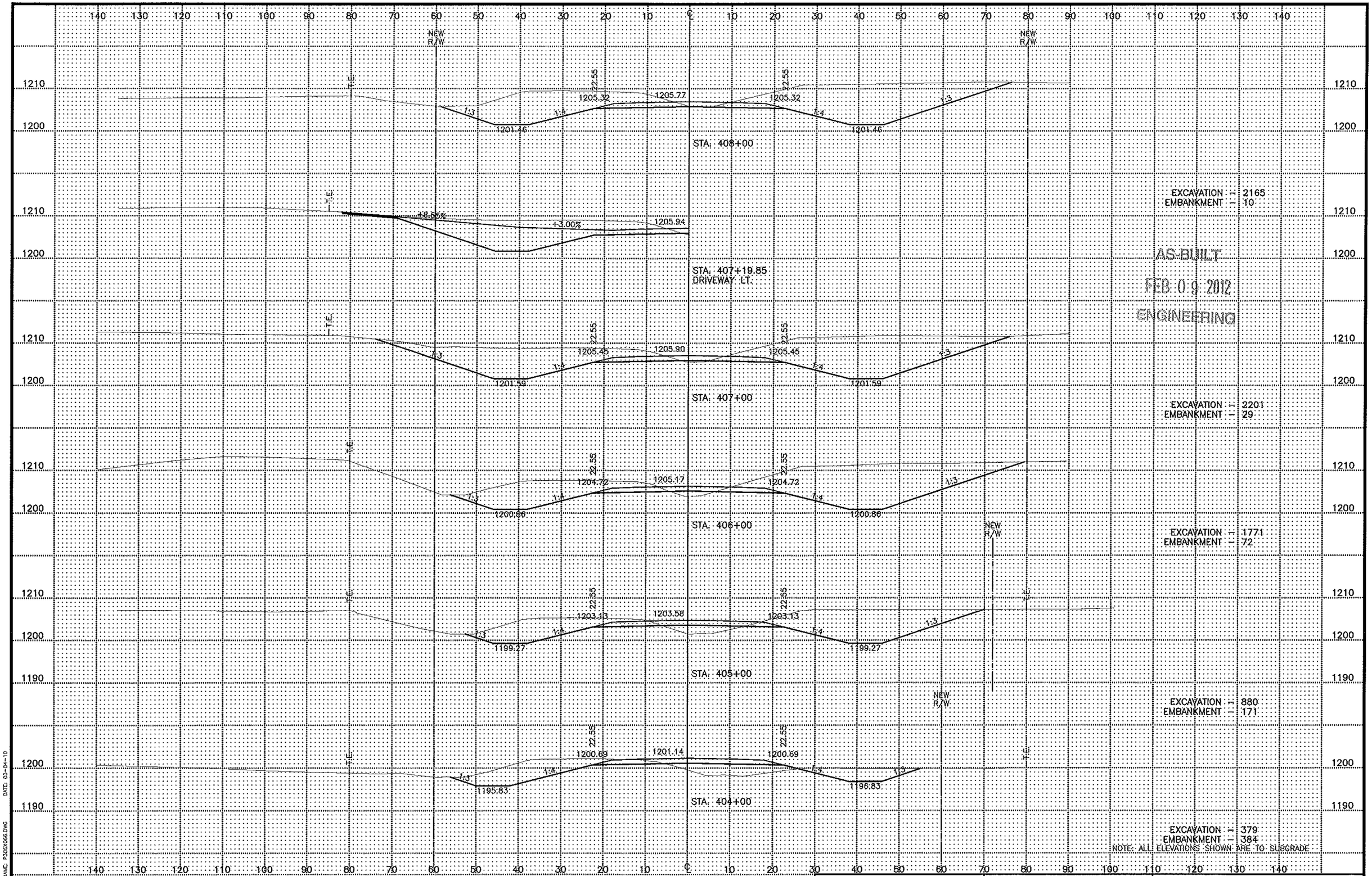
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 189 of 299 Sheets



DATE: 03-04-10

FILE NAME: P265X565.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 190 of 299 Sheets



DATE: 03-04-10

FILE NAME: P305X066.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 191 of 299 Sheets

NEW R/W

NEW R/W

T.E.

22.55

1193.31

1193.76

1193.31

1:3

1:4

1:4

1:3

1189.45

1189.45

STA. 413+00

EXCAVATION = 1351
EMBANKMENT = 101

T.E.

22.55

1196.55

1197.00

1196.55

1:3

1:4

1:4

1:3

1192.69

1192.69

STA. 412+00

EXCAVATION = 1517
EMBANKMENT = 47

T.E.

22.55

1199.78

1200.23

1199.78

1:3

1:4

1:4

1:3

1195.92

1195.92

STA. 411+00

AS-BUILT

FEB 09 2012

ENGINEERING

T.E.

1202.37

+3.00%

+5.04%

STA. 410+23.87
DRIVEWAY RT.

EXCAVATION = 1686
EMBANKMENT = 18

T.E.

22.55

1202.49

1202.94

1202.49

1:3

1:4

1:4

1:3

1198.63

1198.63

STA. 410+00

EXCAVATION = 2000
EMBANKMENT = 14

T.E.

22.55

1204.33

1204.78

1204.33

1:3

1:4

1:4

1:3

1200.47

1200.47

STA. 409+00

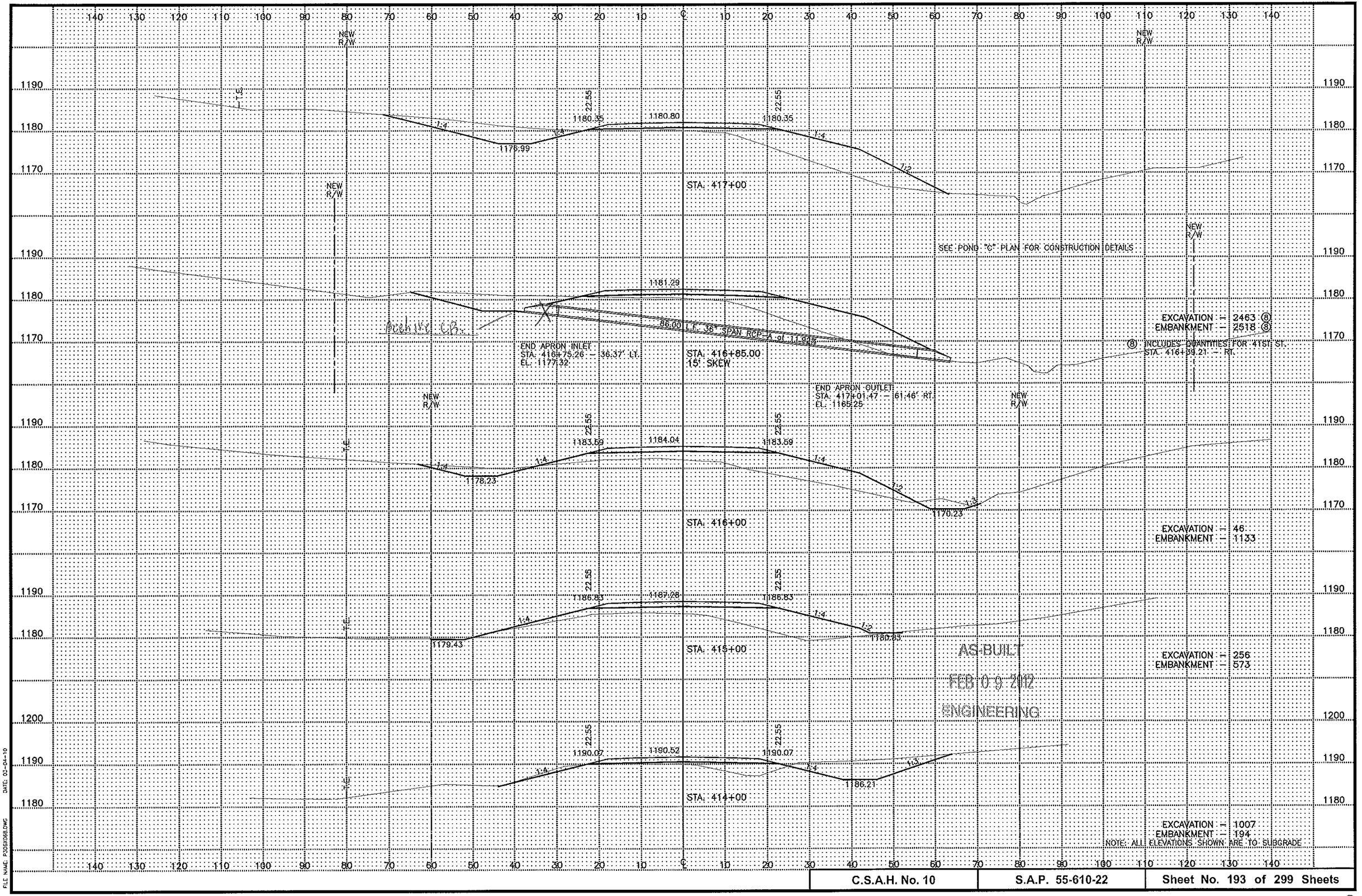
EXCAVATION = 2145
EMBANKMENT = 9

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P356X067.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 192 of 299 Sheets



AS-BUILT
FEB 09 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P306X068.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 193 of 299 Sheets

NEW R/W

NEW R/W

1190
1180
1170
1160

3:1

22.55

1170.63

1171.08

1:4

1167.77

1:4

1162.13

T.E.

STA. 420+00

Riprap Slope

EXCAVATION = 1590
EMBANKMENT = 0

1:2

22.55

1173.87

1174.32

1:4

1171.91

1:4

T.E.

STA. 419+00

1:2.5

22.55

1177.11

1177.56

22.55

1177.11

1:4

1:4

1174.25

SEE POND "C" PLAN FOR CONSTRUCTION DETAILS

EXCAVATION = 821
EMBANKMENT = 141

NEW R/W
155.00

STA. 418+00

AS-BUILT
FEB 09 2012
ENGINEERING

3:1

+8.84%

+2.00%

1180.39

STA. 417+12.66
DRIVEWAY LT.

EXCAVATION = 289 ⑨
EMBANKMENT = 775 ⑨

⑨ INCLUDES QUANTITIES FOR POND "C"
STA. 417+00 – STA. 418+00 – RT.

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

DATE: 03-04-10

FILE NAME: P3060068.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 194 of 299 Sheets

NEW R/W

Rip Rap

1:2

1153.61

1:4

22.55

1157.67

1158.12

1157.67

1:4

1:2

T.E.

STA. 424+00

EXCAVATION = 652
EMBANKMENT = 754

1:1.5

1158.05

1160.91

1161.36

1160.91

STA. 423+00

1:1.5

1161.29

1164.15

1164.60

1164.15

STA. 422+00

EXCAVATION = 1125
EMBANKMENT = 200

Rip Rap Slope

1164.53

1167.39

1167.84

1167.39

STA. 421+00

EXCAVATION = 1483
EMBANKMENT = 3

AS-BUILT
FEB 0 9 2012
ENGINEERING

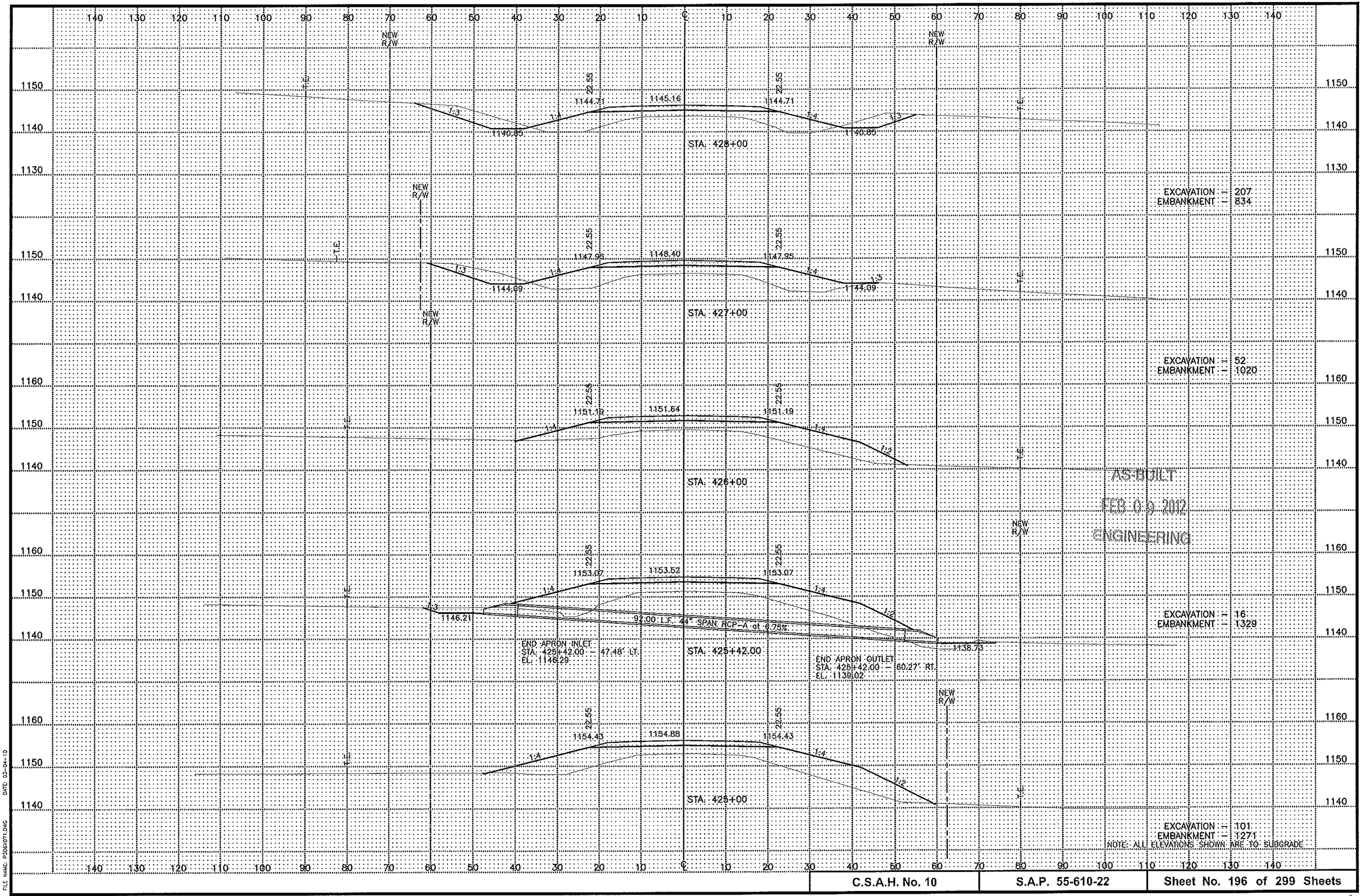
EXCAVATION = 1767
EMBANKMENT = 0

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P306X070.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 195 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X071.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 196 of 299 Sheets

NEW R/W

NEW R/W

STA. 433+00

1135.30 | 1135.75 | 1135.30

22.55 | 22.55

1:4 | 1:4 | 1:2 | 1:2 | T.E.

EXCAVATION = 0
EMBANKMENT = 1383

STA. 432+00

1135.72 | 1136.17 | 1135.72

22.55 | 22.55

1:4 | 1:4 | 1:2 | 1:2 | T.E.

EXCAVATION = 19
EMBANKMENT = 921

STA. 431+00

1136.89 | 1137.34 | 1136.89 | 1133.03

22.55 | 22.55

1:3 | 1:4 | 1:4 | 1:2 | T.E.

EXCAVATION = 68
EMBANKMENT = 680

STA. 430+00

1138.82 | 1139.27 | 1138.82 | 1134.96

22.55 | 22.55

1:4 | 1:4 | 1:4 | 1:2 | T.E.

AS-BUILT

FEB 09 2012

ENGINEERING

STA. 429+57.37
FIELD ENT. RT.

1140.32 | -4.00% | -14.40%

EXCAVATION = 216
EMBANKMENT = 581

NEW R/W

STA. 429+00

1141.49 | 1141.94 | 1141.49 | 1137.63 | 1137.13

22.55 | 22.55

1:3 | 1:4 | 1:4 | 1:3 | T.E.

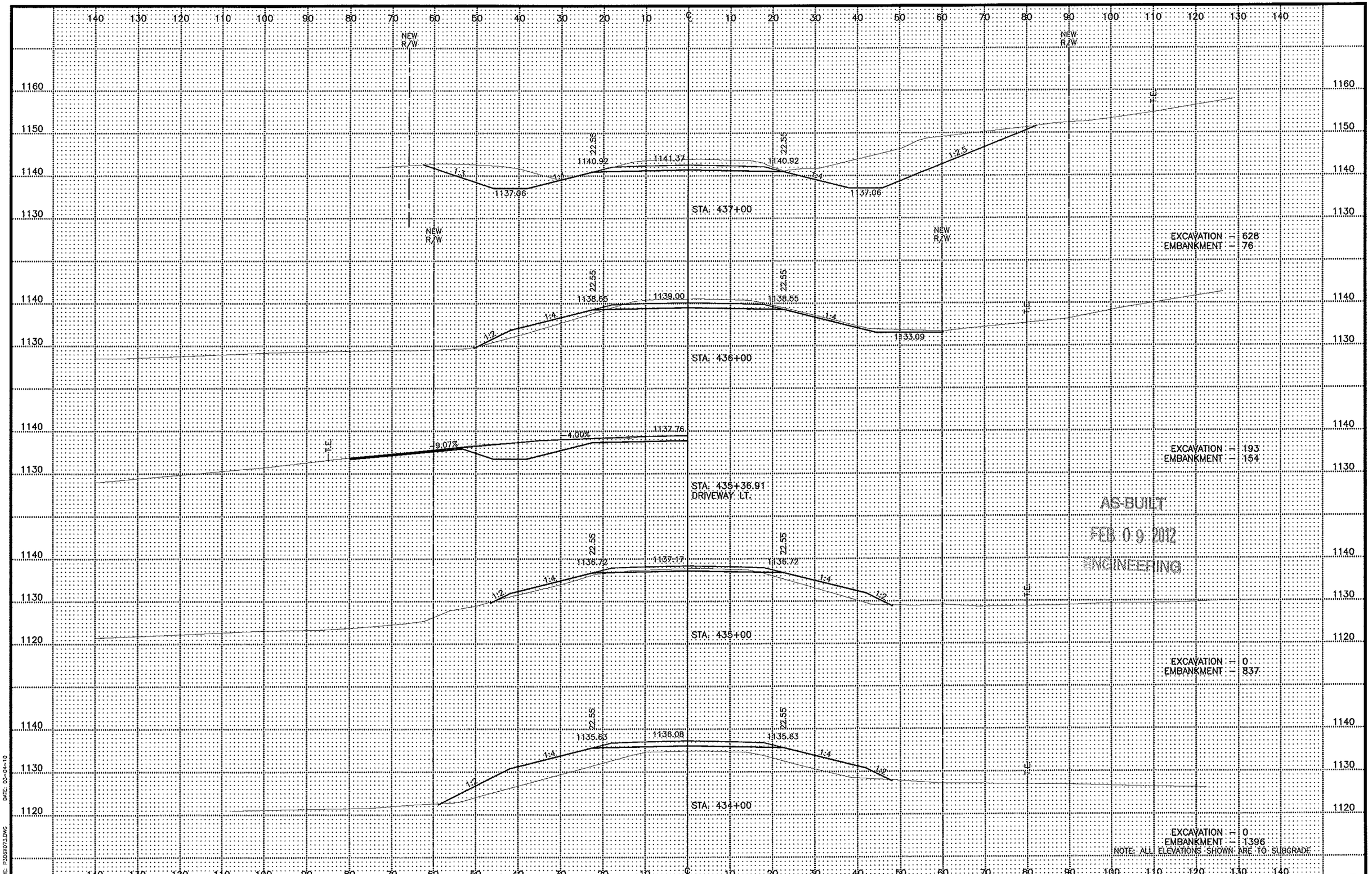
EXCAVATION = 271
EMBANKMENT = 664

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P3060072.DWG

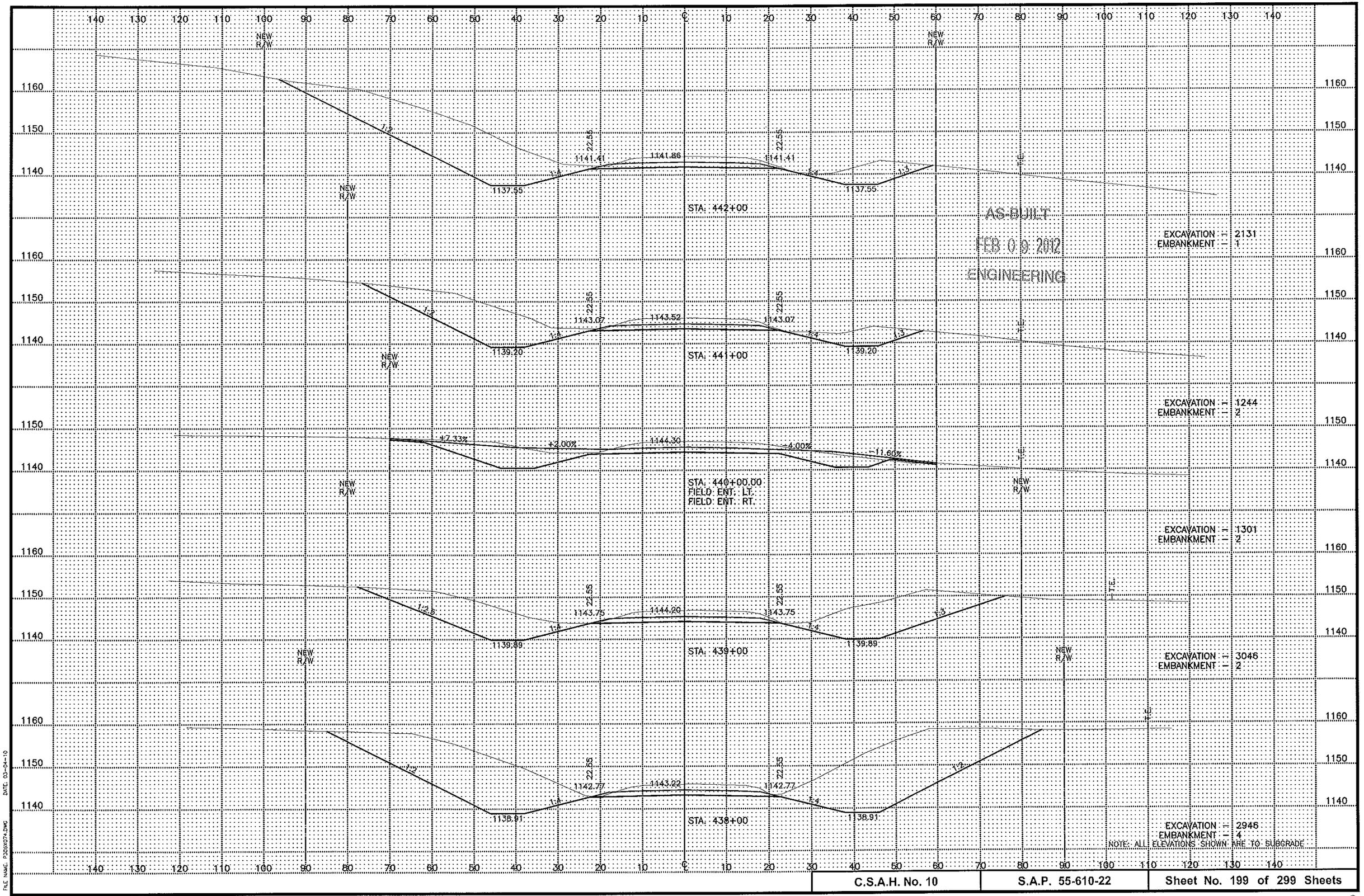
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 197 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X073.DWG

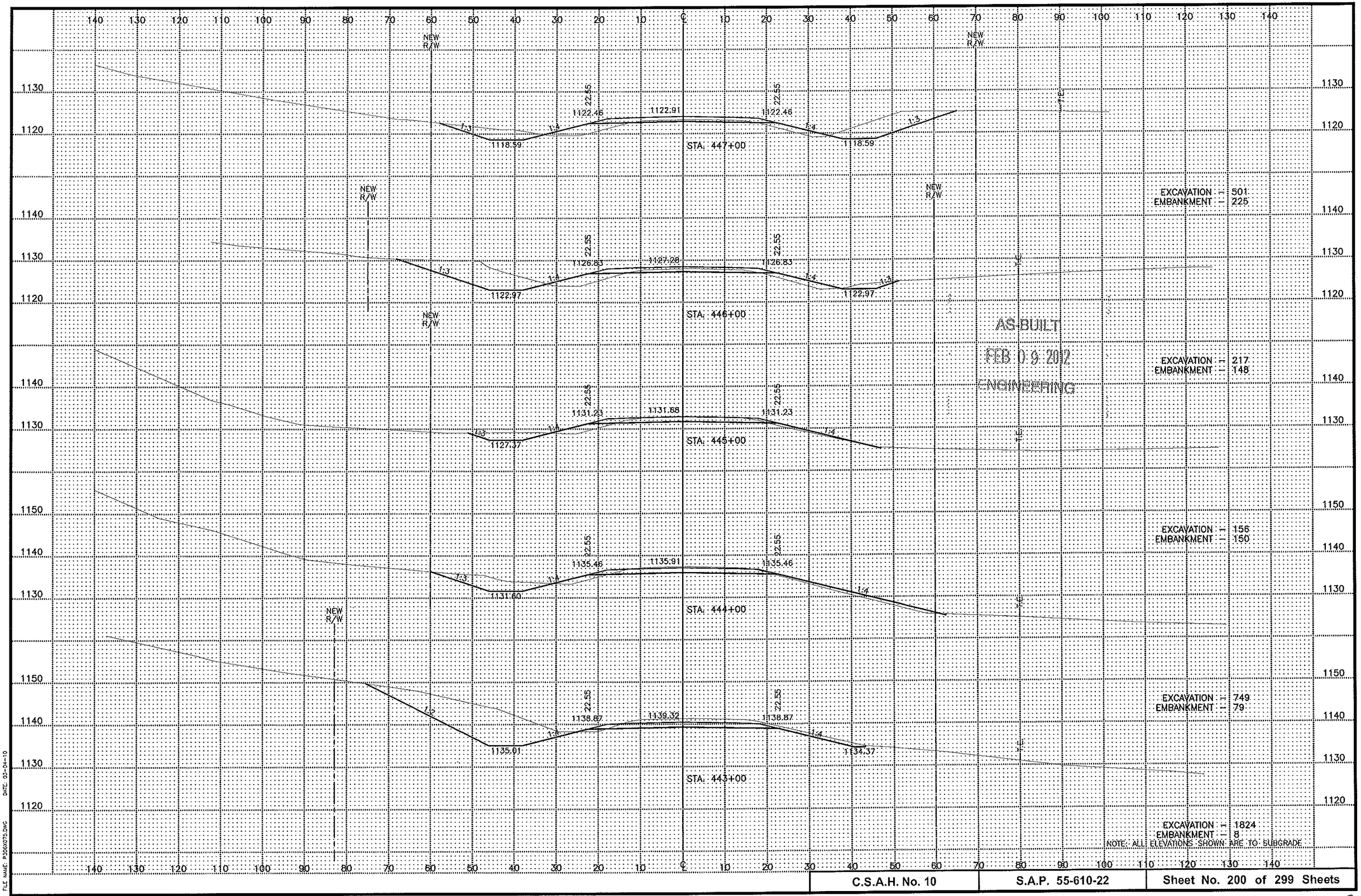
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 198 of 299 Sheets



DATE: 03-04-10

FILE NAME: P3280074.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 199 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X075.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 200 of 299 Sheets

STA. 452+00

NEW R/W

T.E.

1111.52 — 22.55 — 1111.97 — 24.33 — 1111.48

1:4 — 1:5.4 — 1:3

1107.24

EXCAVATION – 52
EMBANKMENT – 415

STA. 451+00

NEW R/W

T.E.

1112.10 — 22.55 — 1112.55 — 22.55 — 1112.10

1:4 — 1:4 — 1:3

1108.24

EXCAVATION – 18
EMBANKMENT – 343

AS-BUILT

FEB 09 2012

ENGINEERING

STA. 450+00

T.E.

1113.48 — 22.55 — 1113.93 — 22.55 — 1113.48

1:4 — 1:4 — 1:3

1109.62

EXCAVATION – 11
EMBANKMENT – 294

STA. 449+00

T.E.

1115.67 — 22.55 — 1116.12 — 22.55 — 1115.67

1:3 — 1:4 — 1:4 — 1:3

1111.81 — 1111.81

EXCAVATION – 52
EMBANKMENT – 240

STA. 448+00

T.E.

1118.66 — 22.55 — 1119.11 — 22.55 — 1118.66

1:3 — 1:4 — 1:4 — 1:3

1114.80 — 1114.80

EXCAVATION – 259
EMBANKMENT – 223

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10

FILE NAME: P206X075.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 201 of 299 Sheets

STA. 455+00

1110.50 — 1114.61 — 1115.08 — 1114.61 — 1110.75

22.55 — 22.55

1:4 — 1:4 — 1:3

T.E. — T.E.

EXCAVATION – 128
EMBANKMENT – 214

STA. 454+00

1112.77 — 1113.22 — 1112.77 — 1108.91

22.55 — 22.55

1:4 — 1:4 — 1:3

T.E. — T.E.

STA. 453+80.00
FIELD ENT. RT.

1112.99 — 4.00% — -7.70%

T.E. — T.E.

EXCAVATION – 126
EMBANKMENT – 288

AS-BUILT

FEB 09 2012

ENGINEERING

STA. 453+00

1111.74 — 1112.19 — 1111.74 — 107.87

22.88 — 22.88

1:4 — 1:4.2 — 1:3

T.E. — T.E.

STA. 452+10.00

1111.48 — 1111.95 — 1111.39 — 1107.14

23.82 — 27.92

1:5 — 1:8 — 1:8

80.00 L.F. 44" SPAN RCP-A @ 1.92%

T.E. — T.E.

EXCAVATION – 109
EMBANKMENT – 398

END APRON OUTLET
STA. 452+10.00 – 47.99' LT.
EL. 1105.55

END APRON INLET
STA. 452+10.00 – 47.99' RT.
EL. 1107.39

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

NEW R/W

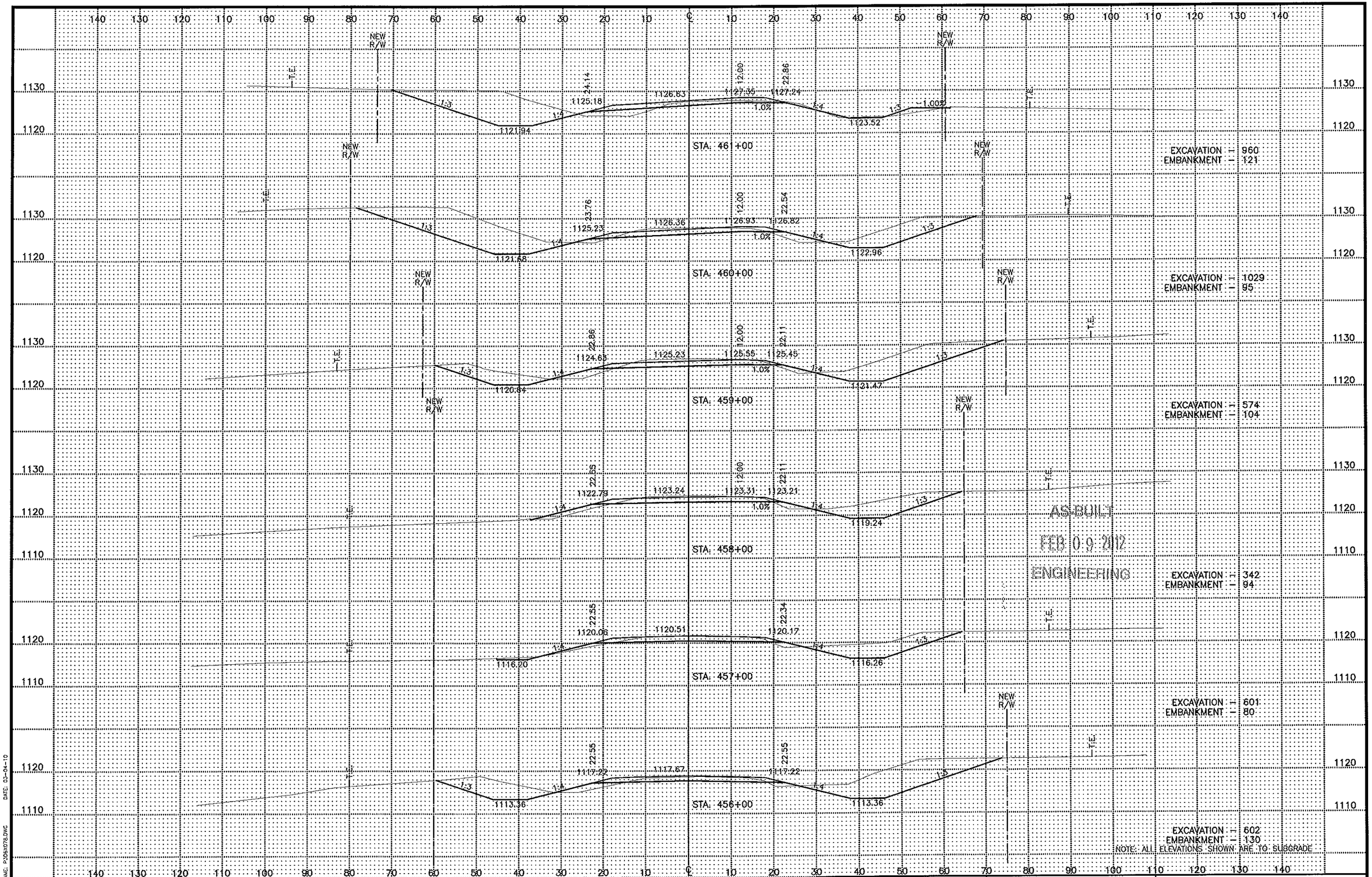
1120 / 1110 / 1100

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

DATE: 03-04-10

FILE NAME: P305X077.DWG

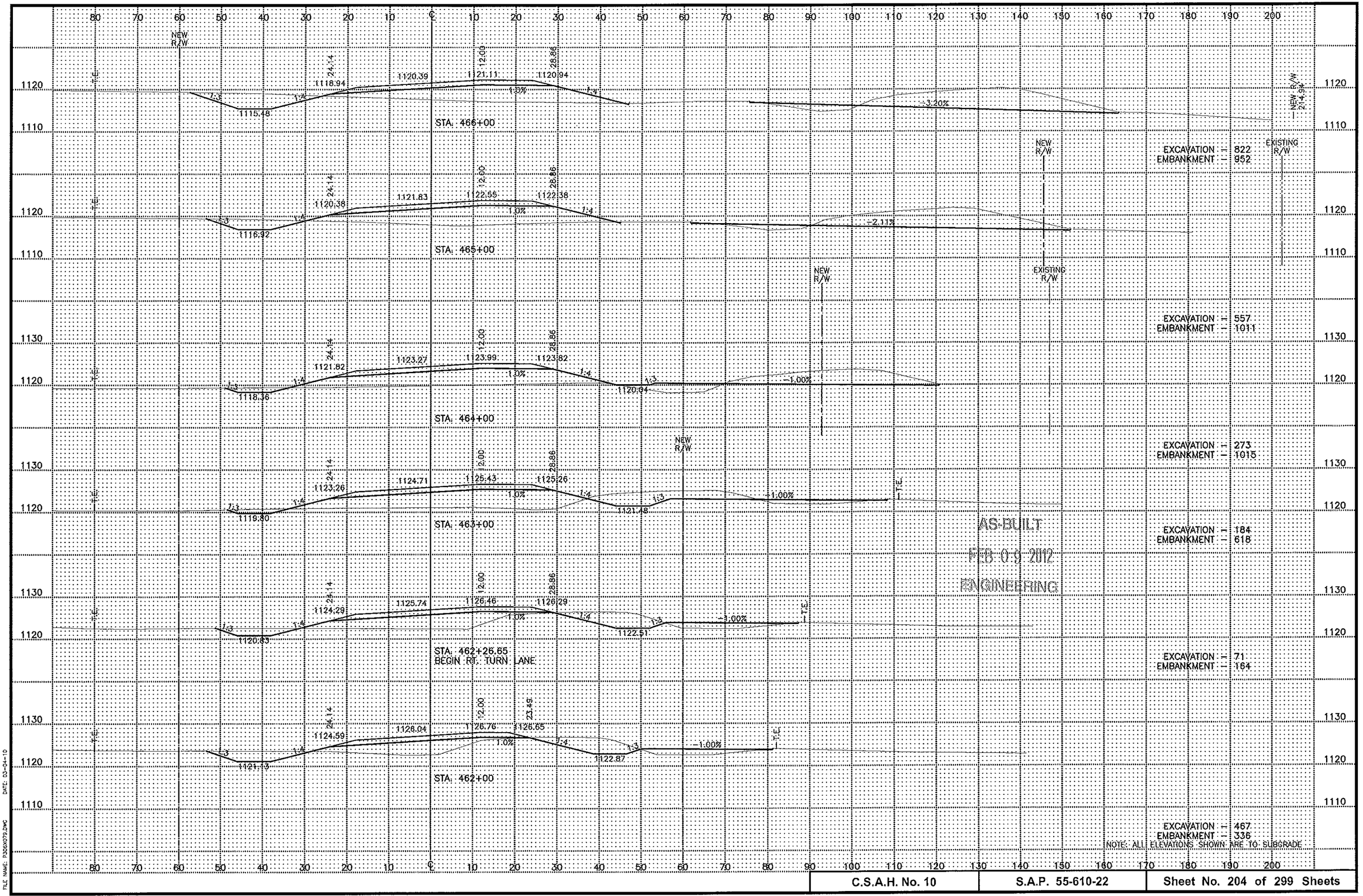
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 202 of 299 Sheets



DATE: 03-04-10

FILE NAME: P:\06X078.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 203 of 299 Sheets

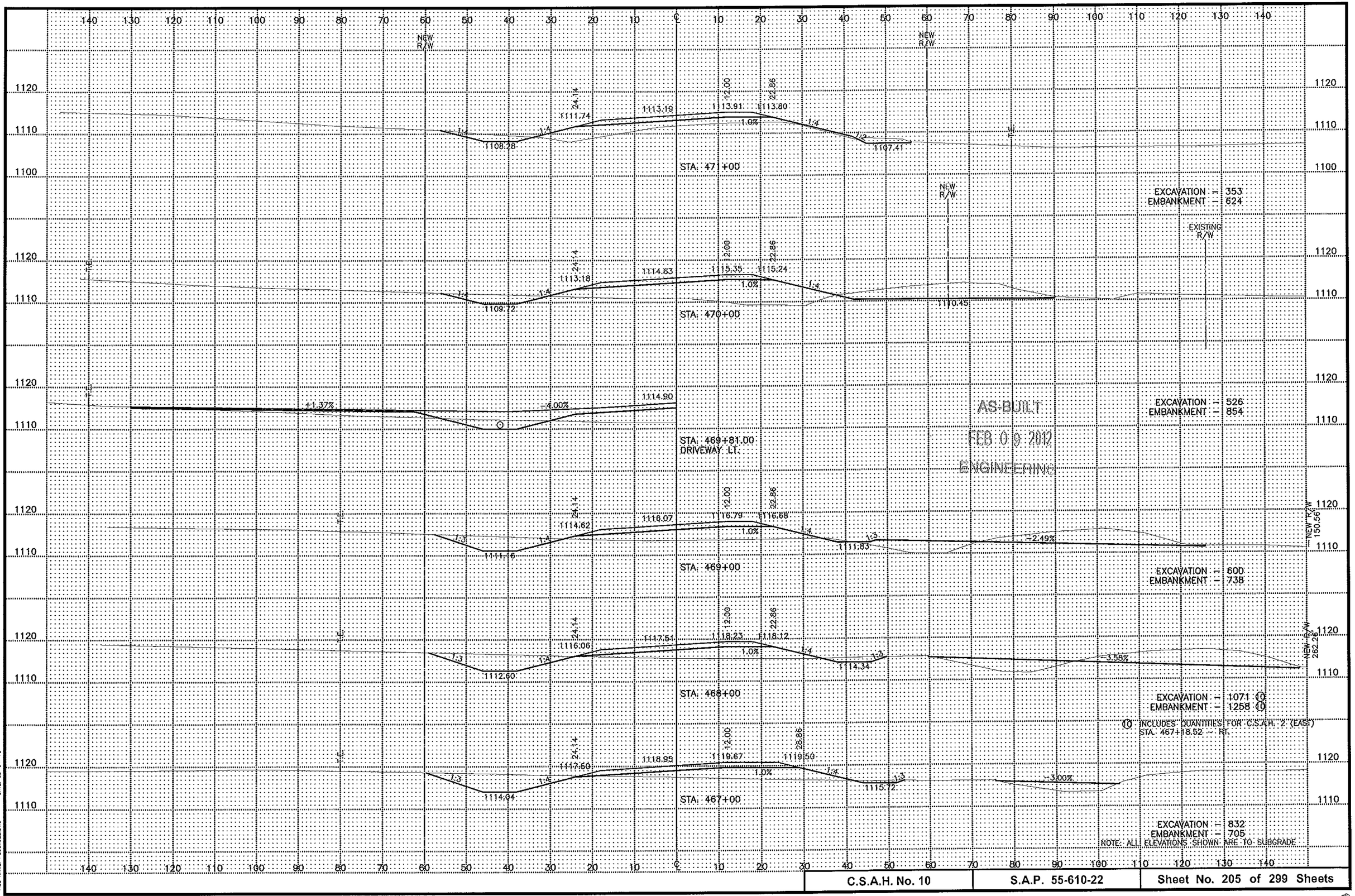


AS-BUILT
FEB 09 2012
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-04-10
FILE NAME: P306X079.DWG

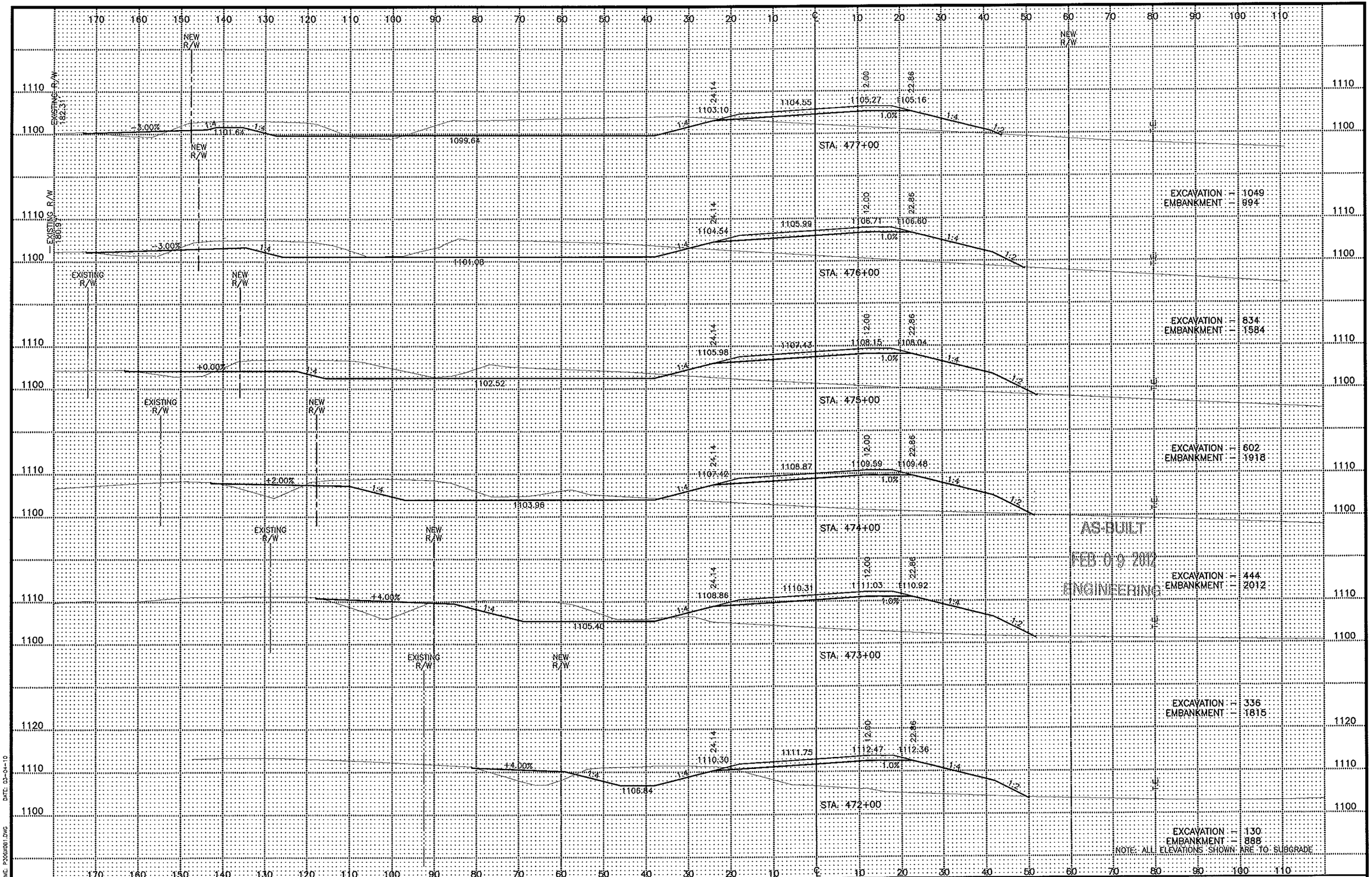
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 204 of 299 Sheets



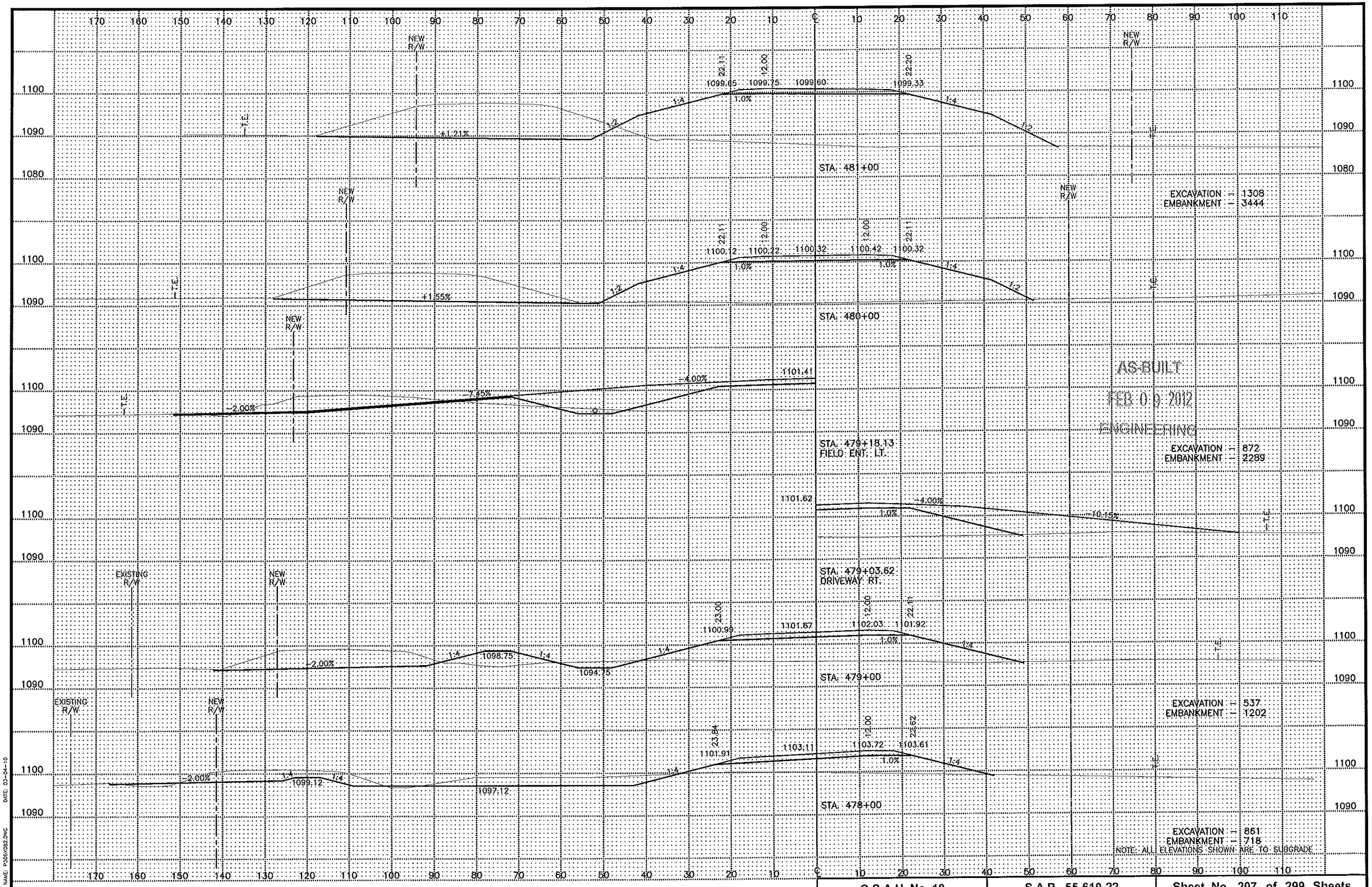
DATE: 03-04-10

FILE NAME: P305X09D.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 205 of 299 Sheets



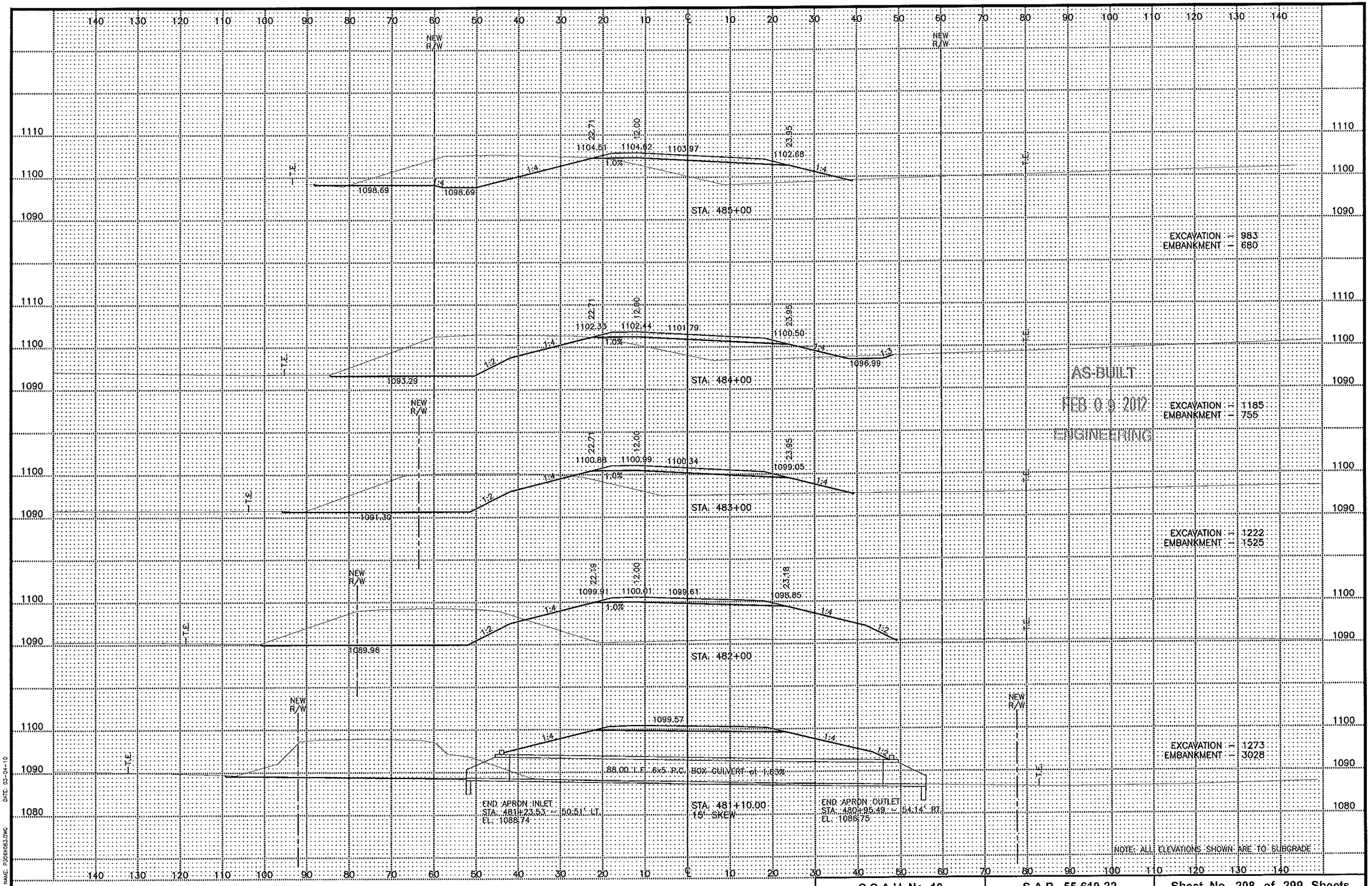
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 206 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X082.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 207 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X083.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 208 of 299 Sheets

NEW R/W

NEW R/W

NEW R/W

STA. 489+00

1115.73 1115.84 1115.48 1114.80

22.11 12.00 23.01

+2.00% 1:3 1109.76 1:4 1.0% 1:4 1:2

T.E.

STA. 488+00

1113.08 1113.19 1112.58 1111.38

22.62 12.00 23.84

+2.00% 1:3 1107.24 1:4 1.0% 1:4 1:2

T.E.

EXCAVATION = 537
EMBANKMENT = 1695

AS-BUILT

FEB 09 2012

ENGINEERING

STA. 487+00

1110.22 1110.33 1109.68 1108.39

22.71 12.00 23.95

+2.00% 1:4 1103.90 1:4 1.0% 1:4 1:2

T.E.

EXCAVATION = 525
EMBANKMENT = 1417

STA. 486+00

1107.32 1107.43 1106.78 1105.49

22.71 12.00 23.95

+2.00% 1:4 1101.00 1:4 1.0% 1:4 1:2

T.E.

EXCAVATION = 559
EMBANKMENT = 1074

STA. 485+55.42
DRIVEWAY LT.

1105.49

-4.58% -4.00% 1.0%

T.E.

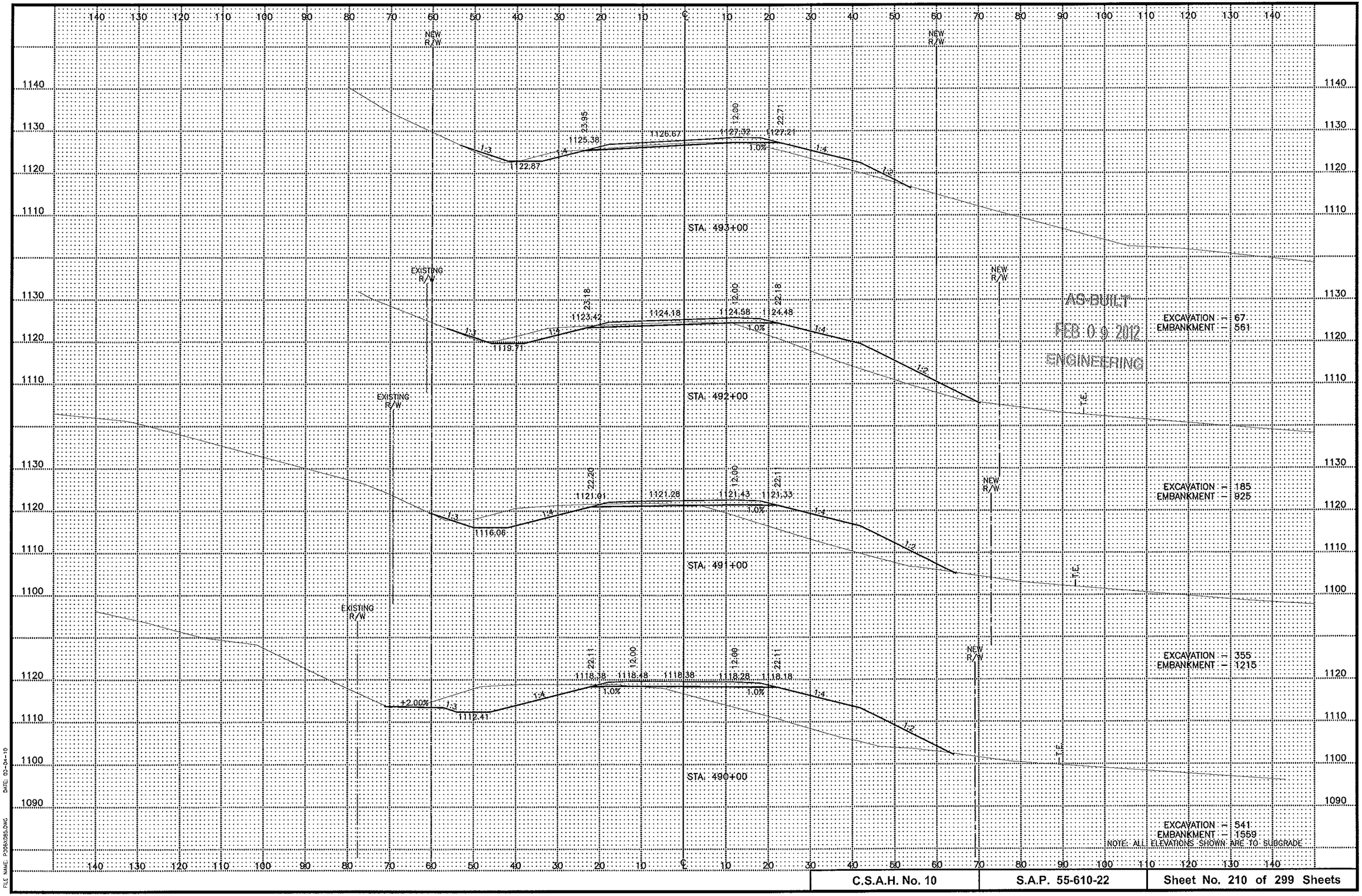
EXCAVATION = 695
EMBANKMENT = 797

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 209 of 299 Sheets

DATE: 03-04-10

FILE NAME: P5069084.DWG



AS-BUILT

FEB 0 9 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P308X085.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 210 of 299 Sheets

NEW R/W

NEW R/W

STA. 496+00

1129.19 | 1129.91 | 1129.80 | 1125.53 | 1127.74 | 24.14 | 12.00 | 22.86 | 1.0% | 1:3 | 1:4 | 1:4 | 1:3 | 1126.02

STA. 495+00

1129.17 | 1129.89 | 1129.78 | 1125.51 | 1127.72 | 24.14 | 12.00 | 22.86 | 1.0% | 1:3 | 1:4 | 1:4 | 1:3 | 1126.00

STA. 494+00

1128.33 | 1129.05 | 1128.94 | 1124.42 | 1126.88 | 24.14 | 12.00 | 22.86 | 1.0% | 1:3 | 1:4 | 1:4

AS-BUILT

FEB 09 2012

ENGINEERING

EXCAVATION – 174
EMBANKMENT – 52

EXCAVATION – 71
EMBANKMENT – 99

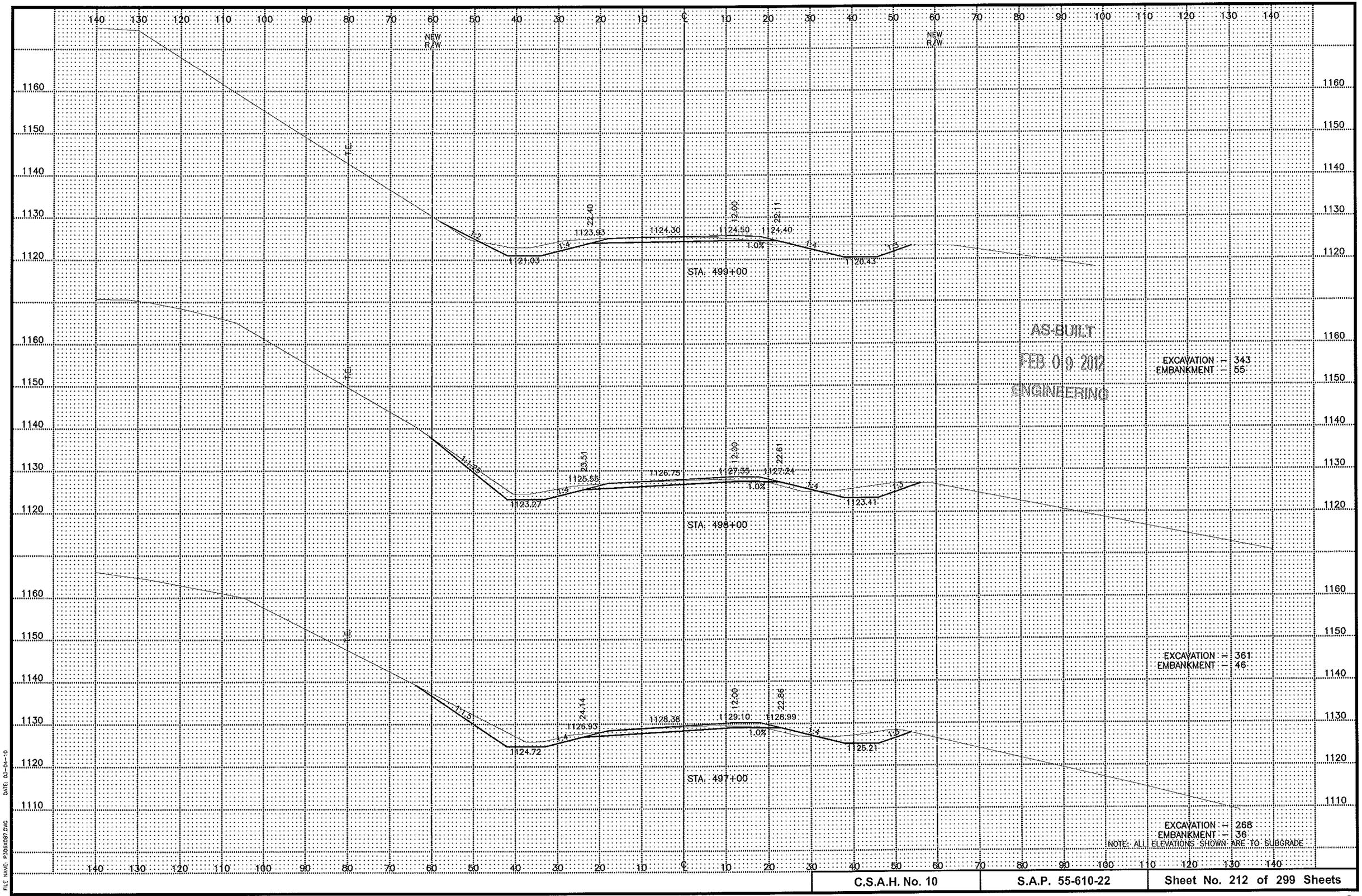
EXCAVATION – 52
EMBANKMENT – 164

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

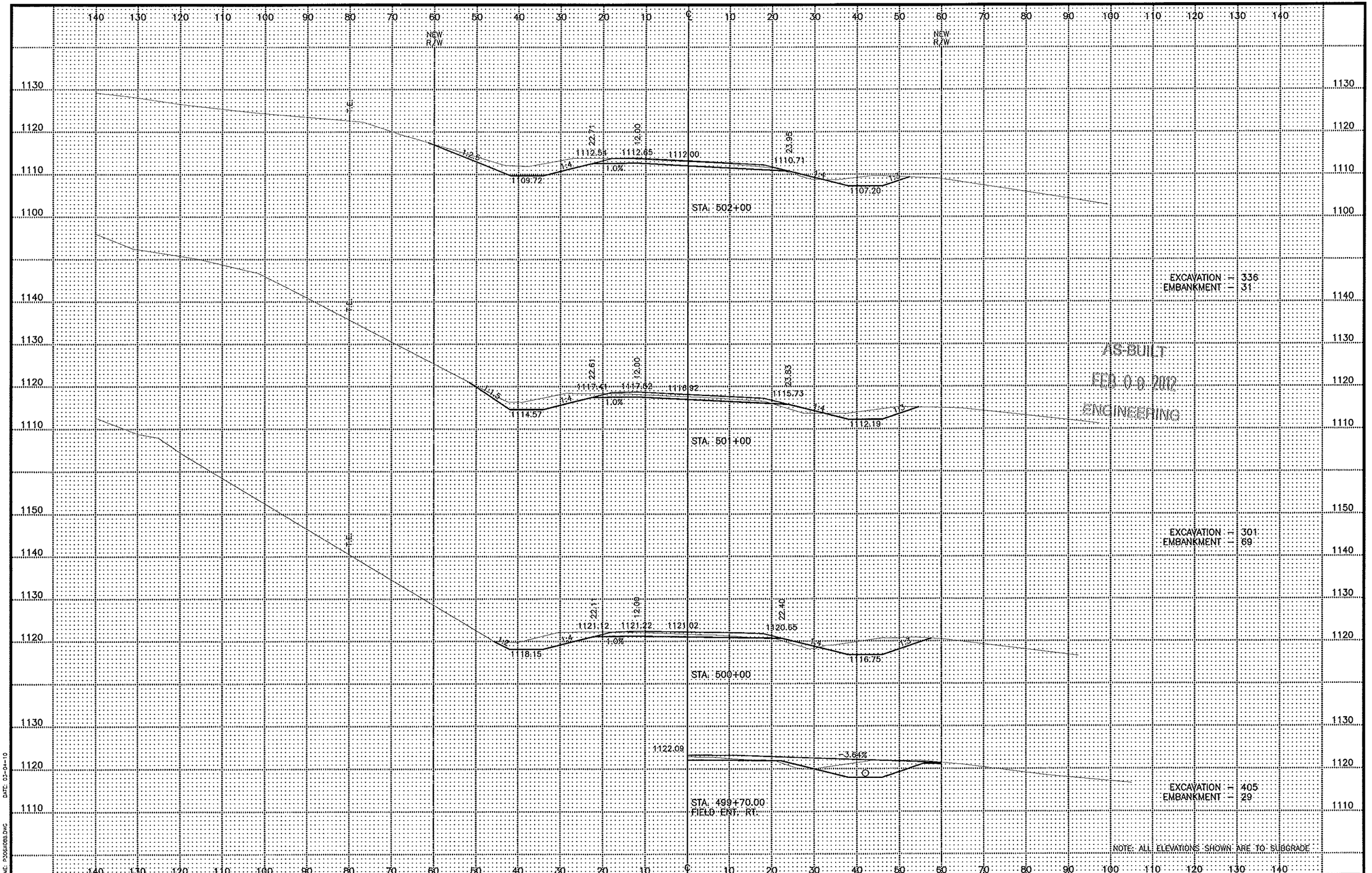
DATE: 03-04-10

FILE NAME: P306X086.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 211 of 299 Sheets



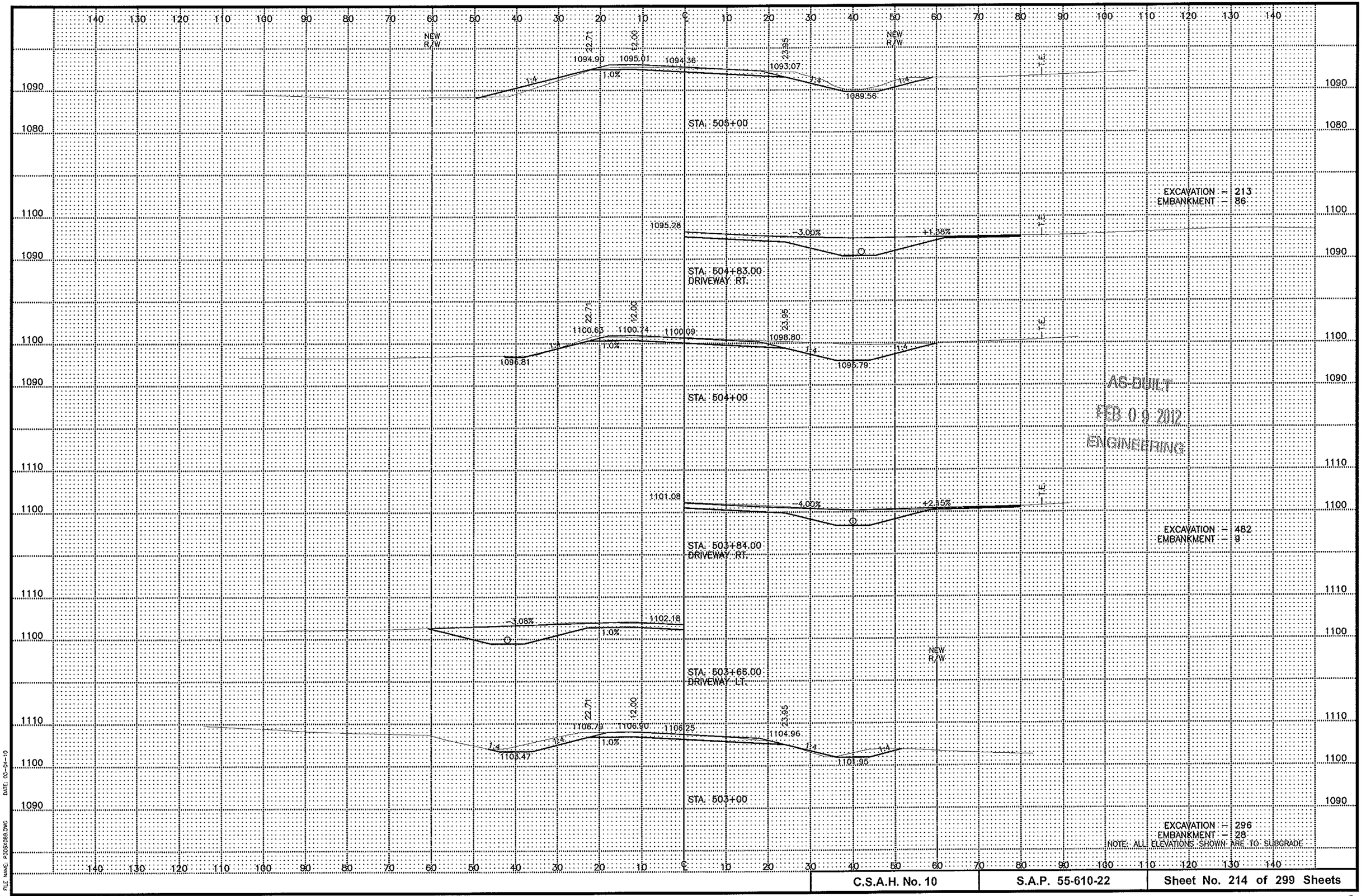
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 212 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306X088.DWG

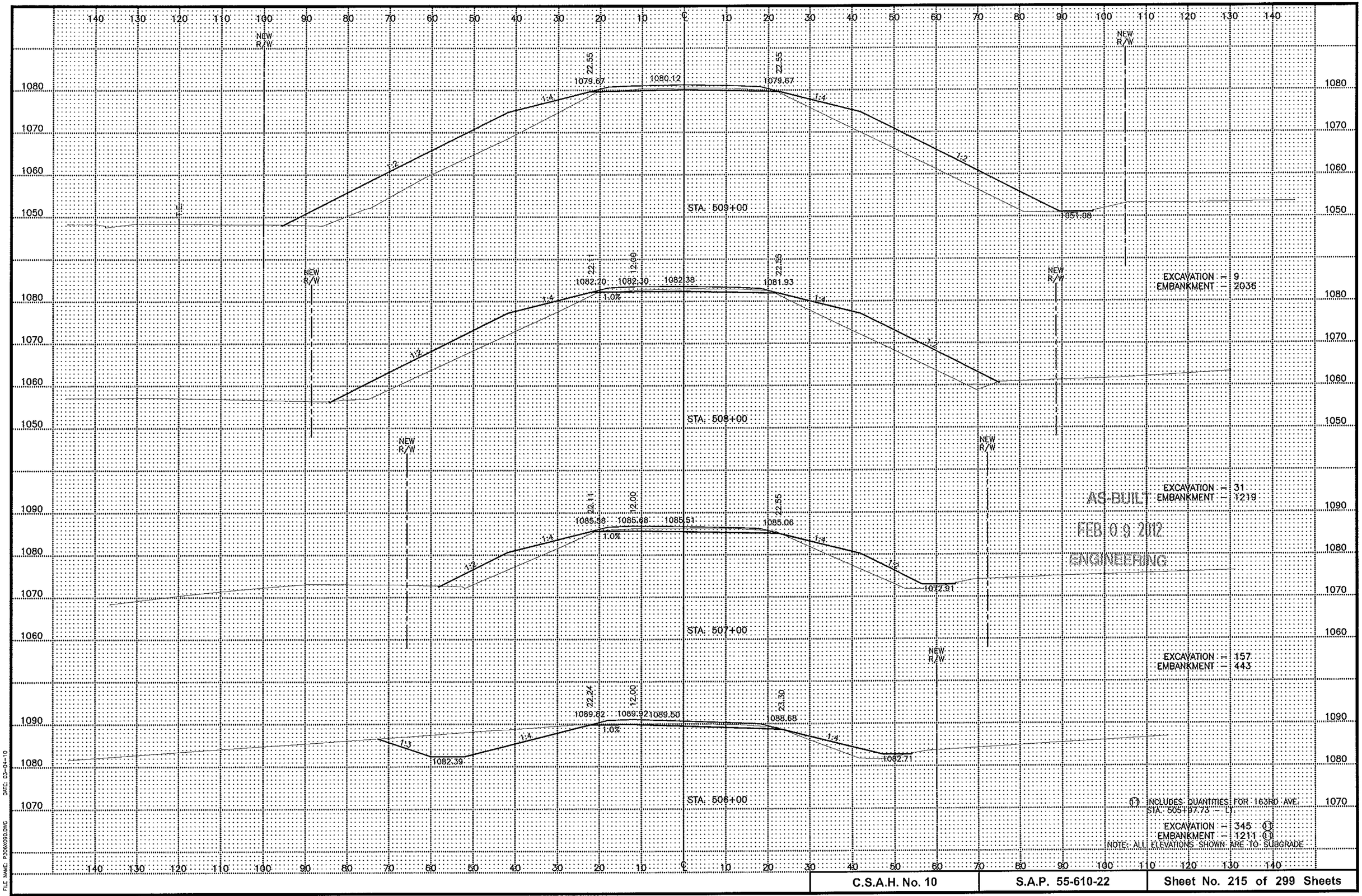
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 213 of 299 Sheets



DATE: 02-04-10

FILE NAME: P:\56X089.DWG

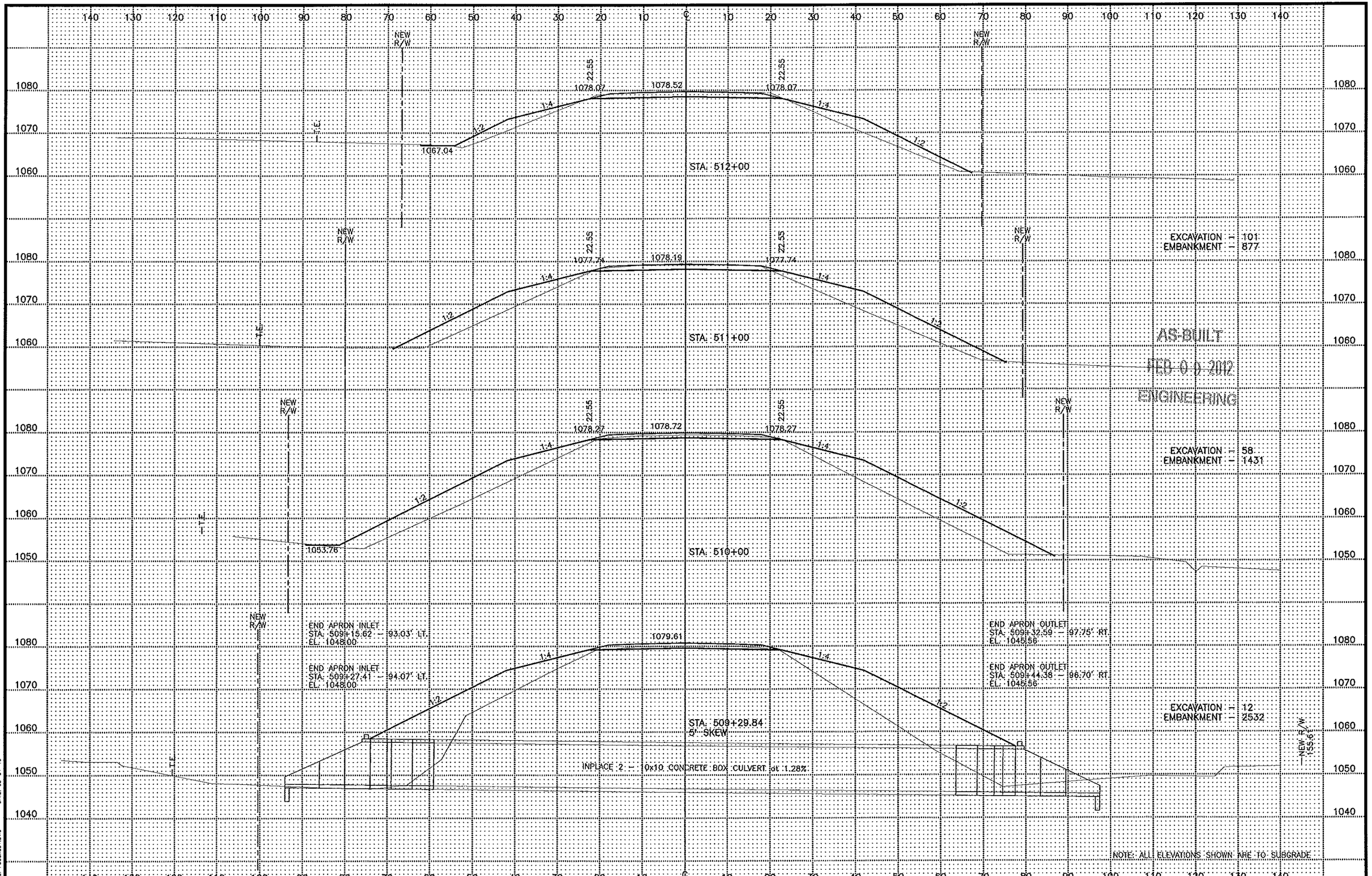
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 214 of 299 Sheets



DATE: 03-04-10

FILE NAME: P306109D.DWG

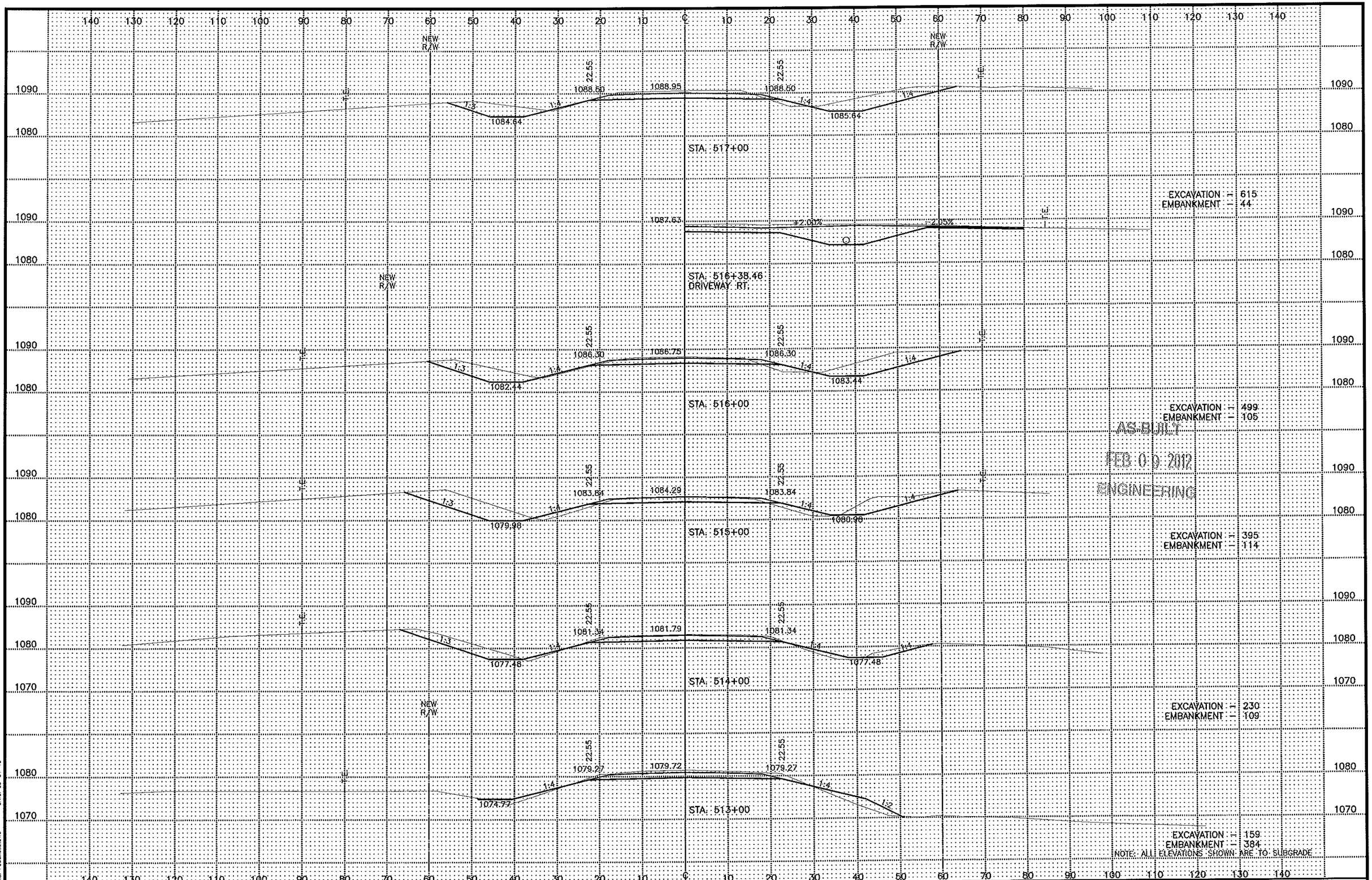
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 215 of 299 Sheets



AS-BUILT
FEB 0 6 2012
ENGINEERING

DATE: 03-04-10
FILE NAME: P306X091.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 216 of 299 Sheets



AS-BUILT

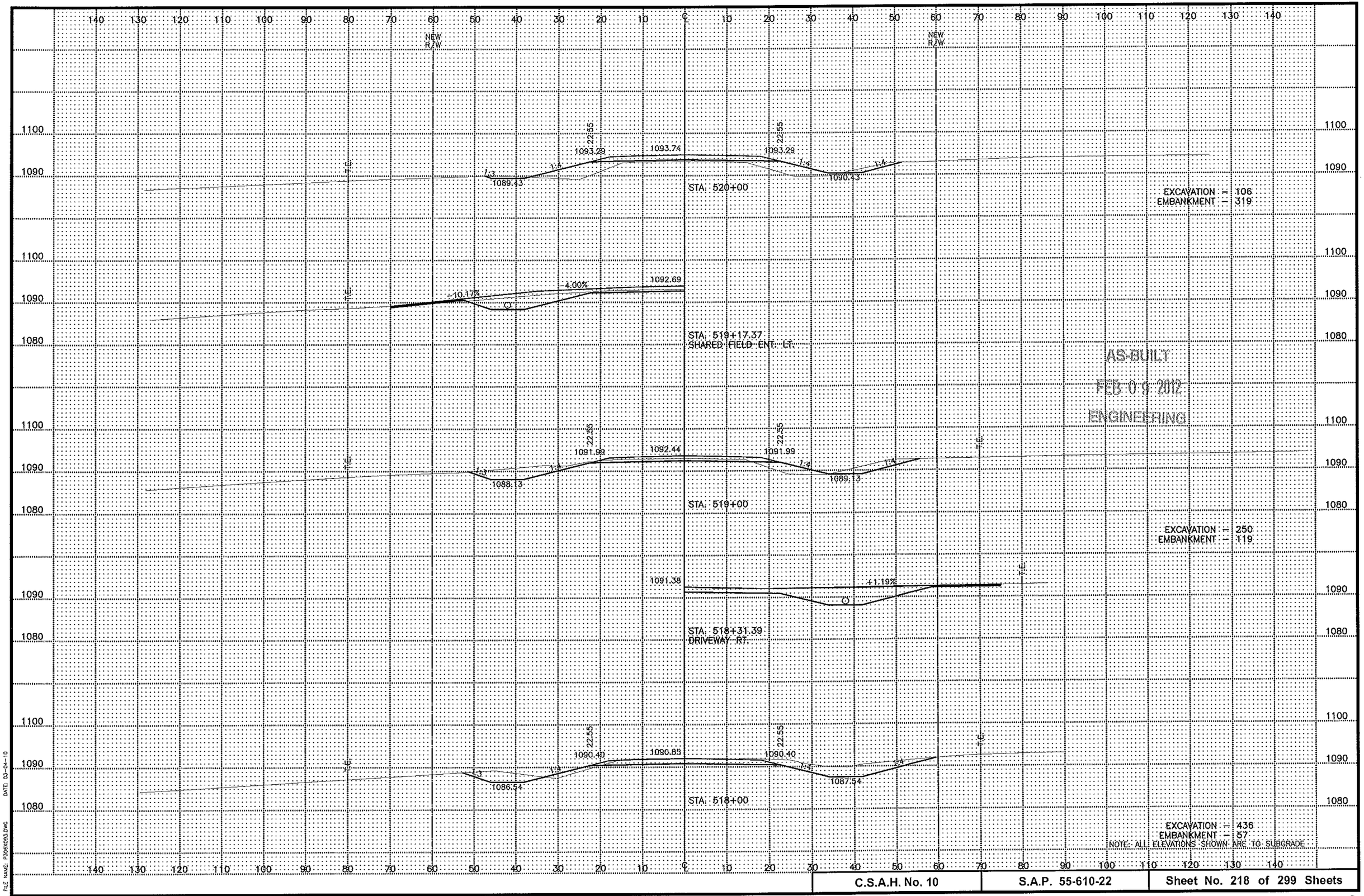
FEB 09 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P206X092.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 217 of 299 Sheets



AS-BUILT

FEB 09 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P306X093.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 218 of 299 Sheets

NEW R/W

NEW R/W

STA. 525+00

1095.23 1095.68 1095.23

1091.40 1091.40

EXCAVATION = 14
EMBANKMENT = 484

STA. 524+00

1095.44 1095.89 1095.44

1091.90

EXCAVATION = 0
EMBANKMENT = 648

STA. 523+00

1095.36 1095.81 1095.36

1092.40

EXCAVATION = 0
EMBANKMENT = 705

STA. 522+00

1094.97 1095.42 1094.97

1092.90

AS-BUILT

FEB 0 3 2012

ENGINEERING

STA. 521+55.19
DRIVEWAY RT.

1095.15

3.55%

EXCAVATION = 24
EMBANKMENT = 574

STA. 521+00

1094.28 1094.73 1094.28

1091.42

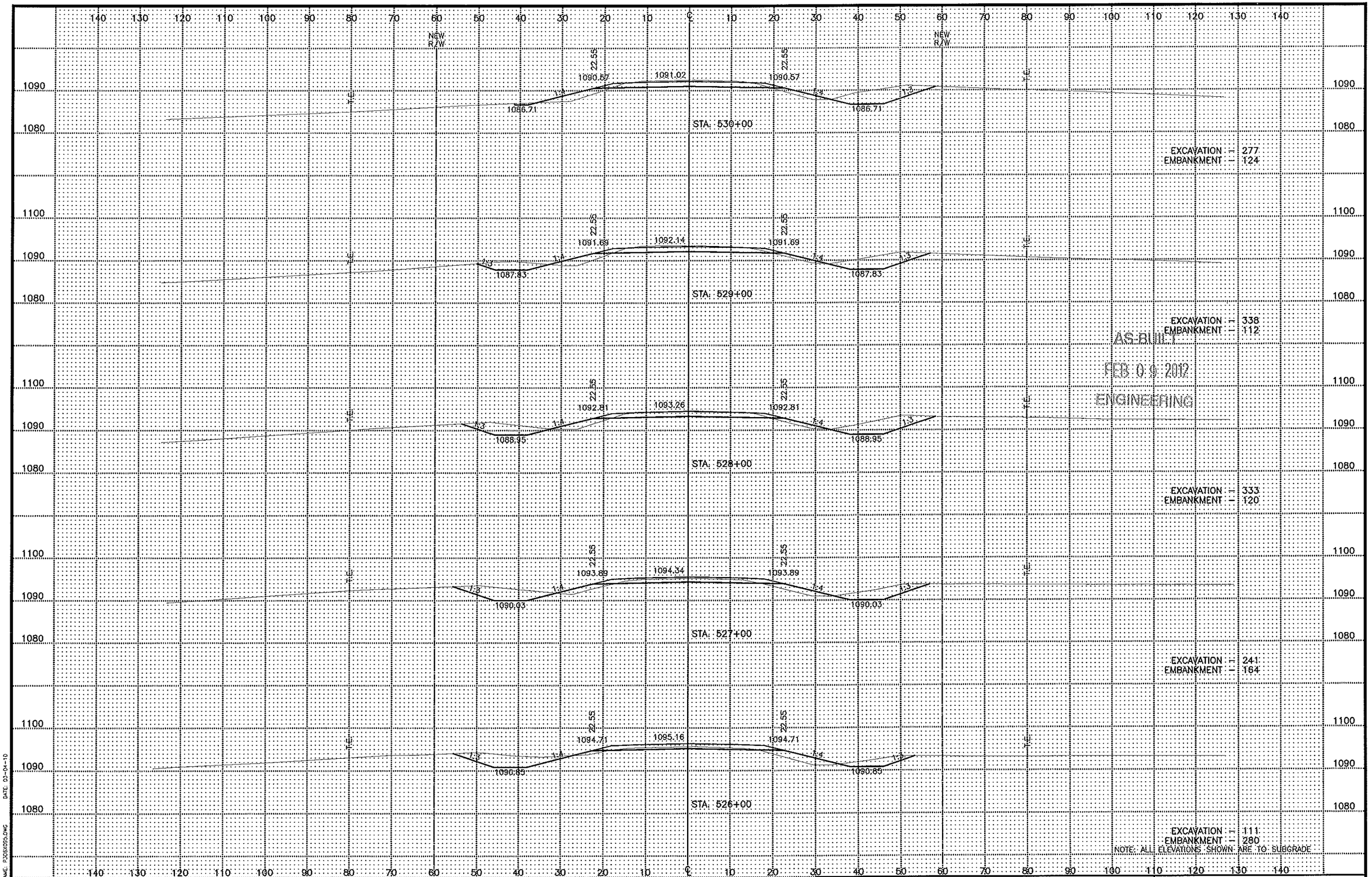
EXCAVATION = 9
EMBANKMENT = 527

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE.

DATE: 03-04-10

FILE NAME: P206X084.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 219 of 299 Sheets



AS-BUILT

FEB 09 2012

ENGINEERING

DATE: 03-04-10

FILE NAME: P:\08X095.DWG

C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 220 of 299 Sheets

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

TOTALS S.A.P. 55-610-22
UNCLASSIFIED EXC. = 217915 CU. YDS.
TOPSOIL EXC. = 39505 CU. YDS.
EMBANKMENT = 161515 CU. YDS.

STA. 278+91.96 – STA. 533+00.00
UNCLASSIFIED EXC. = 145936 CU. YDS.
TOPSOIL EXC. = 24111 CU. YDS.
EMBANKMENT = 108003 CU. YDS.

EXISTING R/W

EXISTING R/W

1090
1080

T.E.

STA. 533+00
MATCH DITCH RT.

EXCAVATION – 3
EMBANKMENT – 0

AS-BUILT

FEB 09 2012

ENGINEERING

1090
1080

T.E.

1:4 1:3

1084.53

NEW R/W

STA. 532+50

NEW R/W

EXCAVATION – 16
EMBANKMENT – 0

1090
1080

T.E.

T.E.

1:4 1:3

1084.78

STA. 532+00

NEW R/W

EXCAVATION – 117
EMBANKMENT – 33

1090
1080

22.55

1088.89

1089.34

22.55

1088.89

T.E.

1:4 1:4 1:3

1085.03

STA. 531+50.00
END C/L GRADING

NEW R/W

EXCAVATION – 207
EMBANKMENT – 67

1090
1080

22.55

1089.45

1089.90

22.55

1089.45

T.E.

T.E.

1:4 1:4 1:3

1085.59

STA. 531+00

EXCAVATION – 355
EMBANKMENT – 130

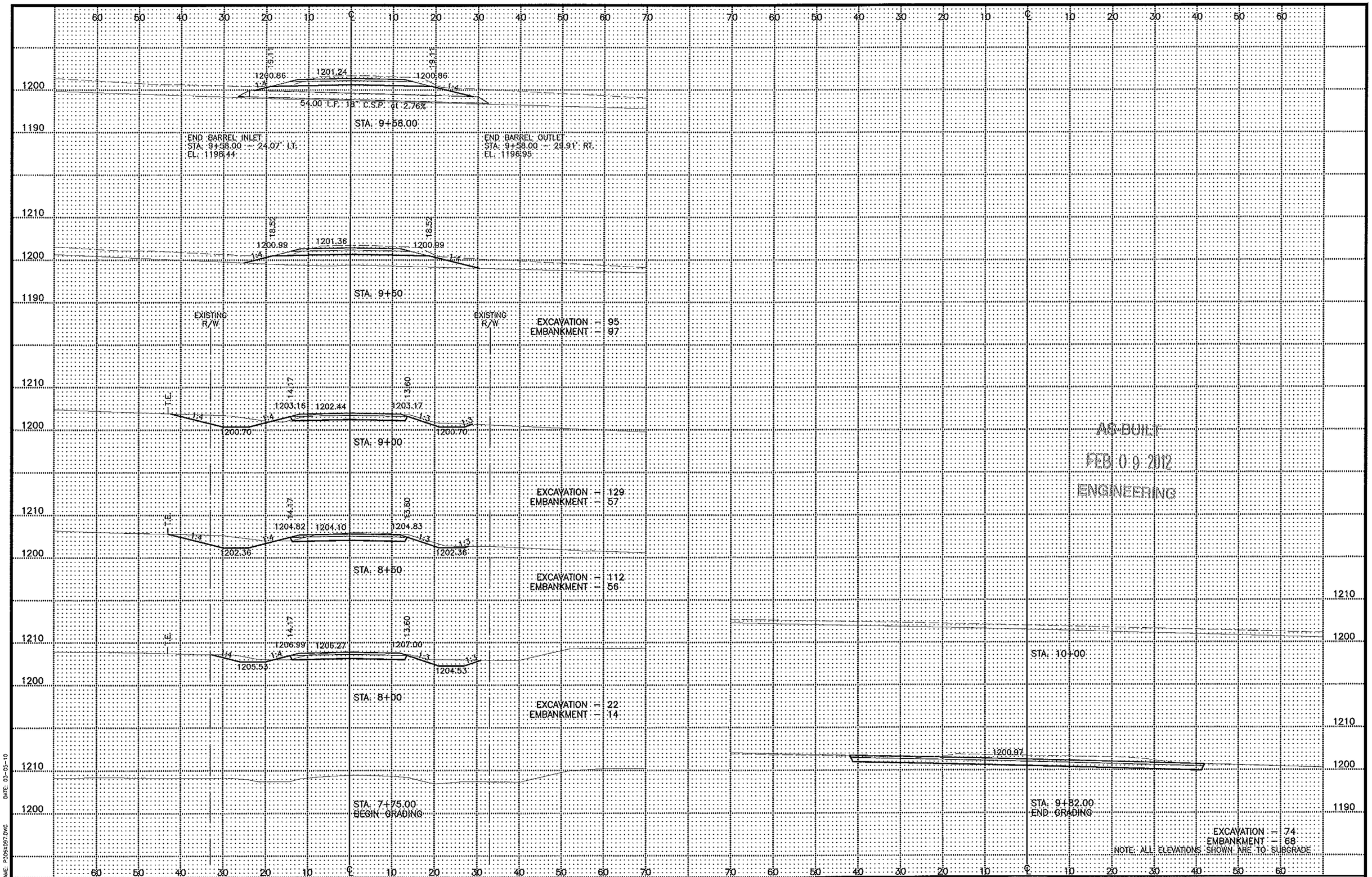
NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140

DATE: 03-04-10

FILE NAME: P:\05X096.DWG

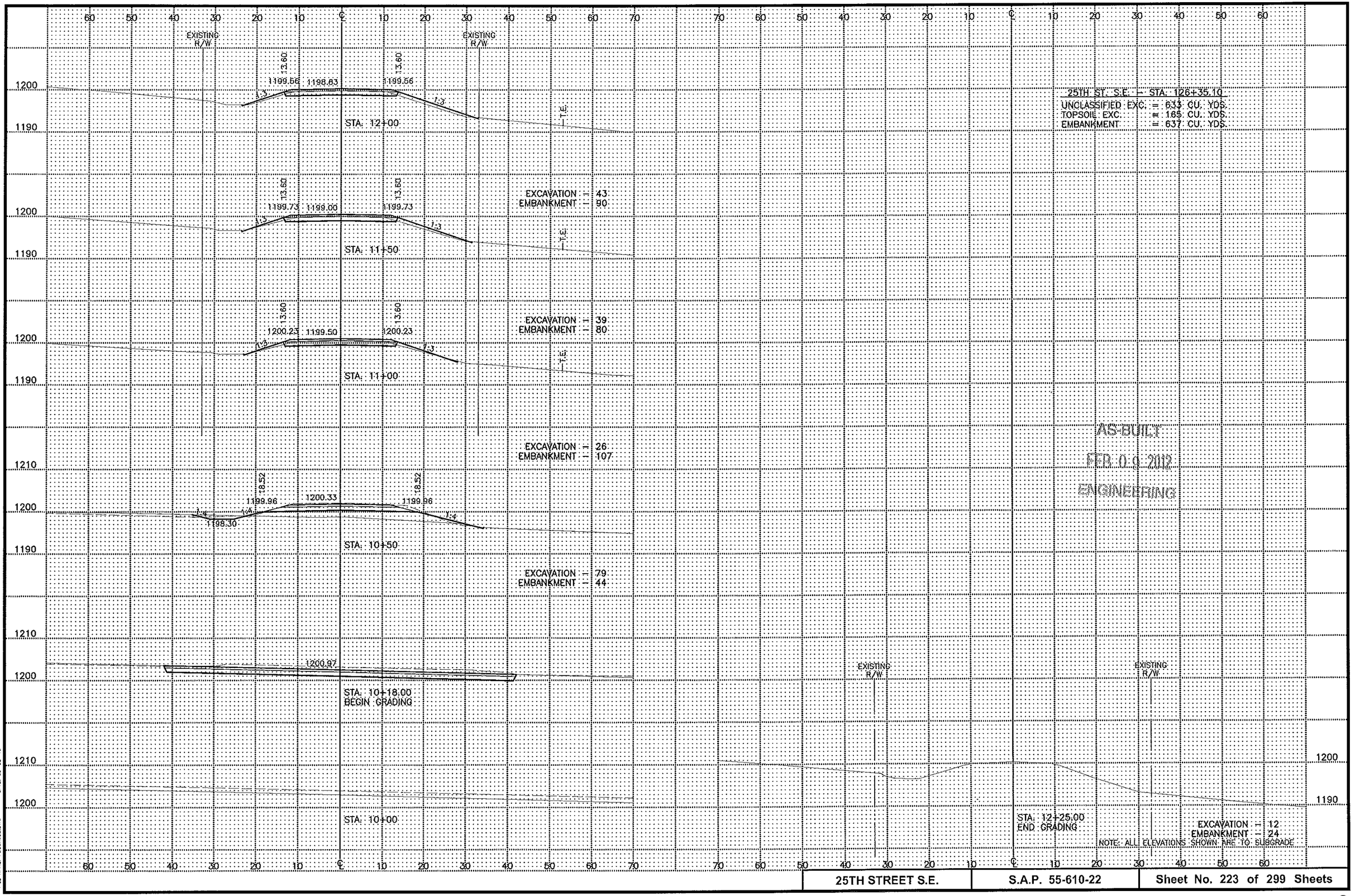
C.S.A.H. No. 10	S.A.P. 55-610-22	Sheet No. 221 of 299 Sheets



DATE: 02-05-10

FILE NAME: P3060097.DWG

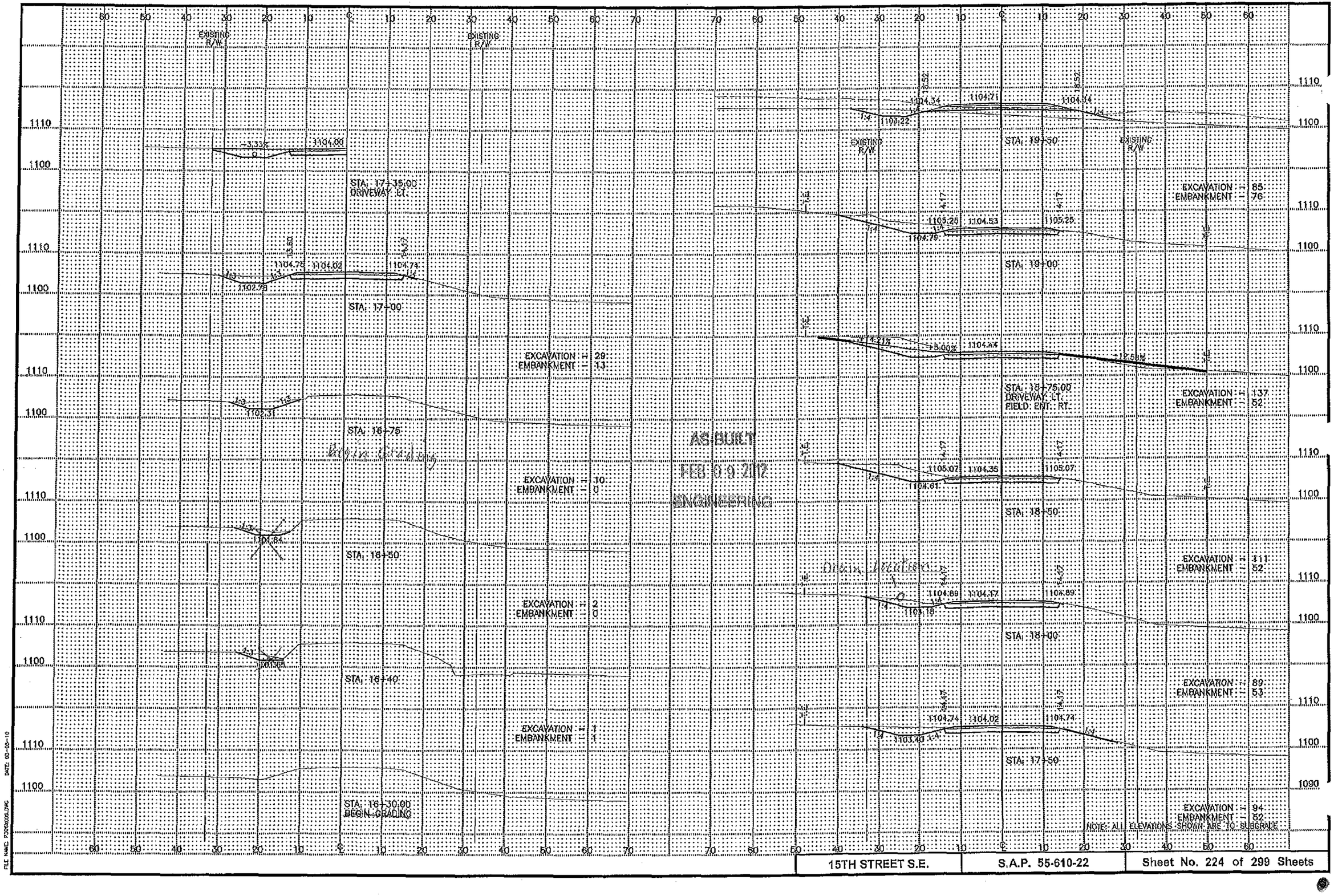
25TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 222 of 299 Sheets



DATE: 03-05-10

FILE NAME: P3069098.DWG

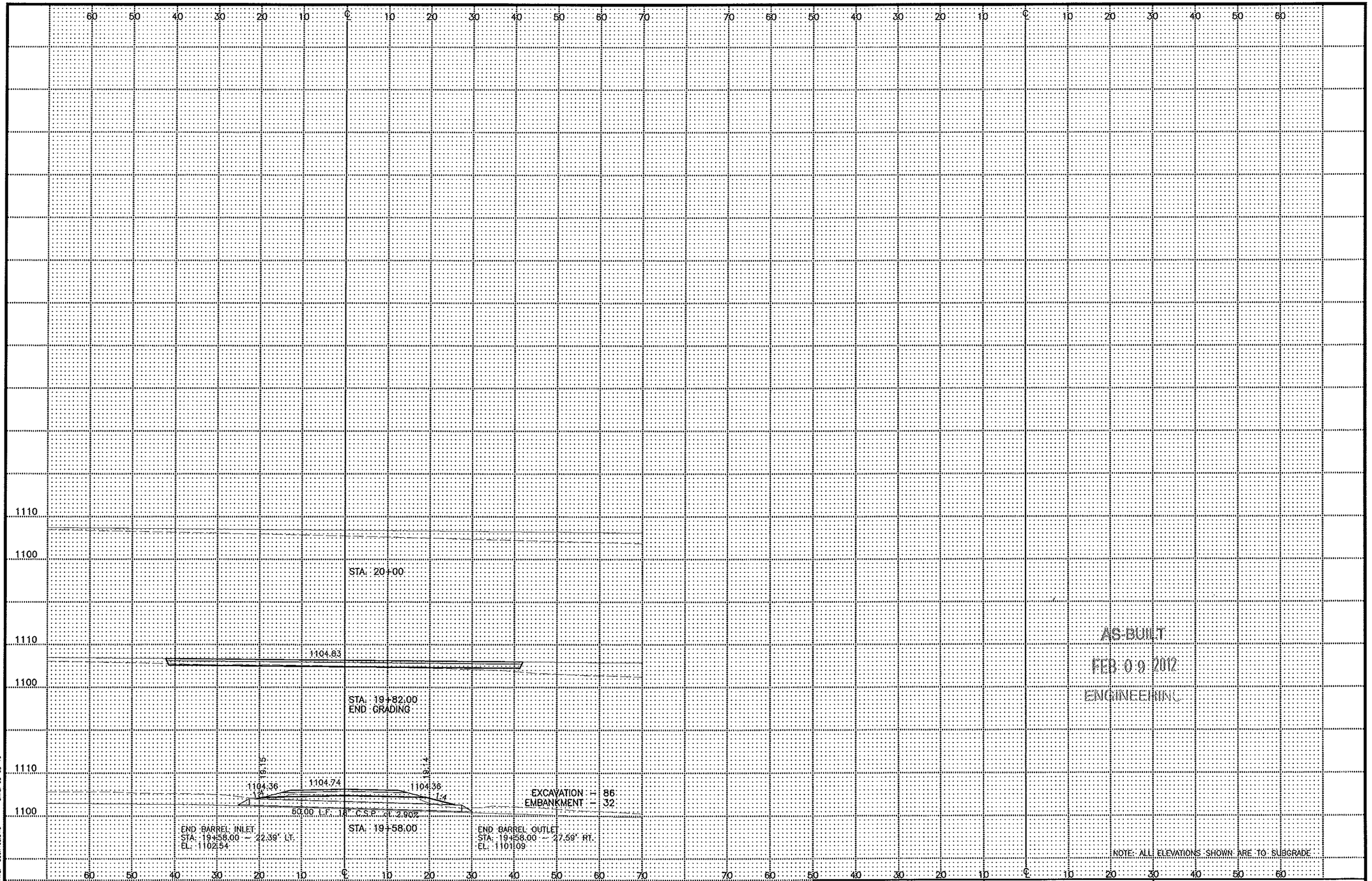
25TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 223 of 299 Sheets



DATE: 03-03-10

FILE NAME: P2006005.DWG

15TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 224 of 299 Sheets



DATE: 03-05-10

FILE NAME: P305X160.DWG

15TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 225 of 299 Sheets

15TH ST. S.E. – STA. 179+15.12
UNCLASSIFIED EXC. = 1083 CU. YDS.
TOPSOIL EXC. = 264 CU. YDS.
EMBANKMENT = 719 CU. YDS.

AS-BUILT
FEB 09 2012
ENGINEERING

EXISTING R/W
T.E.
13.60
1105.89
1105.16
1103.62
1103.42
1:3
STA. 21+50
EXCAVATION = 73
EMBANKMENT = 53

STA. 21+00
EXCAVATION = 25
EMBANKMENT = 113

13.52
1104.59
1104.96
1:4
STA. 20+50

13.06
13.13
1104.55
1104.93
52.00 L.F. 18" C.S.P. at 0.87%
END BARREL INLET
STA. 20+42.00 – 25.07' LT.
EL. 1101.80
STA. 20+42.00
END BARREL OUTLET
STA. 20+42.00 – 26.93' RT.
EL. 1101.35
EXCAVATION = 74
EMBANKMENT = 55

1104.83
STA. 20+18.00
BEGIN GRADING

STA. 20+00

STA. 23+25.00
END GRADING

EXCAVATION = 16
EMBANKMENT = 14

1103.45
1102.72
1100.98
STA. 23+00

EXCAVATION = 70
EMBANKMENT = 53

1104.67
1103.94
1102.20
STA. 22+50

EXCAVATION = 85
EMBANKMENT = 51

1105.48
1104.75
1103.01
STA. 22+00

EXCAVATION = 95
EMBANKMENT = 50

-1.19%
4.59%
1106.61
STA. 21+60.00
FIELD ENT. LT.
FIELD ENT. RT.

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-05-10
FILE NAME: P305X101.DWG

15TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 226 of 299 Sheets

STA: 27+50
EXCAVATION = 30
EMBANKMENT = 95

STA: 27+00
EXCAVATION = 53
EMBANKMENT = 103

STA: 26+50
EXCAVATION = 72
EMBANKMENT = 103

STA: 26+00
EXCAVATION = 79
EMBANKMENT = 108

STA: 25+50
EXCAVATION = 19
EMBANKMENT = 29

STA: 25+25.00
BEGIN GRADING

STA: 30+00

STA: 29+82.00
END GRADING
EXCAVATION = 74
EMBANKMENT = 28

STA: 29+50
EXCAVATION = 0
EMBANKMENT = 172

STA: 29+00
EXCAVATION = 0
EMBANKMENT = 229

STA: 28+50
EXCAVATION = 0
EMBANKMENT = 174

STA: 28+00
EXCAVATION = 10
EMBANKMENT = 119

AS-BUILT
FEB 09 2012
ENGINEERING

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

DATE: 03-05-10
FILE NAME: P306X102.DWG

10TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 227 of 299 Sheets

10TH ST. S.E. – STA. 205+60.98
UNCLASSIFIED EXC. = 730 CU. YDS.
TOPSOIL EXC. = 329 CU. YDS.
EMBANKMENT = 1480 CU. YDS.

AS-BUILT
FEB 09 2012
ENGINEERING

NEW R/W
EXISTING R/W

STA. 31+50
EXCAVATION = 106
EMBANKMENT = 59
13.60 | 1155.46 | 1154.73 | 1155.46 | 13.60 | T.E.
1:3 | 1:3 | 1153.99 | 1:3 | 1:3 | 1152.99

STA. 31+00
EXCAVATION = 64
EMBANKMENT = 111
13.60 | 1155.60 | 1154.87 | 1155.60 | 13.60 | T.E.
1:3 | 1:3 | 1153.13 | 1:3 | 1:3 | 1153.13

STA. 30+50
13.52 | 1154.64 | 1155.01 | 1154.64 | 13.52
1:3 | 1:4 | 1152.71 | 1:4

STA. 30+42.00
EXCAVATION = 79
EMBANKMENT = 51
13.52 | 1154.66 | 1155.03 | 1154.66 | 13.52
1:4 | 1:4
51.00 L.F. 12" C.S.P. at 2.53%
END BARREL INLET
STA. 30+42.00 – 22.98' LT.
EL. 1152.39
END BARREL OUTLET
STA. 30+42.00 – 28.00' RT.
EL. 1151.10

STA. 30+18.00
BEGIN GRADING
1155.10

STA. 30+00

STA. 32+50.00
END GRADING

STA. 32+25
EXCAVATION = 16
EMBANKMENT = 15
13.60 | 1155.25 | 1154.52 | 1155.25 | 13.60 | T.E.
1:3 | 1154.78 | 1:3

STA. 32+00
EXCAVATION = 37
EMBANKMENT = 29
13.60 | 1155.32 | 1154.59 | 1155.32 | 13.60 | T.E.
1:3 | 1154.85 | 1:3 | 1:3 | 1152.85

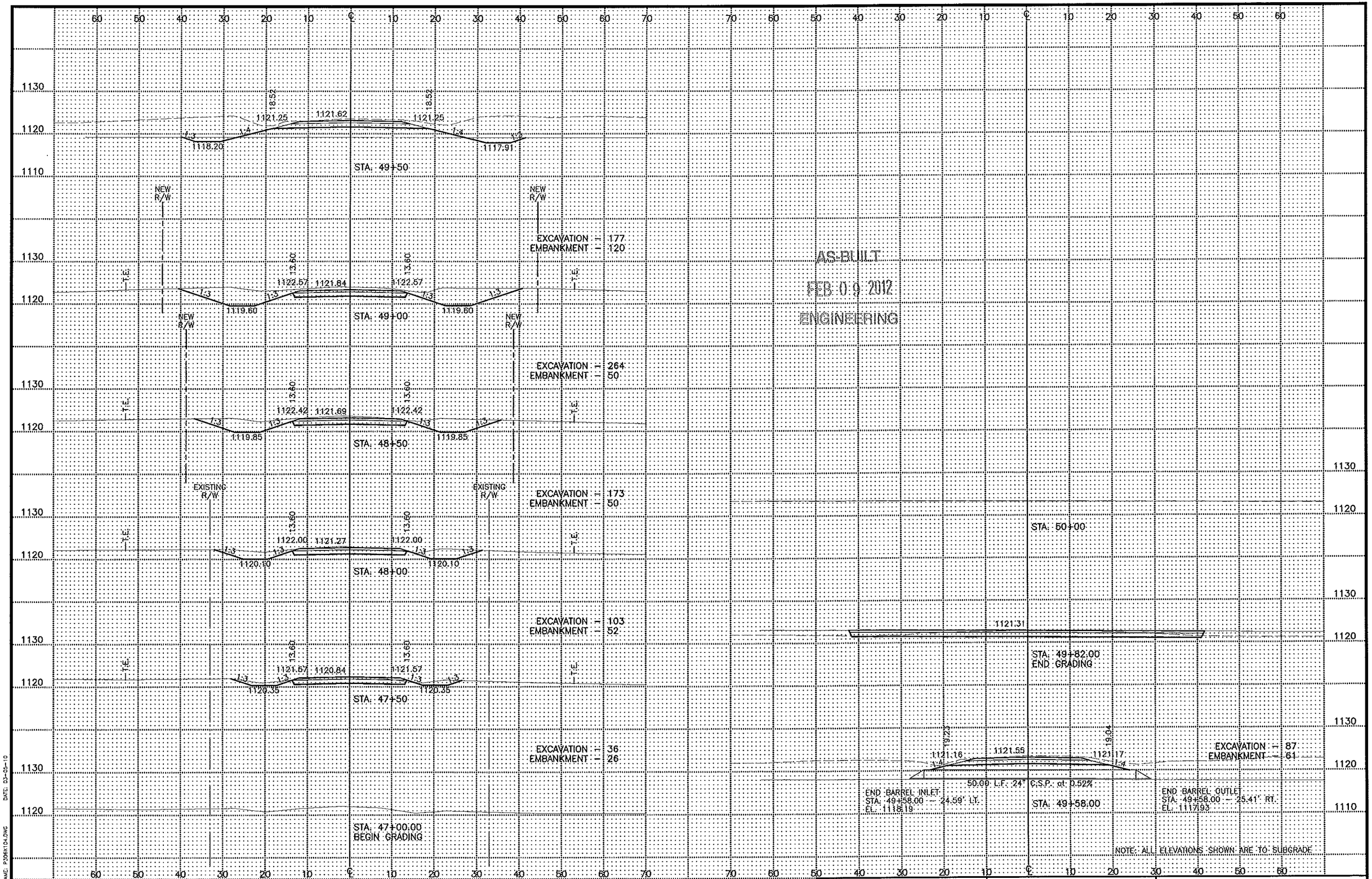
STA. 31+95.00
DRIVEWAY LT.
+1.45% | -1.00% | 1154.60
EXCAVATION = 91
EMBANKMENT = 55

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

1160
1150

10TH STREET S.E.	S.A.P. 55-610-22	Sheet No. 228 of 299 Sheets

DATE: 03-05-10
FILE NAME: P30BX103.DWG



QUINCY ROAD N.E.	S.A.P. 55-610-22	Sheet No. 229 of 299 Sheets

QUINCY RD. N.E. – STA. 310+86.73
UNCLASSIFIED EXC. = 1561 CU. YDS.
TOPSOIL EXC. = 261 CU. YDS.
EMBANKMENT = 732 CU. YDS.

AS-BUILT
FEB 09 2012
ENGINEERING

STA. 51+50
NEW R/W
T.E.
1123.33 1122.60 1123.33
1120.86 1120.86
EXCAVATION = 204
EMBANKMENT = 50

STA. 51+00
1122.86 1122.13 1122.86
1119.89 1119.89
EXCAVATION = 147
EMBANKMENT = 120

STA. 50+50
EXISTING R/W
1121.26 1121.63 1121.26
1118.24 1117.95
EXCAVATION = 86
EMBANKMENT = 61

STA. 50+42.00
50.00 L.F. 24" C.S.P. at 0.52%
1121.17 1121.55 1121.17
END BARREL INLET
STA. 50+42.00 – 24.45' LT.
EL. 1118.19
END BARREL OUTLET
STA. 50+42.00 – 25.55' RT.
EL. 1117.93

STA. 50+18.00
BEGIN GRADING
1121.31

STA. 50+00

STA. 53+00.00
END GRADING
EXISTING R/W
EXCAVATION = 18
EMBANKMENT = 13

STA. 52+75
1123.65 1122.92 1123.65
1121.52 1121.52
EXCAVATION = 40
EMBANKMENT = 26

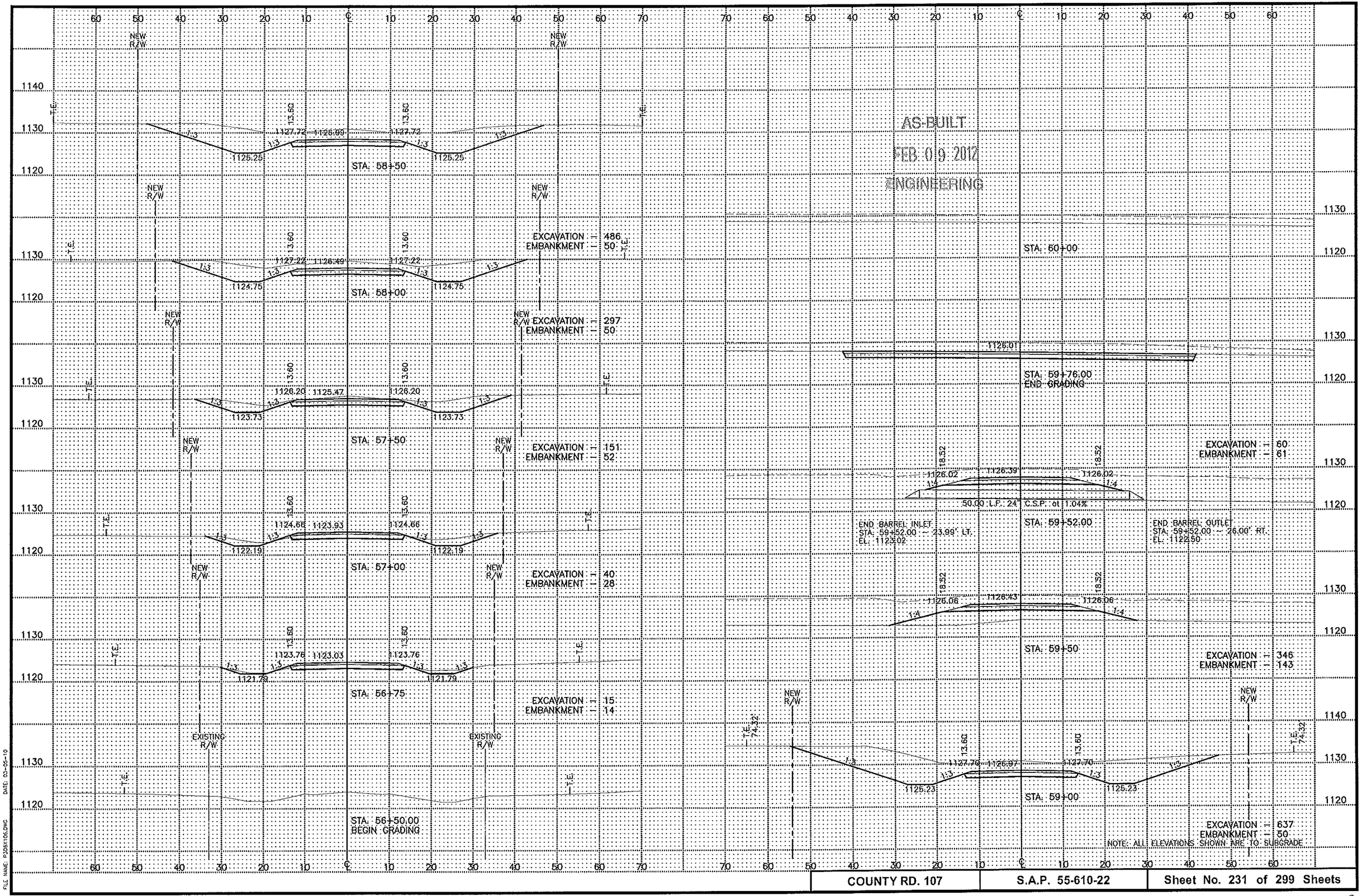
STA. 52+50
1123.69 1122.96 1123.69
1121.40 1121.40
EXCAVATION = 97
EMBANKMENT = 52

STA. 52+00
1123.62 1122.89 1123.62
1121.15 1121.15
EXCAVATION = 130
EMBANKMENT = 51

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

QUINCY ROAD N.E.	S.A.P. 55-610-22	Sheet No. 230 of 299 Sheets

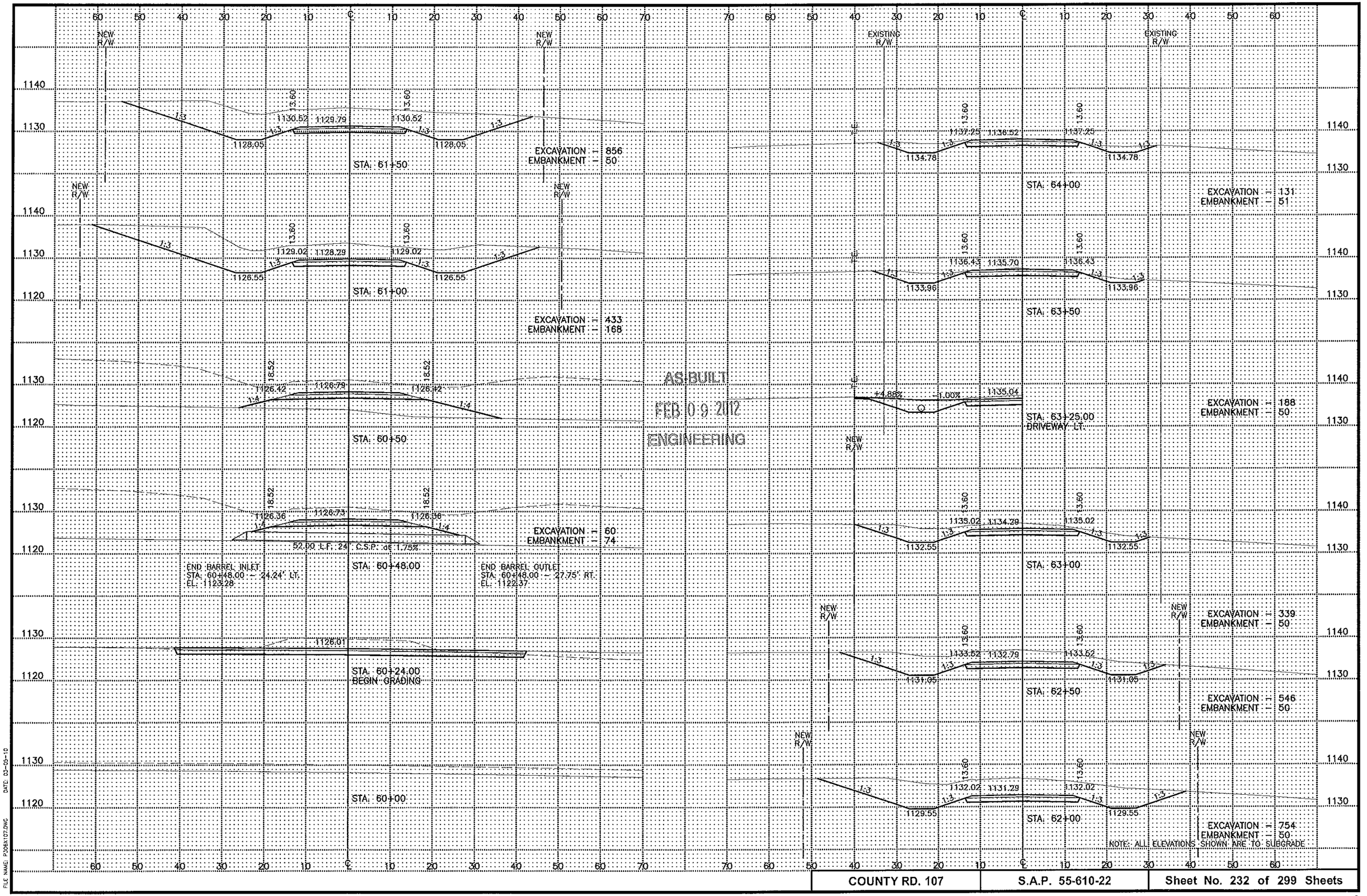
DATE: 03-05-10
FILE NAME: P306X105.DWG



DATE: 03-05-10

FILE NAME: P3081105.DWG

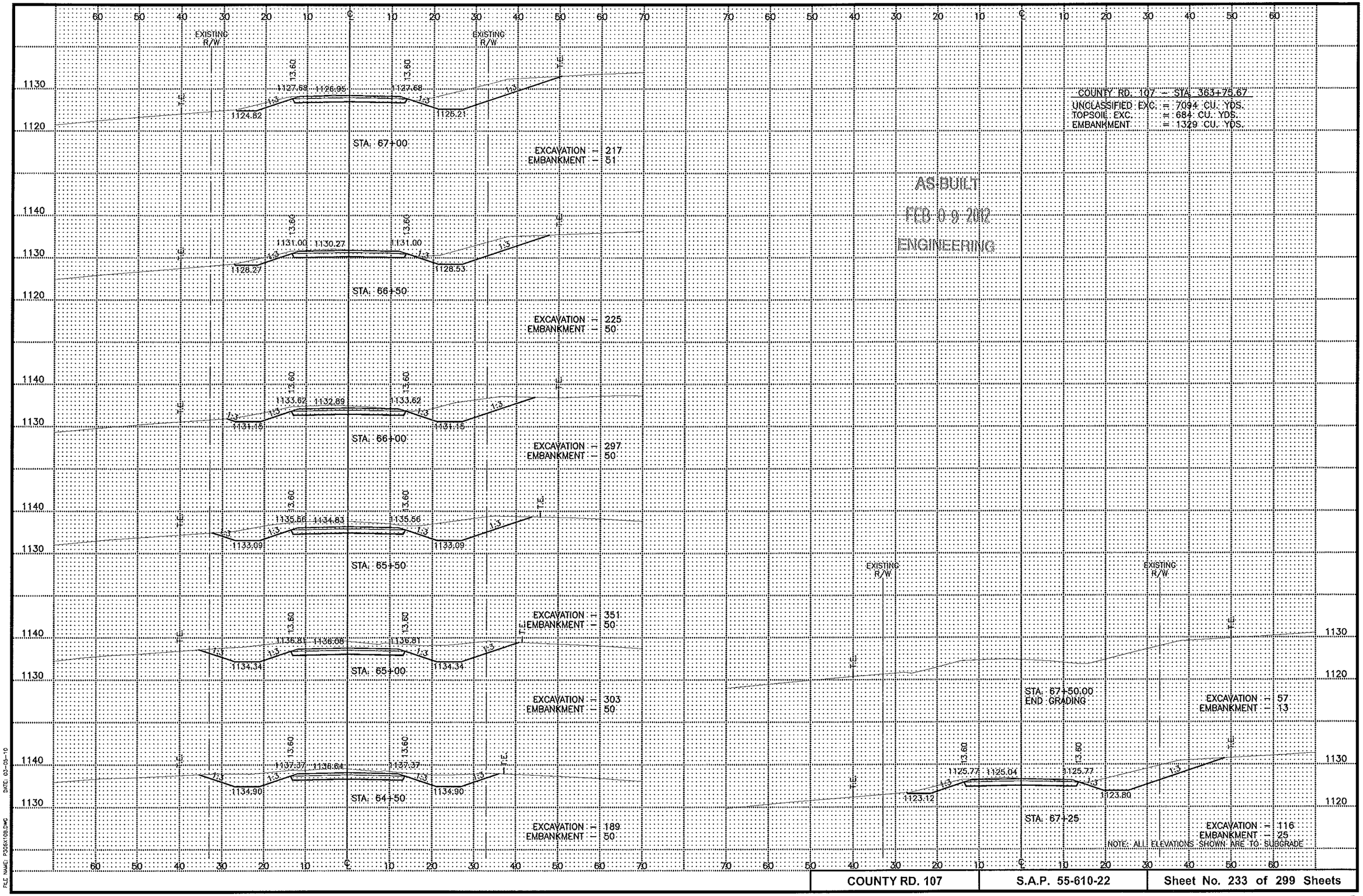
COUNTY RD. 107	S.A.P. 55-610-22	Sheet No. 231 of 299 Sheets



DATE: 03-05-10

FILE NAME: P306X107.DWG

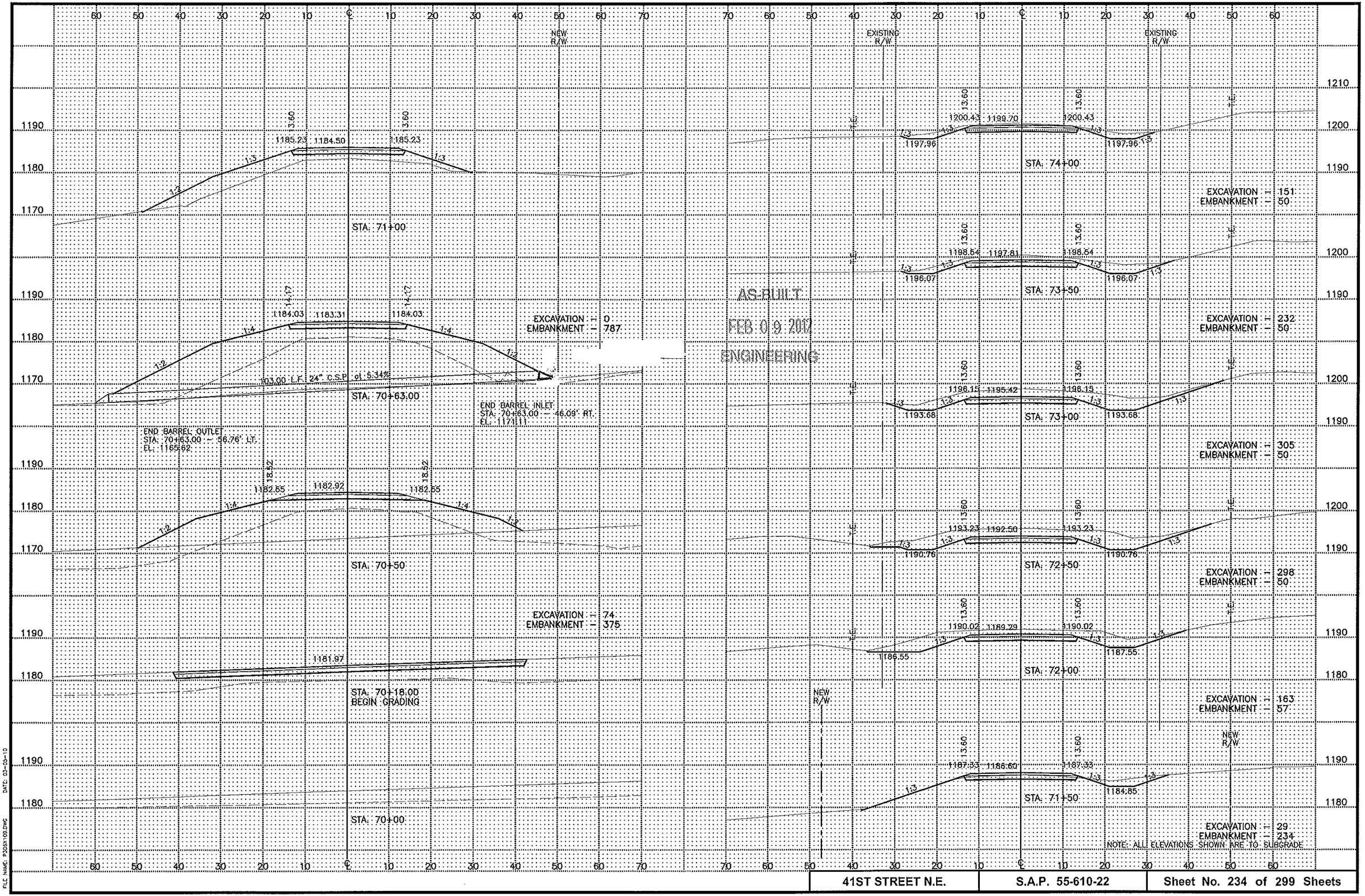
COUNTY RD. 107	S.A.P. 55-610-22	Sheet No. 232 of 299 Sheets



DATE: 03-05-10

FILE NAME: P305X108.DWG

COUNTY RD. 107	S.A.P. 55-610-22	Sheet No. 233 of 299 Sheets



41ST STREET N.E.	S.A.P. 55-610-22	Sheet No. 234 of 299 Sheets

41ST ST. N.E. – STA. 416+39.21

UNCLASSIFIED EXC. = 1399 CU. YDS.
TOPSOIL EXC. = 270 CU. YDS.
EMBANKMENT = 1744 CU. YDS.

AS-BUILT

FEB 0 9 2012

ENGINEERING

EXISTING R/W

EXISTING R/W

T.E.

STA. 75+00.00
END GRADING

EXCAVATION – 15
EMBANKMENT – 13

1210
1200
1190

60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70

13.60

1202.30 1201.57 1202.30

1:3

1199.72

1199.83

STA. 74+75

EXCAVATION – 34
EMBANKMENT – 26

1201.79 1201.06 1201.79

1199.32

1199.32

STA. 74+50

12.25% 4.00% 1200.36

STA. 74+22.00
FIELD ENT. LT.

EXCAVATION – 99
EMBANKMENT – 50

NOTE: ALL ELEVATIONS SHOWN ARE TO SUBGRADE

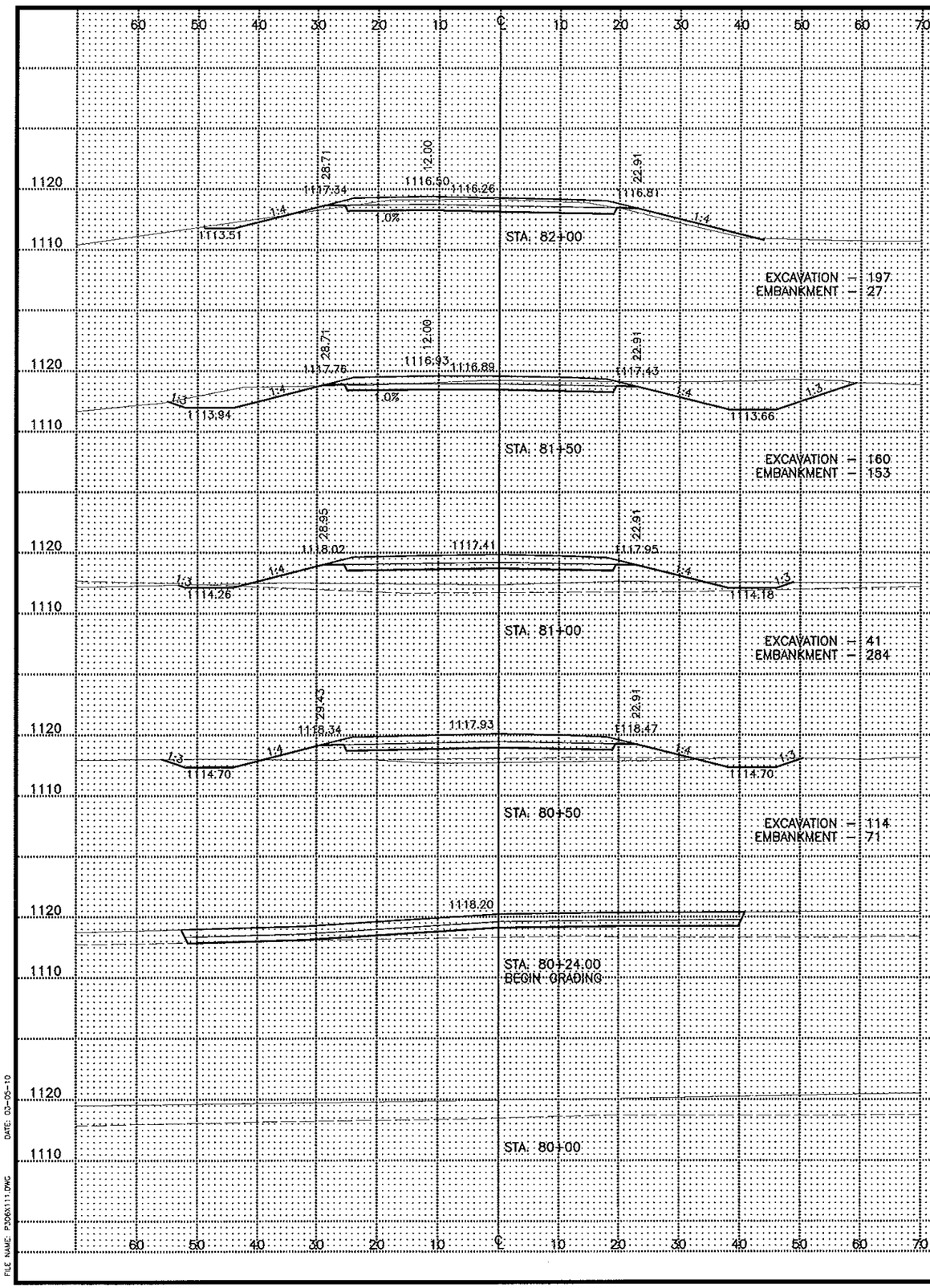
41ST STREET N.E.	S.A.P. 55-610-22	Sheet No. 235 of 299 Sheets

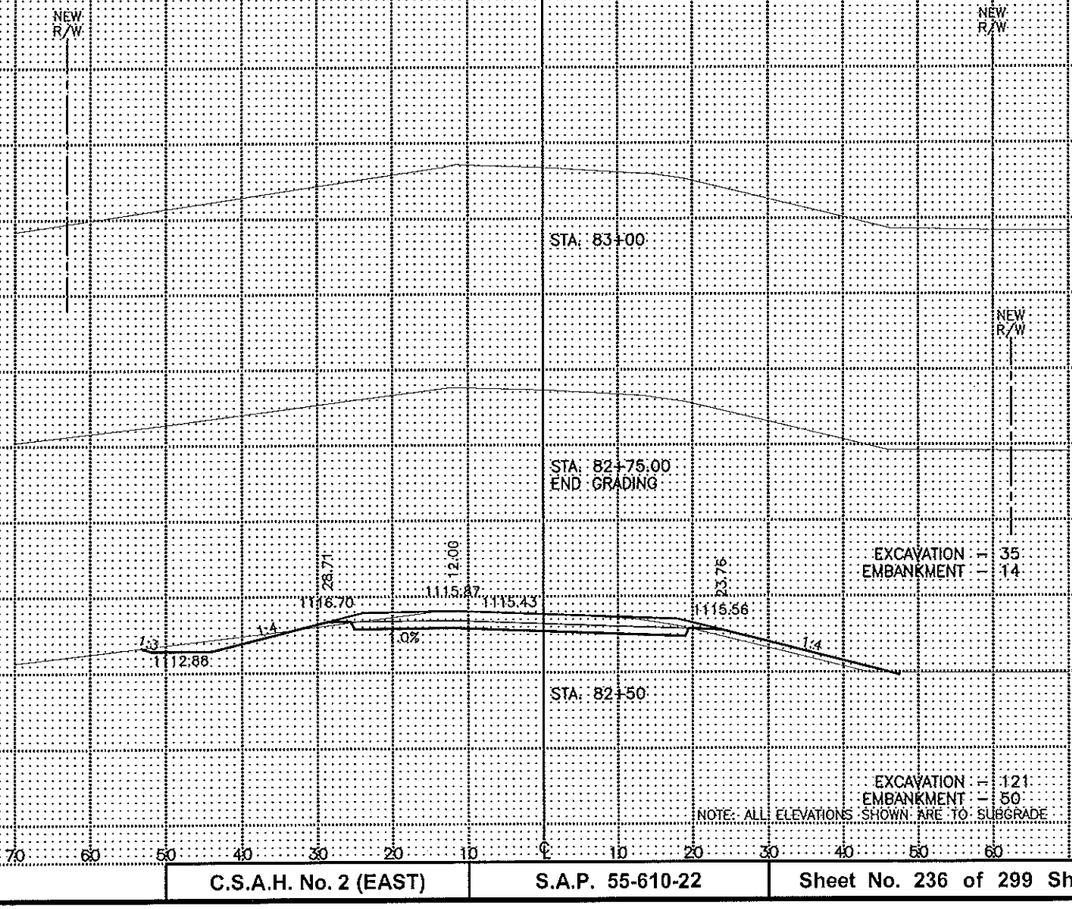
DATE: 03-05-10

FILE NAME: P206X110.DWG

C.S.A.H. 2 (EAST) – STA. 467+16.52
UNCLASSIFIED EXC. = 667 CU. YDS.
TOPSOIL EXC. = 81 CU. YDS.
EMBANKMENT = 599 CU. YDS.

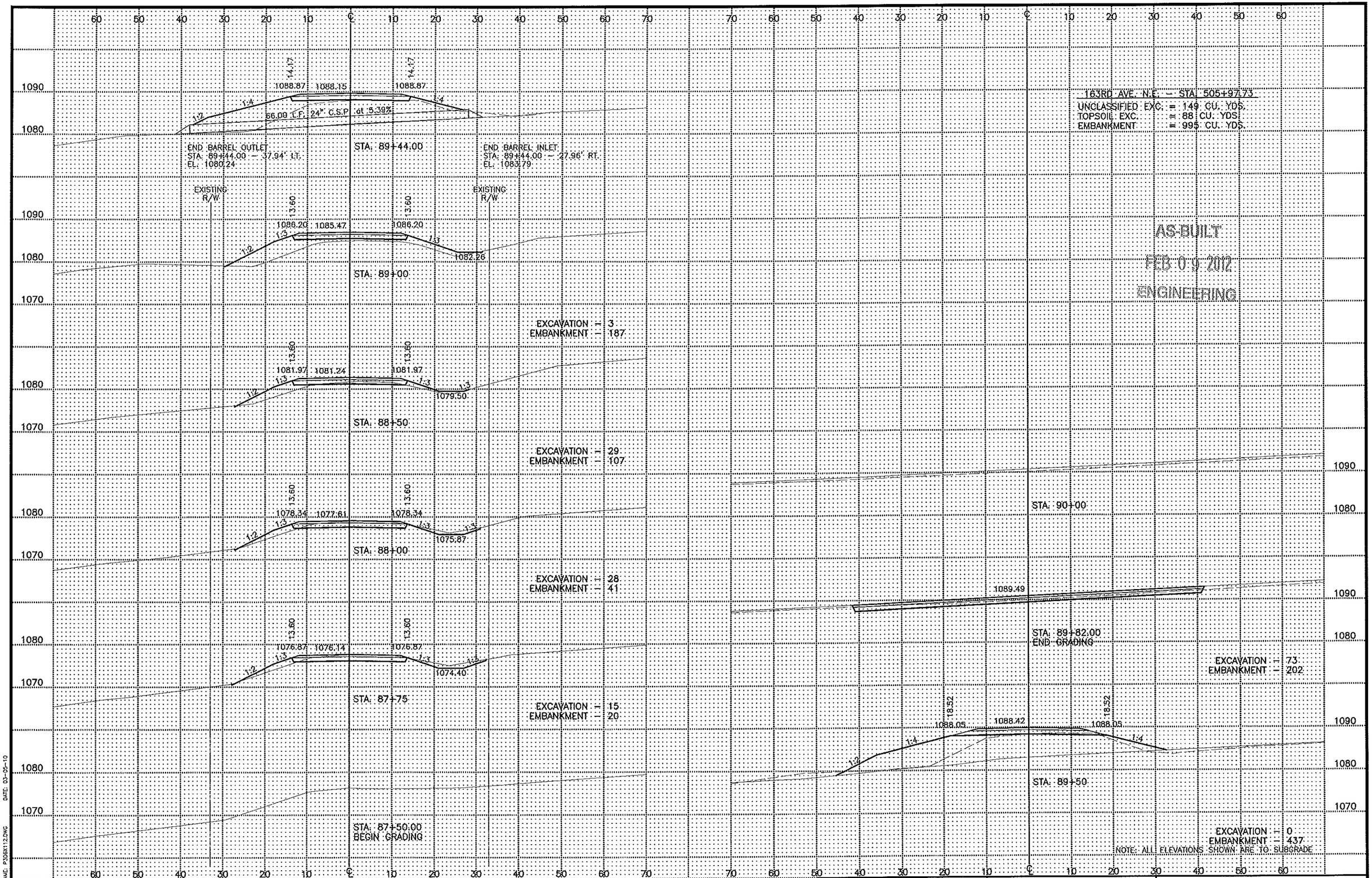
AS-BUILT
FEB 09 2012
ENGINEERING





DATE: 03-05-10
FILE NAME: P306X111.DWG

C.S.A.H. No. 2 (EAST)	S.A.P. 55-610-22	Sheet No. 236 of 299 Sheets



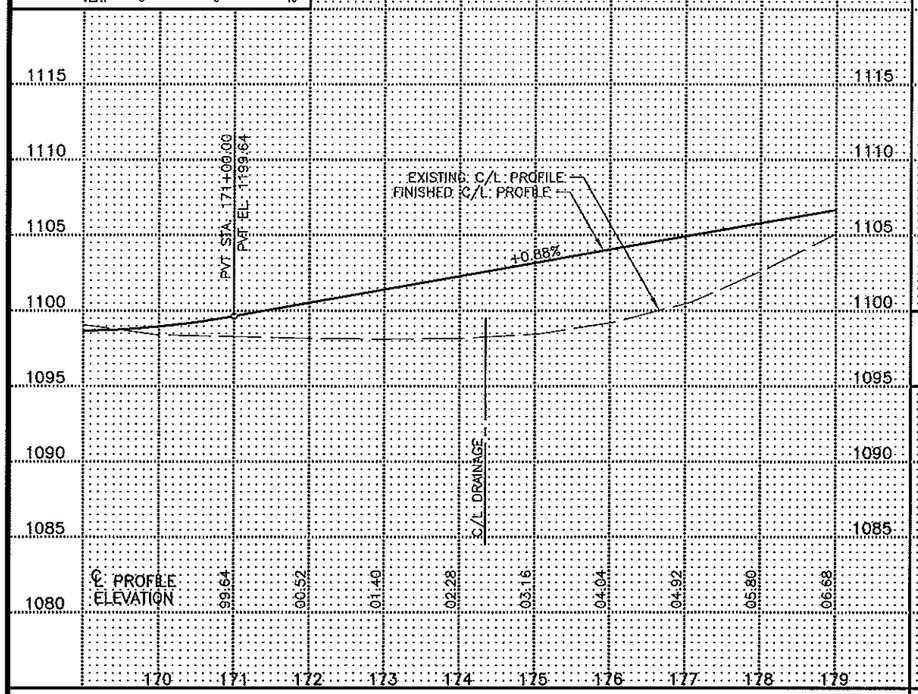
DATE: 03-05-10

FILE NAME: P3086112.DWG

163RD AVENUE N.E.	S.A.P. 55-610-22	Sheet No. 237 of 299 Sheets

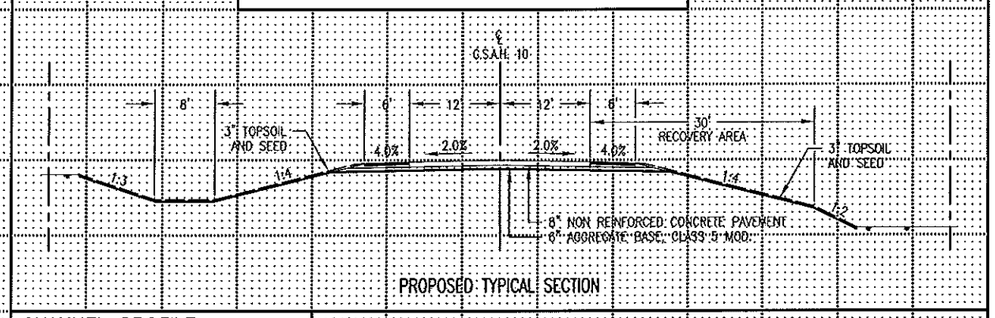
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

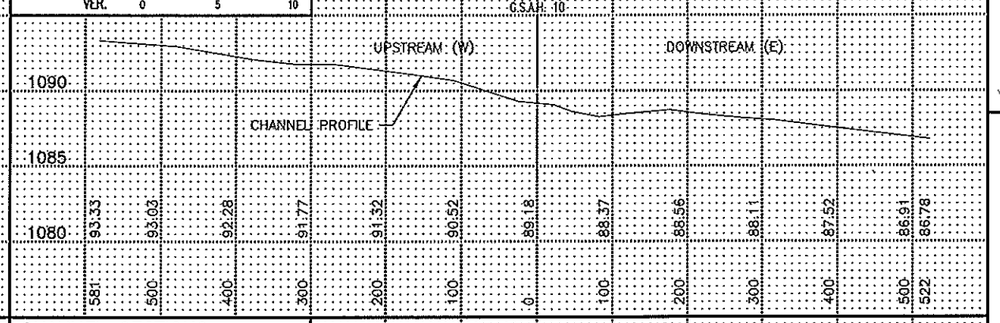
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

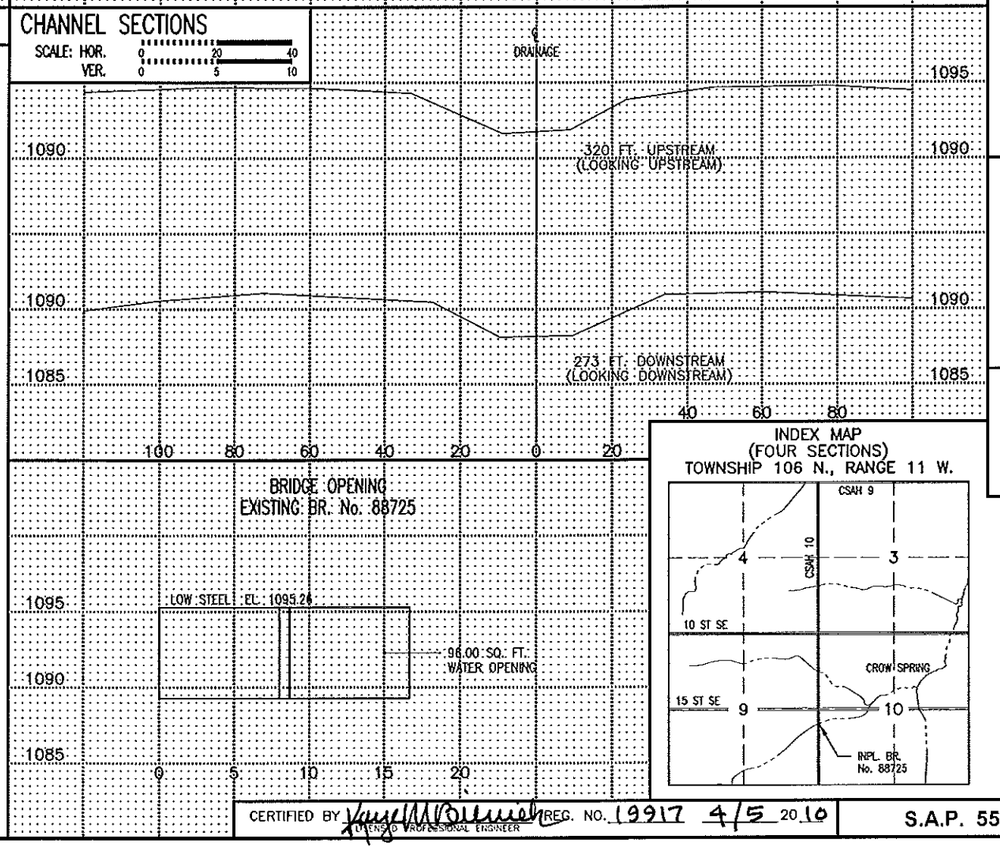
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10

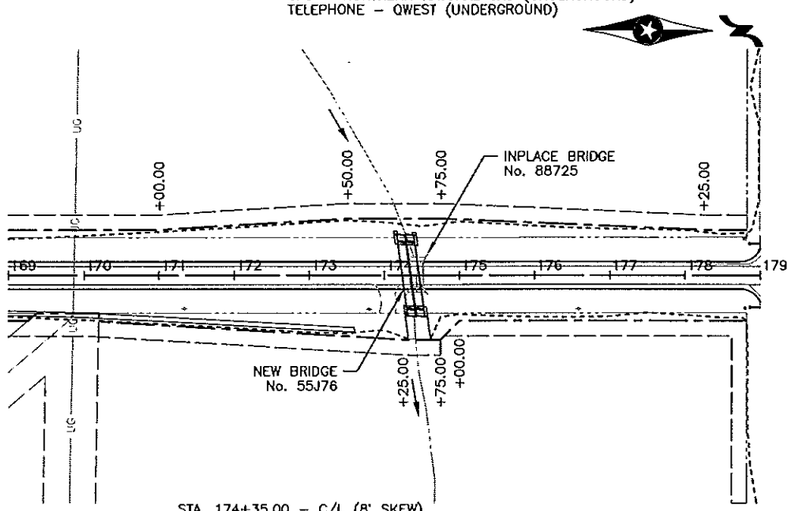


PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

ELECTRIC – ALLIANT ENERGY (OVERHEAD)
GAS – NORTHERN NATURAL GAS (UNDERGROUND)
TELEPHONE – QWEST (UNDERGROUND)



STA. 174+35.00 – C/L (8' SKEW)
BRIDGE No. 55J76
REMOVE INPLACE BRIDGE No. 88725
2 – 10x6 x 84.0D L.F. P.C. BOX CULVERT
2 – 10x6 P.C. END SECTION (15° SKEW, INLET)
2 – 10x6 P.C. END SECTION (15° SKEW, OUTLET)
10 C.Y. CL. III RIPRAP AT INLET
58 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 152+66.56
Δ=00°00'03" LT.
X=704650.7744
Y=158433.1259

PI STA. 179+15.12
Δ=00°27'19" LT.
X=704630.0703
Y= 161081.6113

BRIDGE OPENING
EXISTING BR. No. 88725

INDEX MAP
(FOUR SECTIONS)
TOWNSHIP 106 N., RANGE 11 W.

CERTIFIED BY [signature] REG. NO. 19917 4/5 20 10
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 238 of 299 Sheets

Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

AS-BUILT

3. Apparent highwater elevation _____ Obtained from _____

FEB 09 2012

4. Other data: Approx. velocity of water at time of survey _____

ENGINEERING

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 03-23-09

Stream or ditch designation DRY RUN (CROW SPRING)
Drainage area 2.26 SQ. MI.
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 1280 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1093.1
Design mean velocity through structure 14.9 F.P.S.
Low superstructure at or above elevation 1094.99
Flowline elevation 1088.99 Skew angle 8°
Waterway area req'd below elevation _____ = _____ Sq. FL at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 1280 C.F.S. at stage 1093.1 and mean velocity of 5.2 F.P.S. with 0.0 Ft. sweithead
The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

DATE _____

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY – OCTOBER, 2008

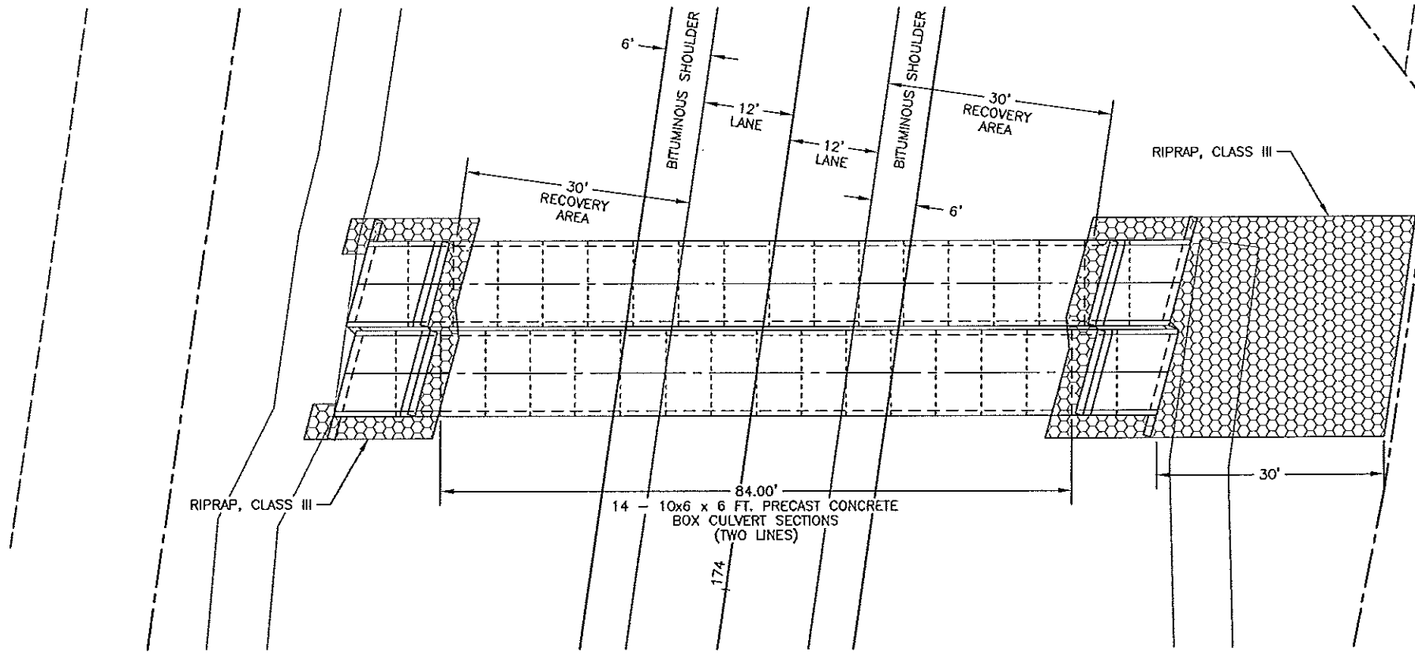
Bench mark elevation 1103.90 (M.S.L. 1929 Adj.)
location 120d SPIKE AT STA. 178+81 – 55' LT.

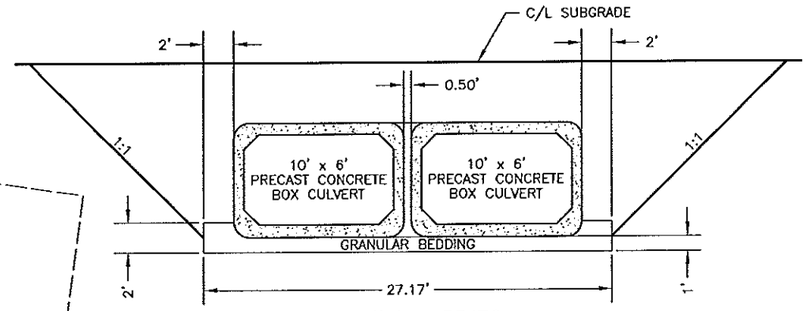
MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT _____ ON C.S.A.H. 10 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.6 mi SOUTH OF JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 9 & 10 TWP 106 N. R 11 W.
TOWNSHIP DOVER COUNTY OLMSTED
BRIDGE No. 55J76

FILE NAME: P30685901.DWG DATE: 03-05-10





BRIDGE No. 55J76
STA. 174+35.00

AS-BUILT

FEB 09 2012

ENGINEERING

NOTES:

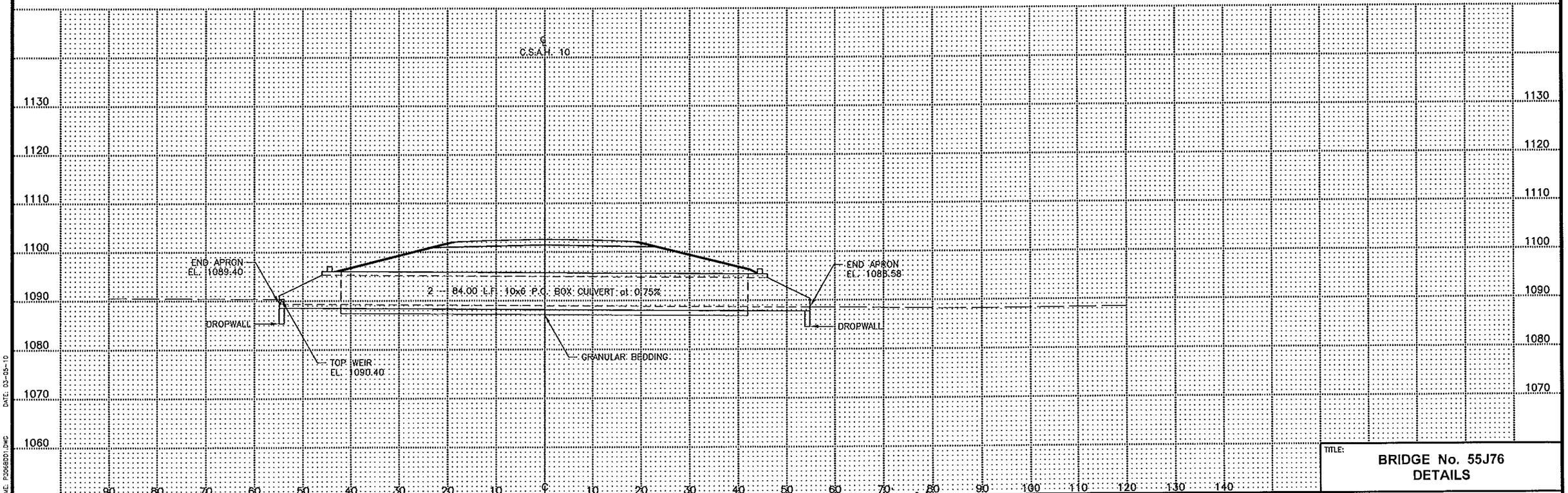
① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.

④ 0.50 FEET BETWEEN BOX CULVERTS SHALL BE GROUTED WITH LEAN MIX BACKFILL FROM INLET END OF APRON TO OUTLET END OF APRON. SEE ITEM No. 2520.501.

0 5 10 20
SCALE IN FEET



DATE: 03-05-10

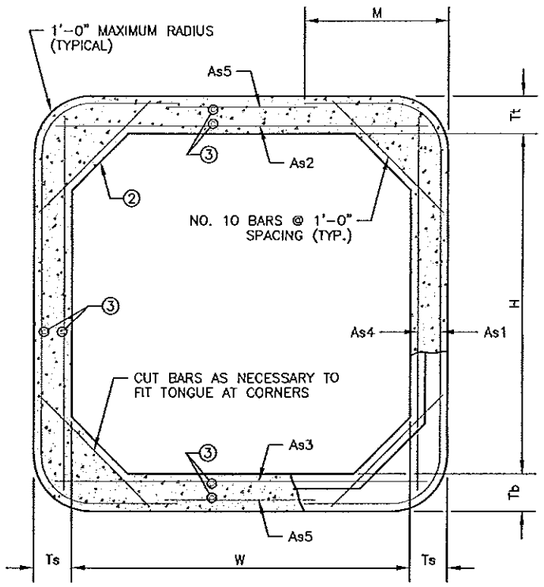
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CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

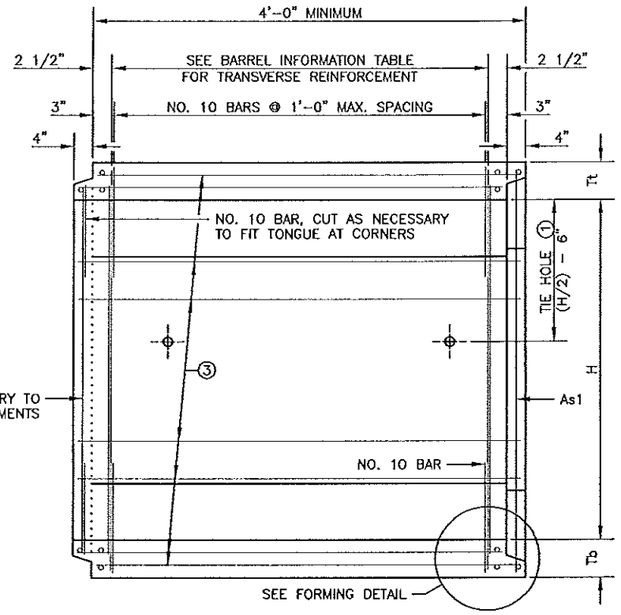
S.A.P. 55-610-22

TITLE:
BRIDGE No. 55J76
DETAILS

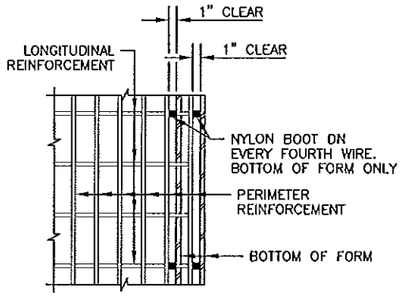
Sheet No. 239 of 299 Sheets



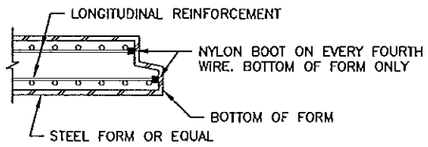
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

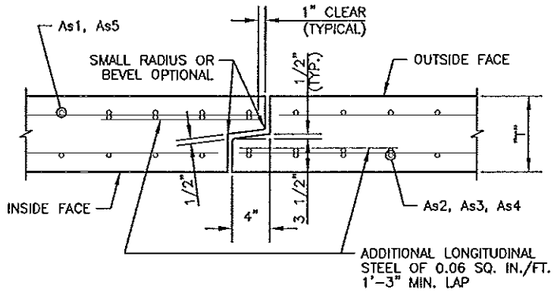


PLAN

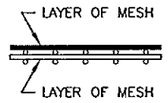


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
174+29.03	10' x 6'	2	5000	2'-8	10	6	9	10	8	4110	0.48	11'-9"	2'-9"	0.81	10'-6"	0.68	10'-6"	0.20	6'-6"	0.06	7'-9"
174+40.97	10' x 6'	2	5000	2'-8	10	6	9	10	8	4110	0.48	11'-9"	2'-9"	0.81	10'-6"	0.68	10'-6"	0.20	6'-6"	0.06	7'-9"

REVISION:

APPROVED: DECEMBER 11, 2000

Donald L. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 174+29.03 & STA. 174+40.97 | FIG. 5-395.101(A)

CERTIFIED BY Kay M Brenick
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: BARREL DETAILS

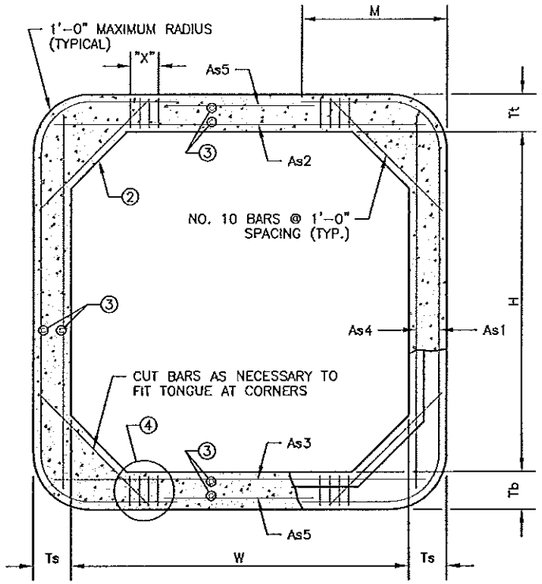
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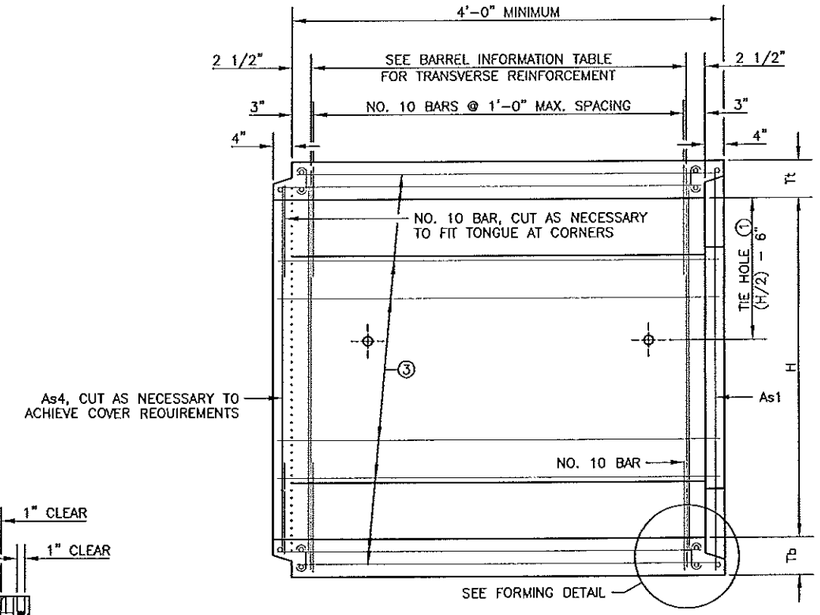
BRIDGE NO. 55J76

DATE: 03-05-10

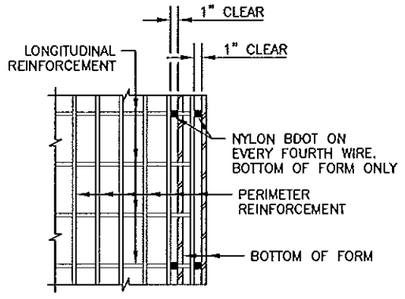
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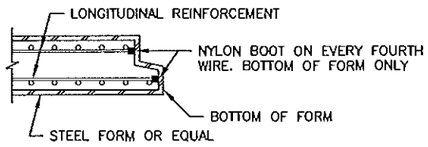
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

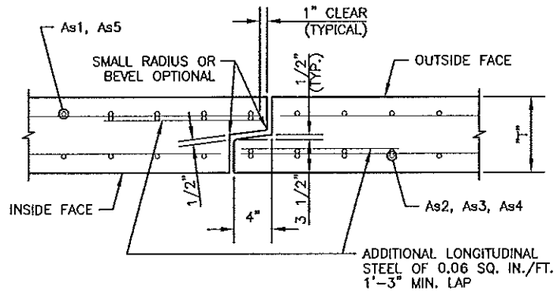


PLAN

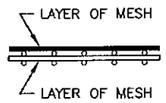


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPRDVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS -- 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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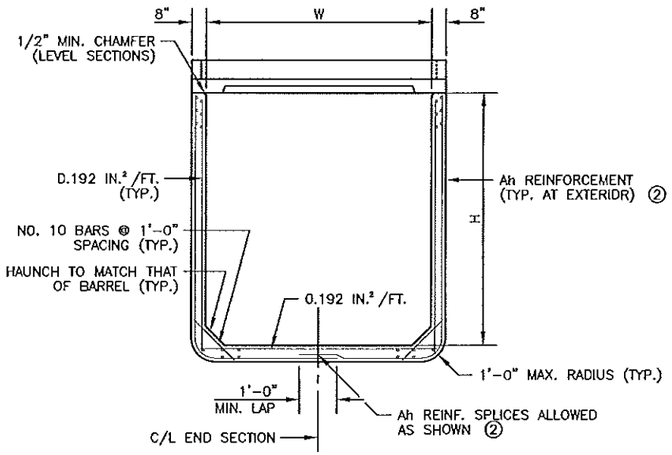
BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

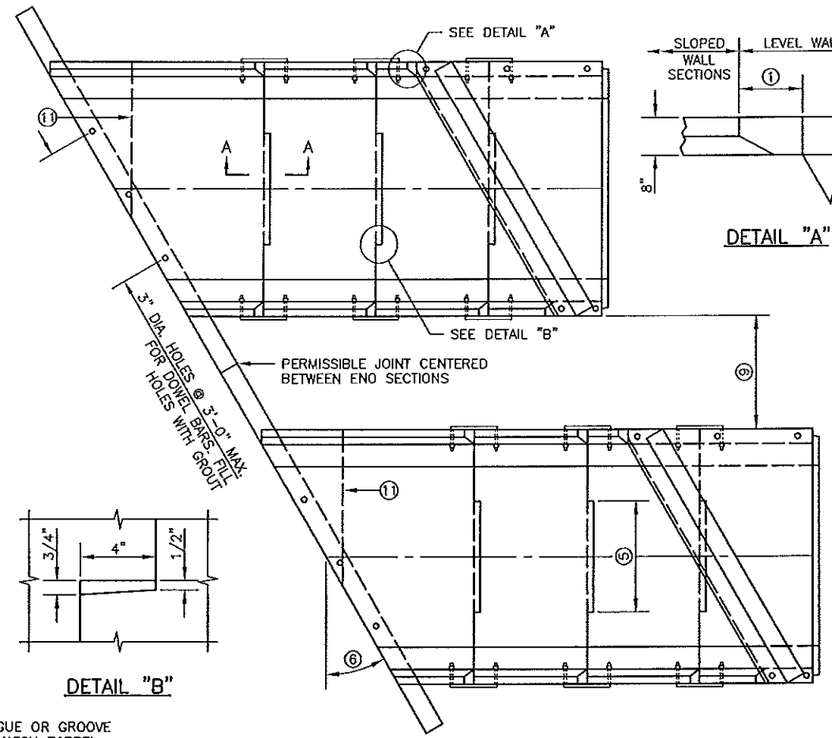
REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 174+29.03 & STA. 174+40.97	FIG. 5-395.101(B)
CERTIFIED BY Gary M Brenneke (CERTIFIED PROFESSIONAL ENGINEER) REG. NO. 19917 4/5 2010	TITLE: BARREL DETAILS (SPECIAL DESIGN)	DES: DR: APPROVED: CHK: CHK: Sheet No. 241 of 299 Sheets
		BRIDGE NO. 55J76

FILE NAME: P306-1018.DWG DATE: 03-05-10

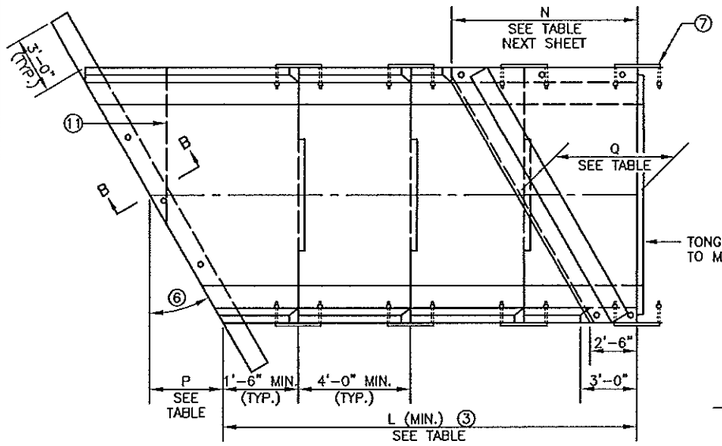


END VIEW



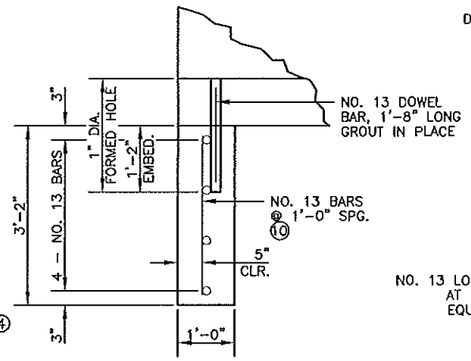
PLAN VIEW
DOUBLE BARREL OPTION

DETAIL "A"

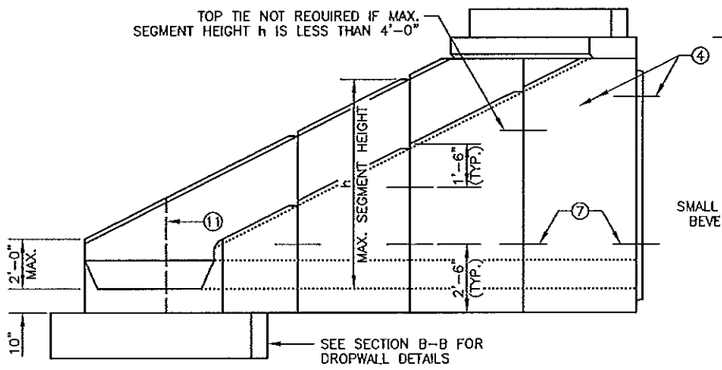


PLAN VIEW
SINGLE BARREL OPTION

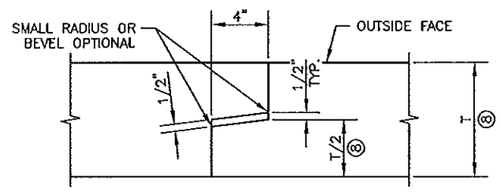
DETAIL "B"



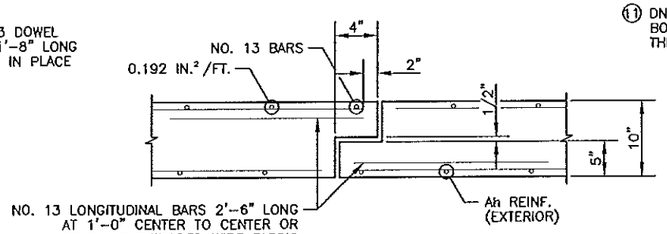
SECTION B-B



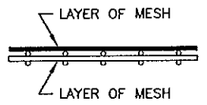
ELEVATION



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



SECTION A-A



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15'; 10 5/8" @ 30'; 1'-2" @ 45'

② SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (MnDOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

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MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4"	7'-7 3/8"	8'-7 7/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 5/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 1/8"	30'-8 1/2"	36'-11 1/4"

LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
8	1'-3"	2'-8 3/8"	4'-8"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/8"	7'-8"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
8	3'-9"	5'-2 3/8"	7'-2"
10	4'-0"	5'-9 1/4"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"

REVISION: 09-17-2004

APPROVED: DECEMBER 11, 2000

Donald L. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 174+29.03 & STA. 174+40.97 | FIG. 5-395.110(A)

CERTIFIED BY Kayell Bjornstad
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 DATE 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°

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Sheet No. 242 of 299 Sheets

BRIDGE NO. 55J76

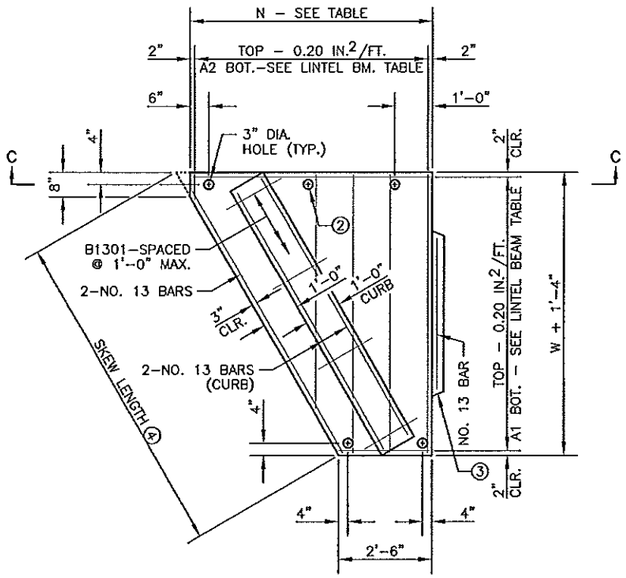
FILE NAME: P306-110A.DWG DATE: 02-05-10

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah ($IN.^2/FT.$)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

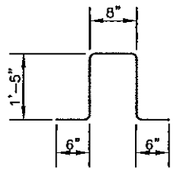
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

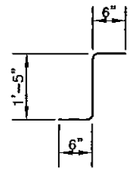
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



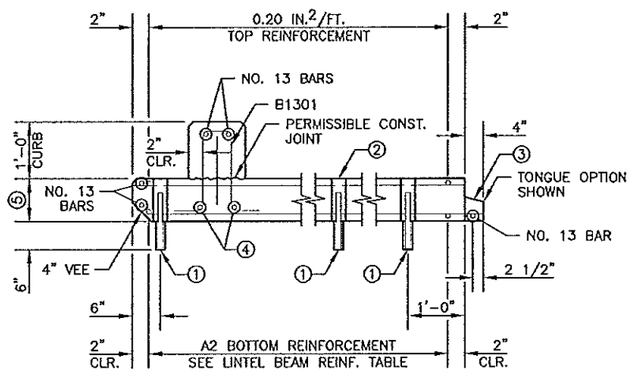
PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB



B1301



B1301
ALTERNATE
⑥
2 REQUIRED



SECTION C–C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

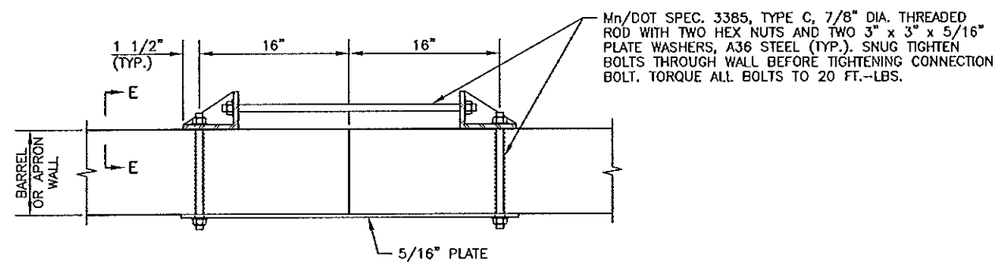
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15' SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30' OR 45' SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

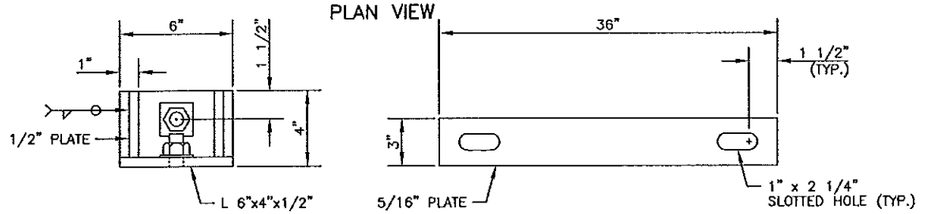
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PLAN VIEW



SECTION E–E

PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

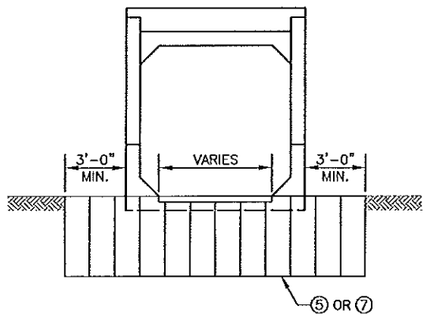
REVISION: 09–17–2004

APPROVED: DECEMBER 11, 2000

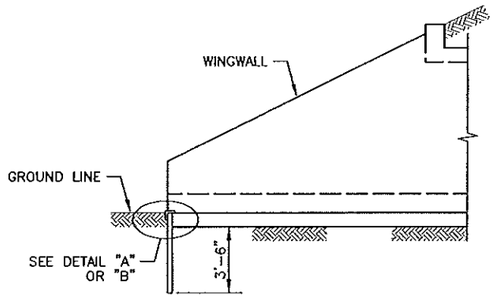
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22,	STA. 174+29.03 & STA. 174+40.97		FIG. 5-395.110(B)
CERTIFIED BY Kevin M Borenick (LICENSED PROFESSIONAL ENGINEER) REG. NO. 19919 4/5 20 10	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7–1/2° TO 45°	DES: DR: APPROVED: CHK: CHK: Sheet No. 243 of 299 Sheets	BRIDGE NO. 55J76

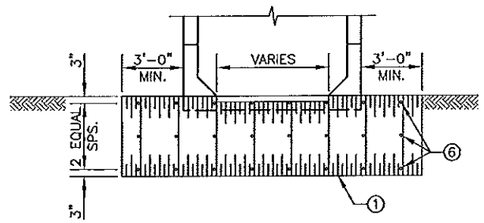
FILE NAME: P306-110B.DWG DATE: 03-05-10



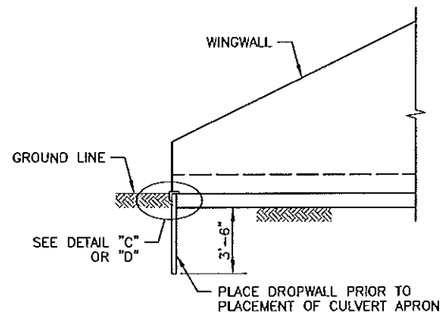
END VIEW



ELEVATION



END VIEW



ELEVATION

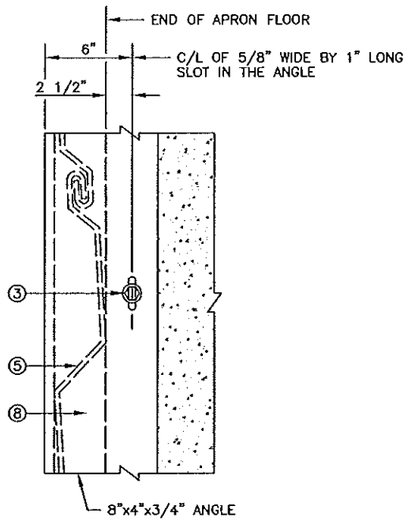
ALTERNATES 1 & 2 (STEEL SHEET PILING)

ALTERNATES 3 & 4 (GALVANIZED STEEL SHEETS)

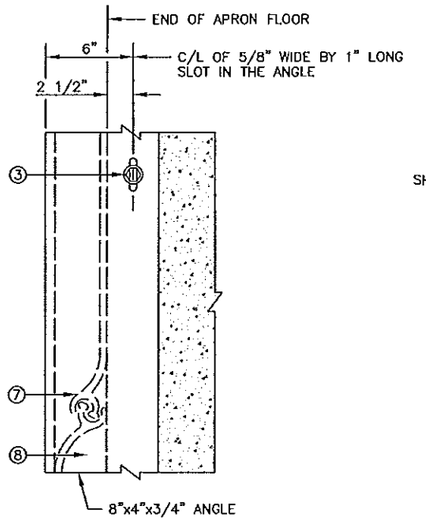
AS-BUILT

FEB 0 9 2012

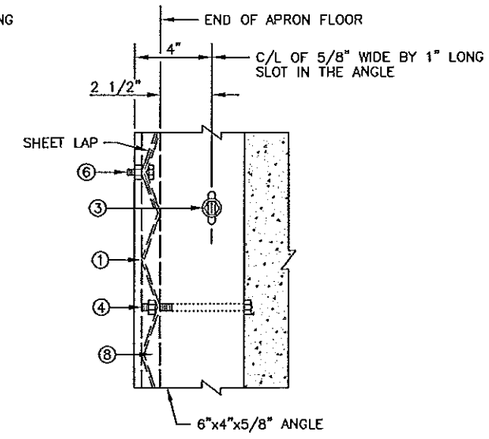
ENGINEERING



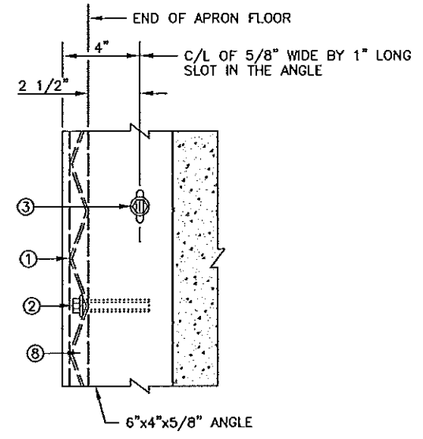
PLAN



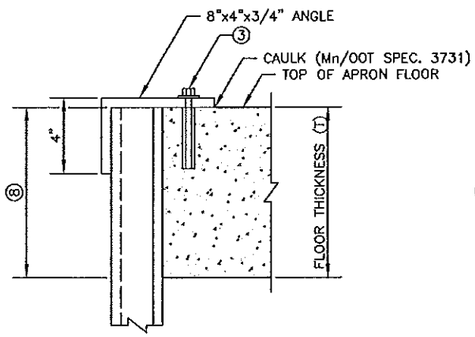
PLAN



PLAN



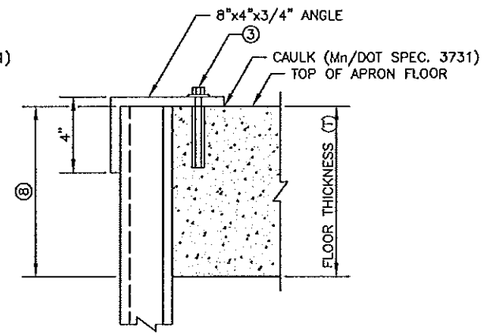
PLAN



ELEVATION

DETAIL "A" – ALTERNATE 1

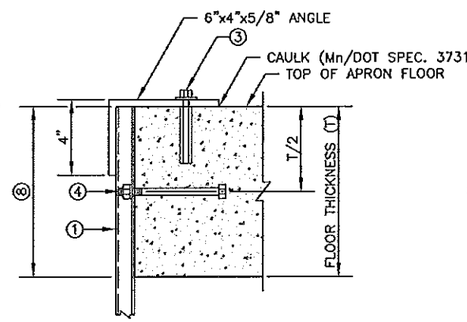
STEEL SHEET PILING SHOWN



ELEVATION

DETAIL "B" – ALTERNATE 2

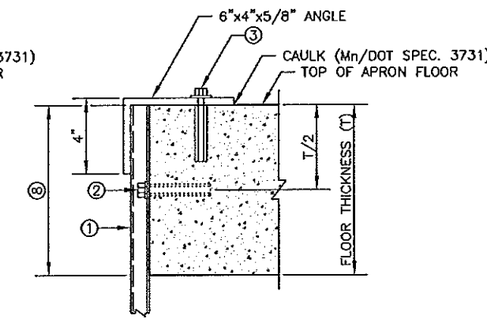
STEEL SHEET PILING SHOWN



ELEVATION

DETAIL "C" – ALTERNATE 3

ON NEW CONSTRUCTION ONLY



ELEVATION

DETAIL "D" – ALTERNATE 4

ON NEW OR OLD CONSTRUCTION

TITLE BLOCK	
STRUCTURE	STATION
55J76	174+29.03 & 174+40.97
55J77	192+19.91 & 192+30.09
55J65	263+52.00
8x4 BOX	288+05.00
55J78	339+85.00
55J79	352+55.00
55J80	378+91.00
6x5 BOX	480+82.00
90780	508+91.38 & 509+03.26

CONSTRUCTION NOTES

GALVANIZE ALL FASTENERS AS PER Mn/DOT SPEC. 3392.

BEFORE CULVERT PLANS ARE PREPARED, SAMPLES SHALL BE TAKEN FROM THE DRAINAGE AREA FOR PH DETERMINATION. THE SOIL AND WATER SHOULD HAVE A PH OF 6.5 OR MORE IF SHEET STEEL IS USED.

① 2 1/2" x 1/2" OR 2 2/3" x 1/2" CORRUGATED (12 GAGE) OR HEAVIER GALVANIZED STEEL SHEETS.

② FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIA. x 4" LONG BOLTS AND APPROVED ANCHORAGES(10"± CENTER TO CENTER, TO THE NEAREST VALLEY).

③ FASTEN THE 8" x 4" x 3/4" OR 6" x 4" x 5/8" ANGLE WITH 3/8" DIA. x 4" LONG BOLTS, 1" O.O. WASHER AND AN APPROVED ANCHORAGE (2'-0" SPACING).

④ FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIA. x 5" LONG BOLTS, NUT AND LOCK WASHER (10" ± CENTER TO CENTER, TO THE NEAREST VALLEY).

⑤ (12 GAGE) GALVANIZED CORRUGATED STEEL SHEET PILING, INTERLOCKING TYPE A.

⑥ 3/8" DIA. x 1" LONG BOLT WITH NUT, TO LAP STEEL SHEETS.

⑦ STEEL SHEET PILING, SECTION NO. MP-112 OR EQUAL.

⑧ FILL THE VOIDS AS SHOWN WITH CONCRETE OR CONCRETE GROUT, AS APPROVED BY THE ENGINEER.

DATE: 03-05-10

FILE NAME: P306-111.DWG

REVISION:

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. (SEE ABOVE) FIG. 5-395.111

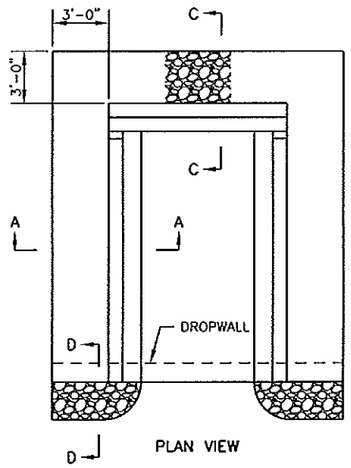
CERTIFIED BY Kaye M Brimmer LICENSED PROFESSIONAL ENGINEER
REG. NO. 19914 4/5 20 10

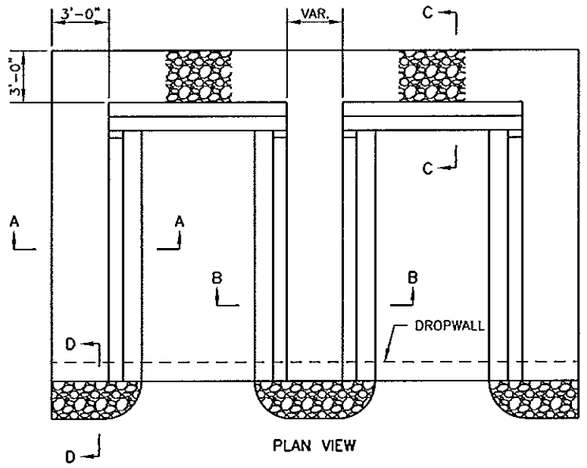
TITLE: ALTERNATE DROPWALLS FOR BOX CULVERTS

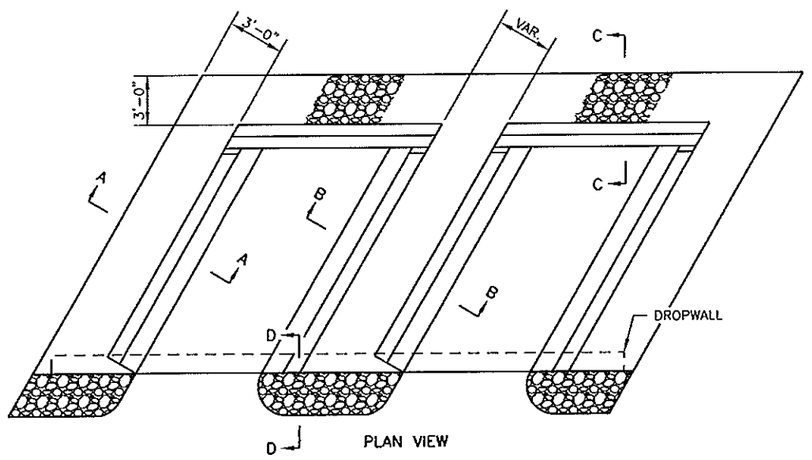
DES: DR: APPROVED:
CHK: CHK:

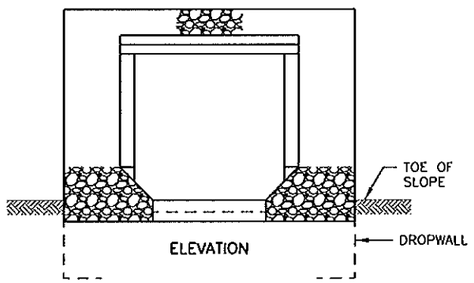
Sheet No. 244 of 299 Sheets

BRIDGE NO. (SEE ABOVE)

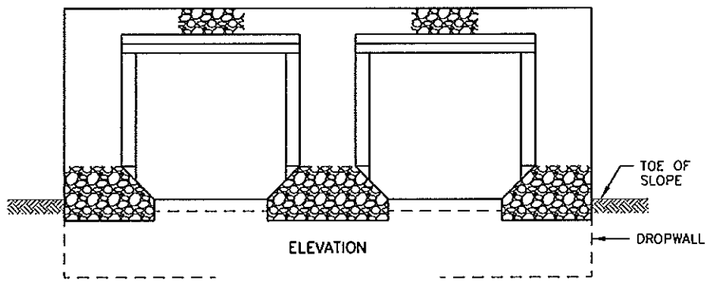




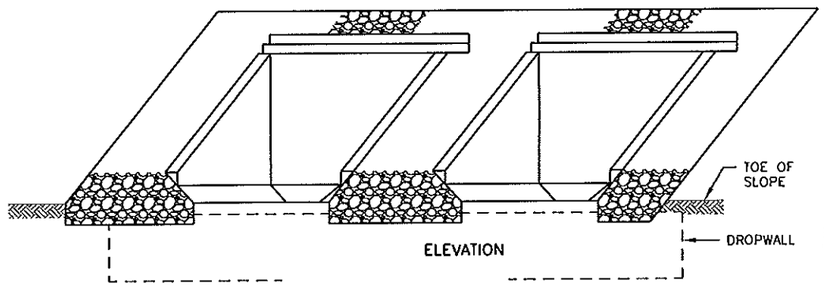




SINGLE BARREL
CLASS III SHOWN
(FOR SKEWS UP TO 7 1/2')

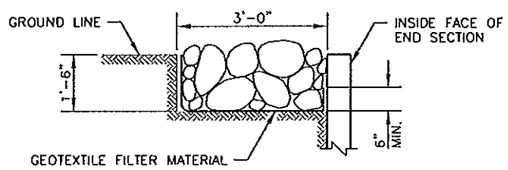


DOUBLE BARREL
CLASS III SHOWN
(FOR SKEWS UP TO 7 1/2')

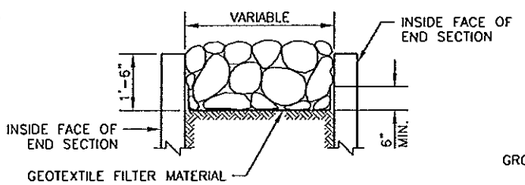


DOUBLE BARREL
CLASS III SHOWN
(FOR SKEWS OVER 7 1/2')

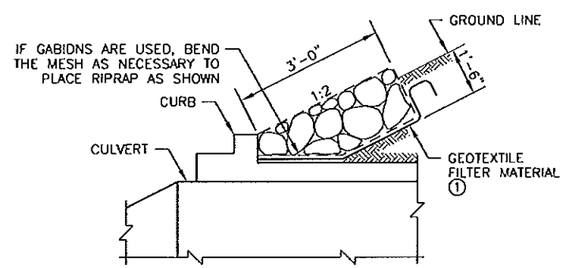
AS-BUILT
FEB 0 9 2012
ENGINEERING



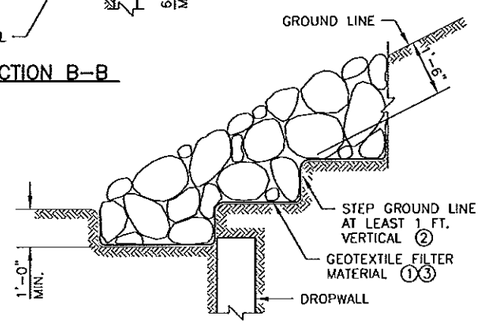
SECTION A-A



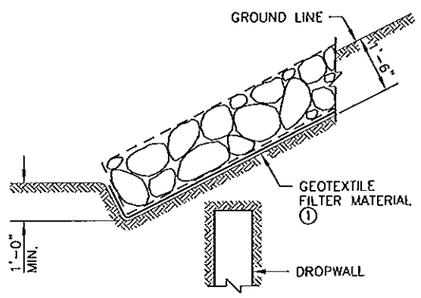
SECTION B-B



SECTION C-C



CLASS III RIPRAP OPTION



CLASS II RIPRAP IN GABIONS OPTION

SECTION D-D

TITLE BLOCK	
STRUCTURE	STATION
55J76	174+29.03 & 174+40.97
55J77	192+19.91 & 192+30.09
55J65	263+52.00
8x4 BOX	288+05.00
55J78	339+85.00
55J79	352+55.00
55J80	378+91.00
6x5 BOX	480+82.00
90780	508+91.38 & 509+03.26

CONSTRUCTION NOTES

RIPRAP SHALL COMPLY WITH Mn/DOT SPECS. 2511 AND 3601. THE CONTRACTOR MAY USE EITHER CLASS III, WITH GEOTEXTILE FILTER MATERIAL, OR CLASS II ENCLOSED IN GABIONS, WITH GEOTEXTILE FILTER MATERIAL. 4" TO 8" DIA. ROCK MAY BE USED IN GABIONS, IF THE MESH OPENINGS ARE 4" OR LESS. GABIONS SHALL BE RIVER TYPE, CODE "D", 3 FT. WIDE x 1.5 FT. DEEP.

(1) FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE Mn/DOT SPEC. 3733. GEOTEXTILE STRIPS SHOULD BE CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. THE TOP EDGE SHOULD BE BURIED TO PREVENT UNDERMINING (Mn/DOT SPEC. 2511.3B).

(2) SLOPES 1:2 TO 1:3 MUST BE STEPPED TO MINIMIZE SLIDING POTENTIAL.

(3) IF SLOPES ARE NOT STEPPED, GRANULAR FILTER SHOULD BE USED.

DATE: 03-05-10
FILE NAME: P326-115.DWG

REVISION:

APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22, STA. (SEE ABOVE)

FIG. 5-395.115

CERTIFIED BY Kayce M Bremich
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: EMBANKMENT PROTECTION FOR BOX CULVERTS

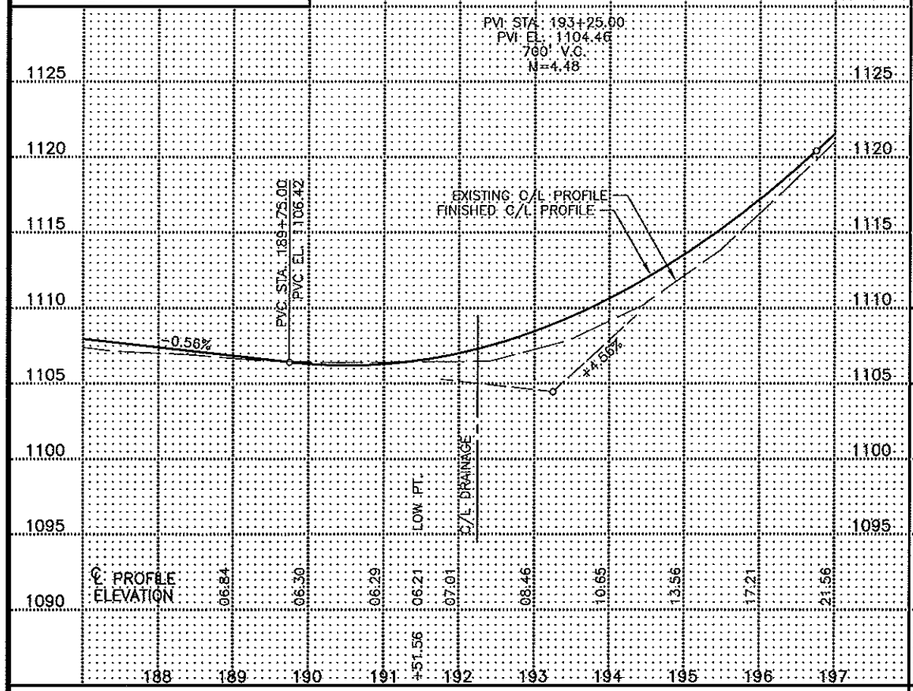
DES: | DR: | APPROVED:
CHK: | CHK:

Sheet No. 245 of 299 Sheets

BRIDGE NO. (SEE ABOVE)

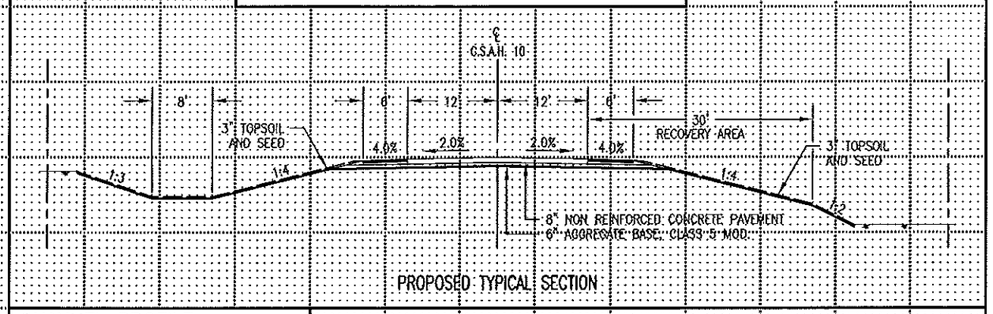
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

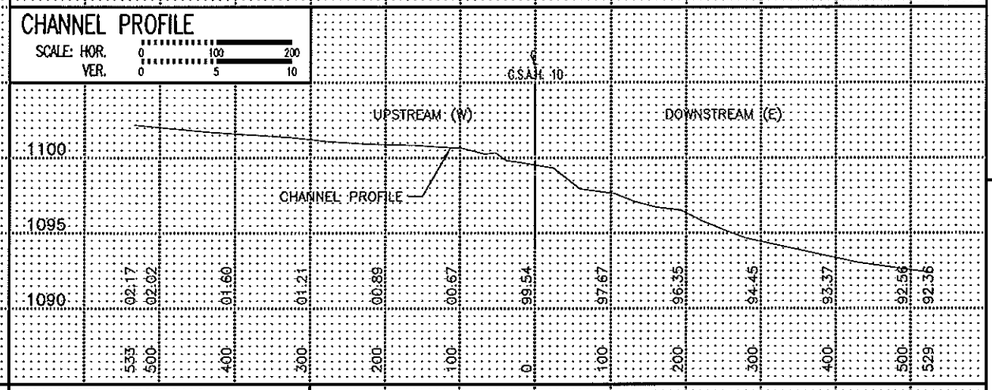
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

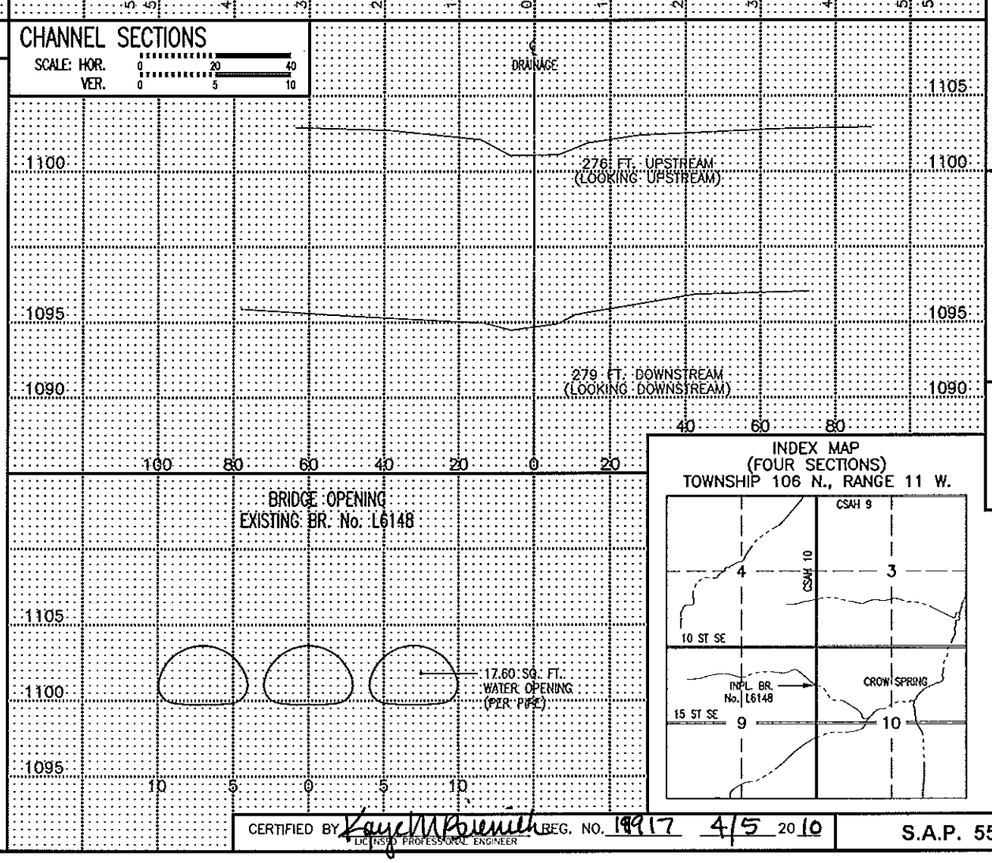
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10



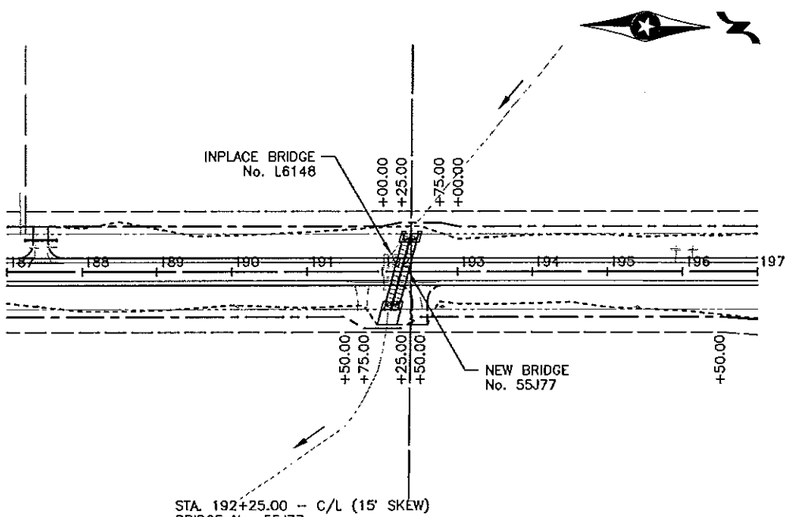
BRIDGE OPENING
EXISTING BR. No. L6148

PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

ELECTRIC -- ALLIANT ENERGY (OVERHEAD)
TELEPHONE -- QWEST (UNDERGROUND)



STA. 192+25.00 -- C/L (15' SKEW)
BRIDGE No. 55J77
REMOVE INPL. BRIDGE No. L6148
2 -- 8x5 x 84.00 L.F. P.C. BOX CULVERT
2 -- 8x5 P.C. END SECTION (15' SKEW, INLET)
2 -- 8x5 P.C. END SECTION (15' SKEW, OUTLET)
9 C.Y. CL. III RIPRAP AT INLET
35 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 179+15.12
Δ=00°27'19" LT.
X=704630.0703
Y= 161081.6113

PI STA. 205+60.98
Δ=00°26'25" RT.
X=704588.3644
Y= 163727.1419

INDEX MAP
(FOUR SECTIONS)
TOWNSHIP 106 N., RANGE 11 W.

Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

AS-BUILT

FEB 09 2012

3. Apparent highwater elevation _____ Obtained from ENGINEERING

4. Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 02-13-09

Stream or ditch designation DRY RUN
Drainage area 0.72 SQ. MI.
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 590 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1101.0
Design mean velocity through structure 14.6 F.P.S. _____
Low superstructure at or above elevation 1104.10
Flowline elevation 1099.10 Skew angle 15°
Waterway area req'd below elevation _____ = _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 590 C.F.S. at stage 1101.0 and mean velocity of 3.5 F.P.S. with 4.8 Ft. swellhead
The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

DATE _____

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY -- OCTOBER, 2008

Bench mark elevation 1103.90 (M.S.L. 1929 Adj.)
Location 120d SPIKE AT STA. 178+81 -- 55' LT.

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

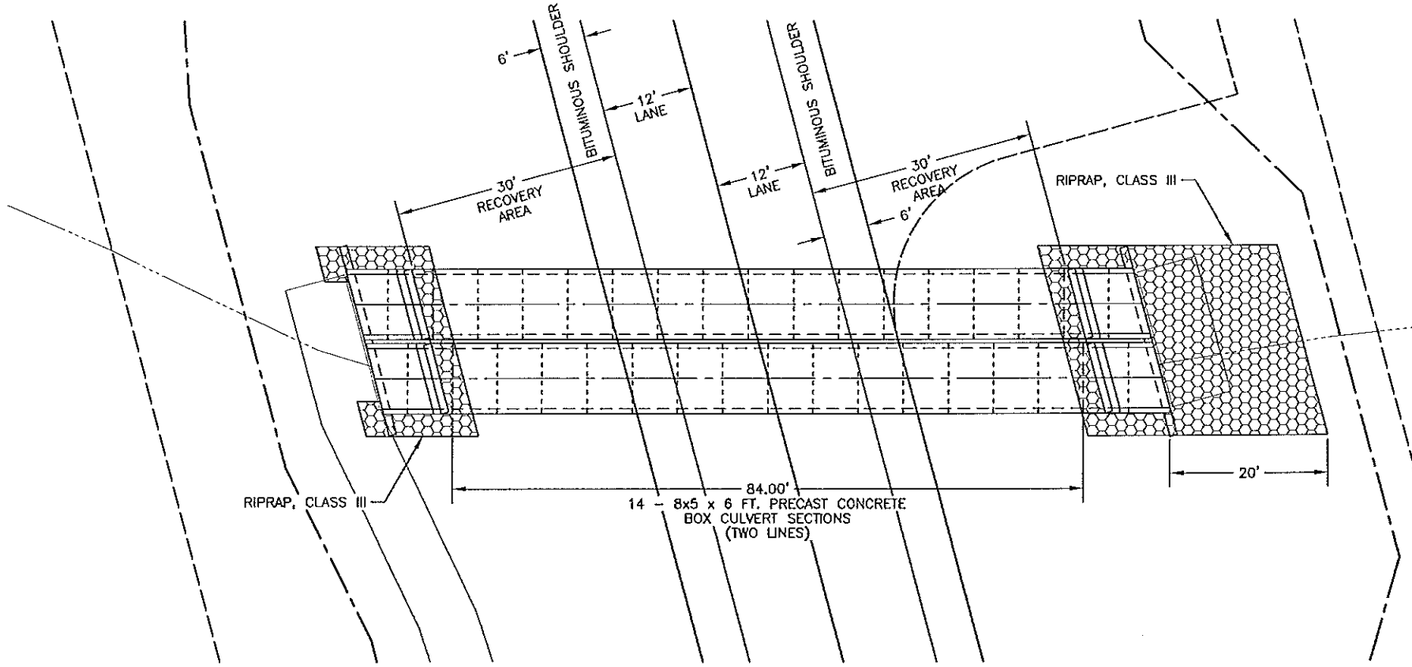
AT MILE POINT _____ ON C.S.A.H. 10 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.2 mi SOUTH OF JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 9 & 10 TWP 106 N. R 11 W.
TOWNSHIP DOVER COUNTY OLMSTED
BRIDGE No. 55J77

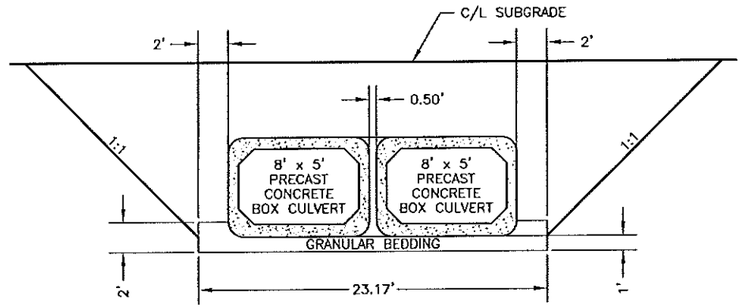
CERTIFIED BY Kayne M Brenneman REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 246 of 299 Sheets

FILE NAME: P3068502.DWG DATE: 03-05-10





BRIDGE No. 55J77
STA. 192+25.00

AS-BUILT

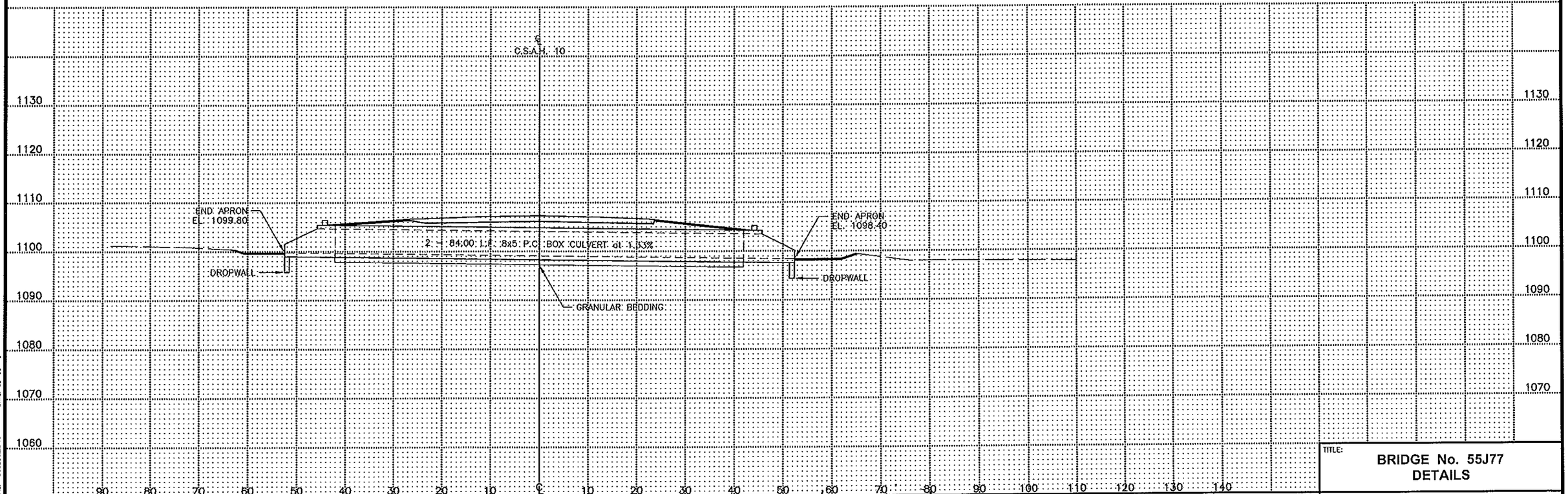
FEB 09 2012

ENGINEERING

NOTES:

1. CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.
4. 0.50 FEET BETWEEN BOX CULVERTS SHALL BE GROUTED WITH LEAN MIX BACKFILL FROM INLET END OF APRON TO OUTLET END OF APRON. SEE ITEM No. 2520.501.

0 5 10 20
SCALE IN FEET



CERTIFIED BY [signature] LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

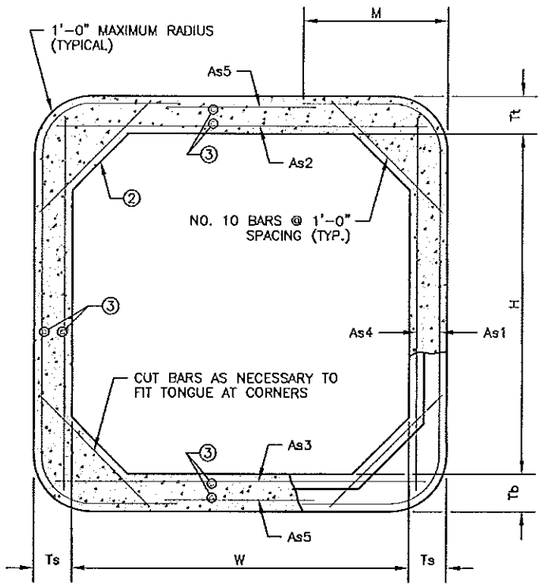
TITLE: BRIDGE No. 55J77 DETAILS

S.A.P. 55-610-22

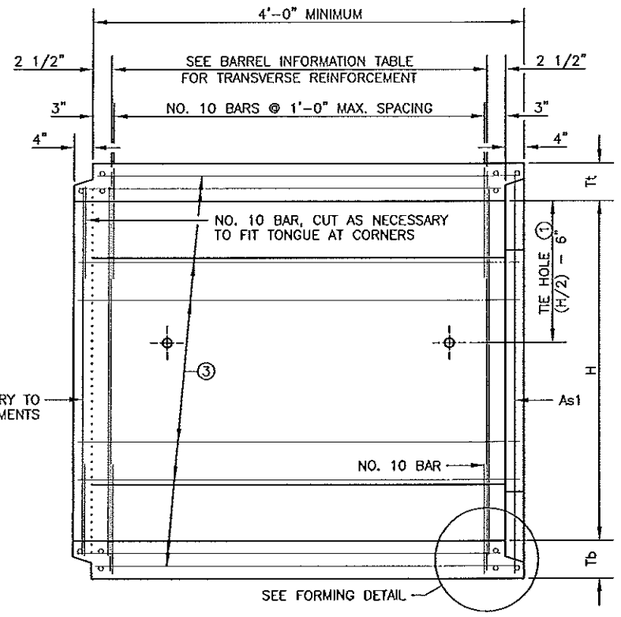
Sheet No. 247 of 299 Sheets

DATE: 03-05-10

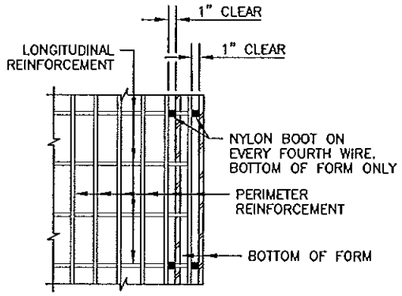
FILE NAME: P3068002.DWG



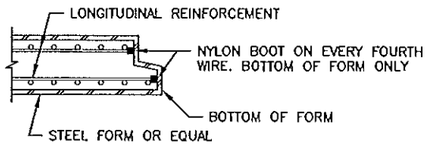
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

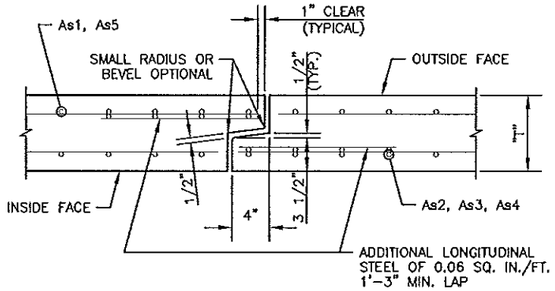


PLAN

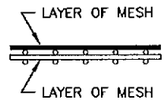


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

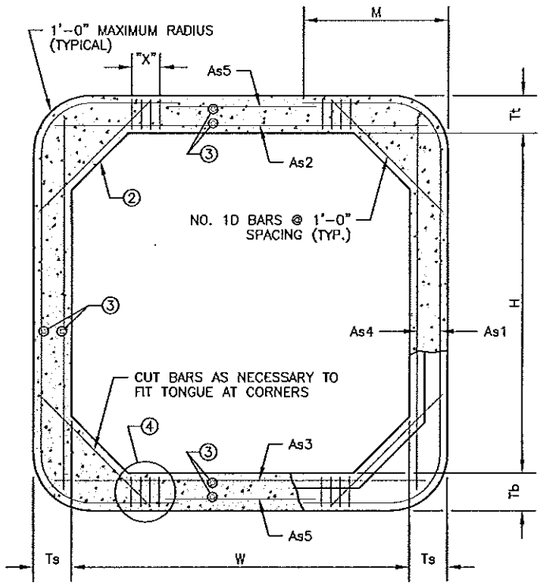
LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
192+19.91	8' x 5'	2	5000	2–10	8	5	9	10	8	3435	0.41	10'–3"	2'–6"	0.60	8'–6"	0.53	8'–6"	0.20	5'–6"	0.06	6'–3"
192+30.09	8' x 5'	2	5000	2–10	8	5	9	10	8	3435	0.41	10'–3"	2'–6"	0.60	8'–6"	0.53	8'–6"	0.20	5'–6"	0.06	6'–3"

REVISION:

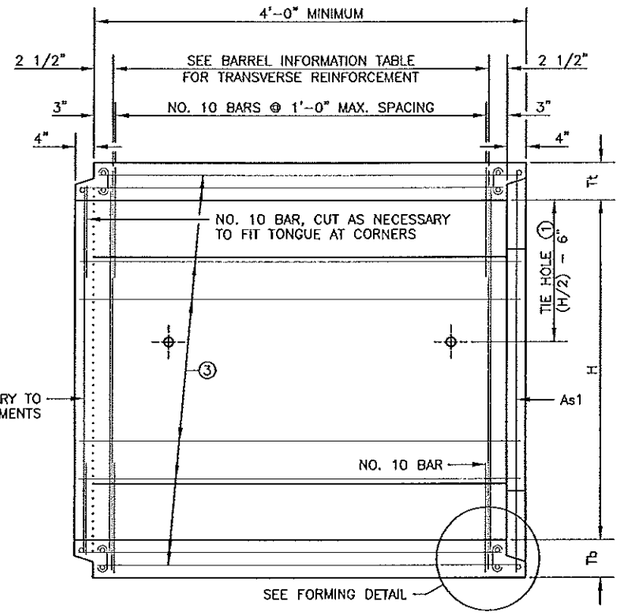
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 192+19.91 & STA. 192+30.09	FIG. 5-395.101(A)
CERTIFIED BY Kaye M Borenick, LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010	TITLE: BARREL DETAILS	DES: DR: APPROVED: CHK: CHK: Sheet No. 248 of 299 Sheets
		BRIDGE NO. 55J77

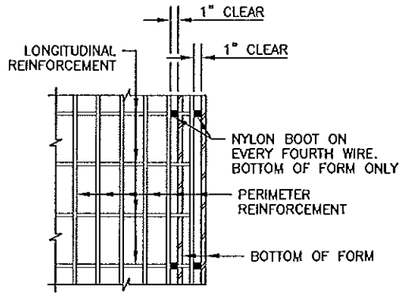
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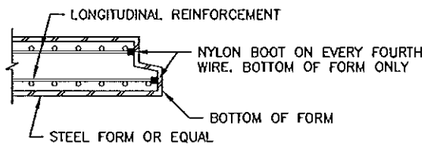
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

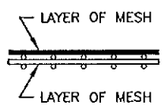


PLAN

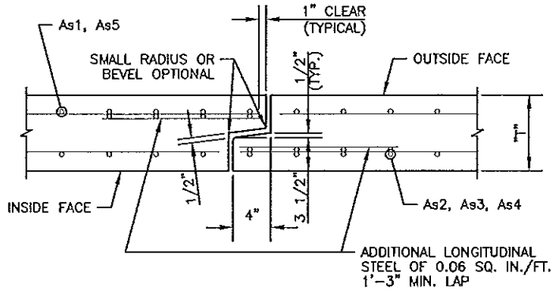


SECTION

FORMING DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

REVISION:

APPROVED: DECEMBER 11, 2000
Donald L. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 192+19.91 & STA. 192+30.09 | FIG. 5-395.101(B)

CERTIFIED BY Kaye M Brenneke
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

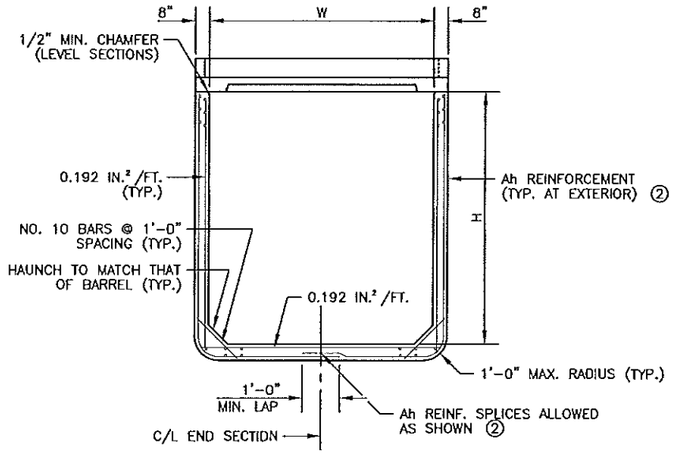
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CHK: | CHK:

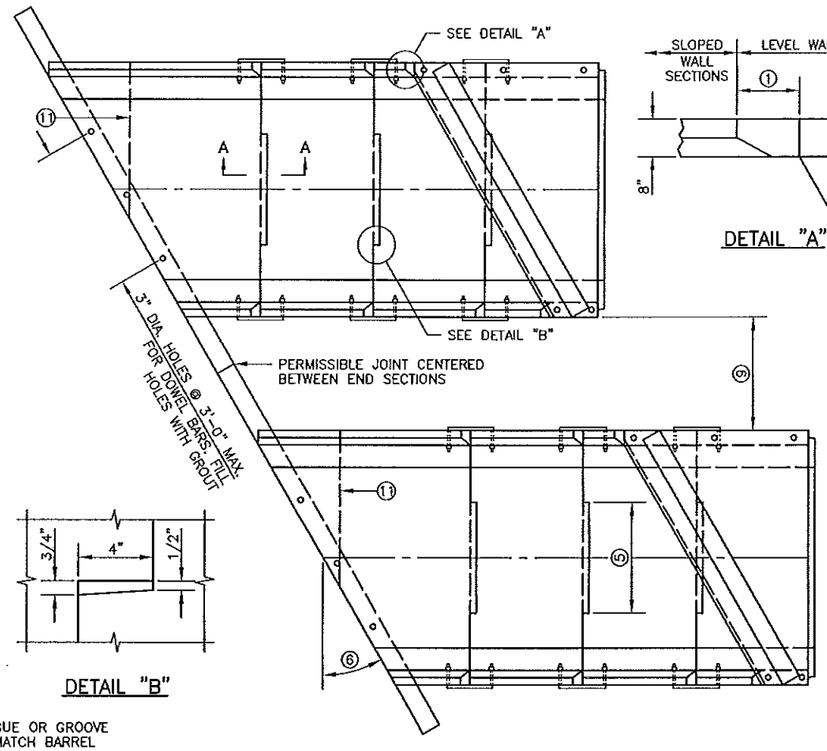
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BRIDGE NO. 55J77

DATE: 03-05-10
FILE NAME: P306-201B.DWG

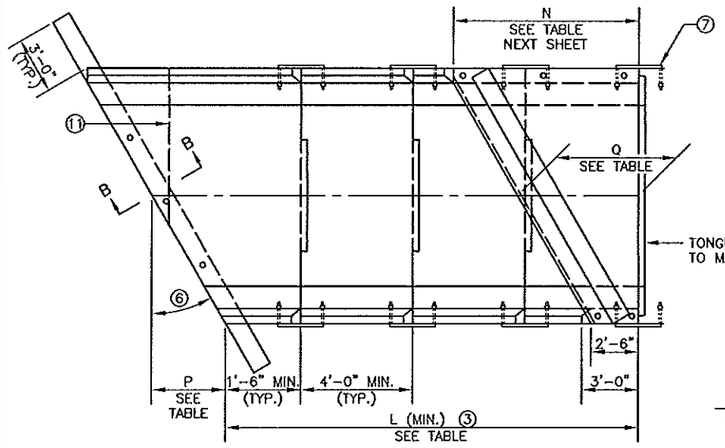


END VIEW



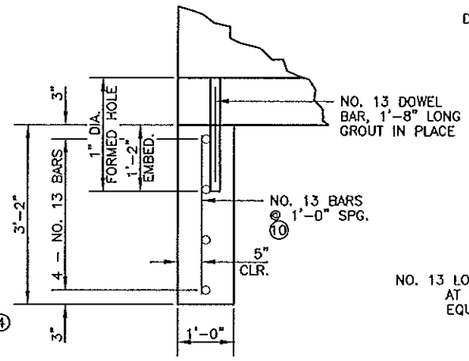
PLAN VIEW
DOUBLE BARREL OPTION

DETAIL "A"

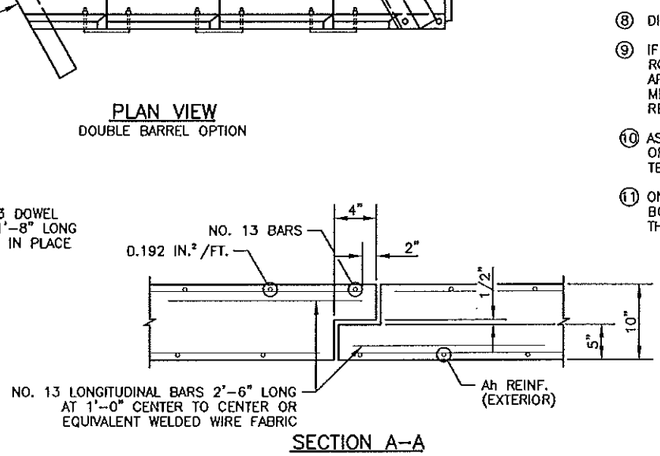


PLAN VIEW
SINGLE BARREL OPTION

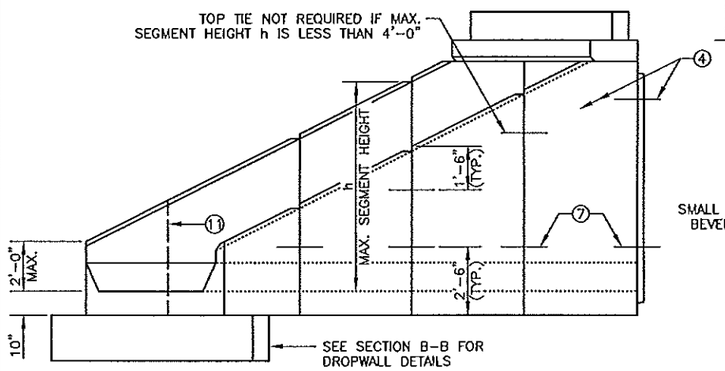
DETAIL "B"



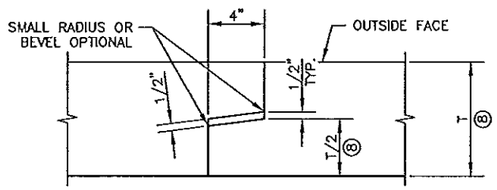
SECTION B–B



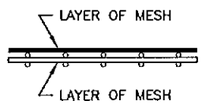
SECTION A–A



ELEVATION



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5–395.101(A) AND FIG. 5–395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5–395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15°; 10 5/8" @ 30°; 1'–2" @ 45°

② SEE FIG. 5–395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'–6" TONGUE AND 3'–7" GROOVE FOR 6'–0" WIDE CULVERTS. 5'–0" TONGUE AND 5'–1" GROOVE FOR CULVERTS OVER 6'–0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'–0" HIGH. SEE FIG. 5–395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'–0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

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MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'–1 3/4"	7'–7 3/8"	8'–7 7/8"
5	9'–2 1/2"	9'–11 1/8"	11'–5 7/8"
6	11'–3 3/8"	12'–2 7/8"	14'–3 3/4"
7	13'–4 1/4"	14'–6 5/8"	17'–1 3/4"
8	15'–5 1/8"	16'–10 1/4"	19'–11 5/8"
9	17'–5 7/8"	19'–2"	22'–9 5/8"
10	19'–6 3/4"	21'–5 3/4"	25'–7 1/2"
11	21'–7 5/8"	23'–9 3/8"	28'–5 1/2"
12	23'–8 1/2"	26'–1 1/8"	31'–3 3/8"
13	25'–9 3/8"	28'–4 7/8"	34'–1 3/8"
14	27'–10 1/8"	30'–8 1/2"	36'–11 1/4"

LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'–11 3/4"	2'–1 3/8"	3'–8"
8	1'–3"	2'–8 3/8"	4'–8"
10	1'–6 1/4"	3'–3 1/4"	5'–8"
12	1'–9 3/8"	3'–10 1/4"	6'–8"
14	2'–0 5/8"	4'–5 1/8"	7'–8"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'–5 3/4"	4'–7 3/8"	6'–2"
8	3'–9"	5'–2 3/8"	7'–2"
10	4'–0"	5'–9 1/4"	8'–2"
12	4'–3 3/8"	6'–4 1/8"	9'–2"
14	4'–6 5/8"	6'–11 1/8"	10'–2"

REVISION: 09–17–2004

APPROVED: DECEMBER 11, 2000

Darrell J. Klenning
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 192+19.91 & STA. 192+30.09 | FIG. 5-395.110(A)

CERTIFIED BY Kayle M Brennick
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7–1/2° TO 45°

DES: | DR: | APPROVED:
CHK: | CHK:

Sheet No. 250 of 299 Sheets

BRIDGE NO. 55J77

DATE: 03-05-10

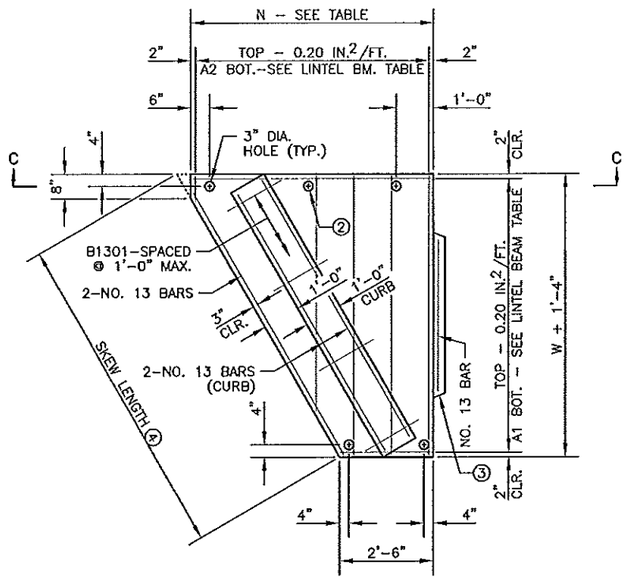
FILE NAME: P306-210A.DWG

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah (IN.²/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

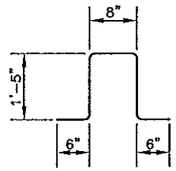
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

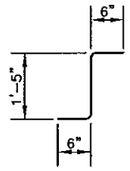
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB

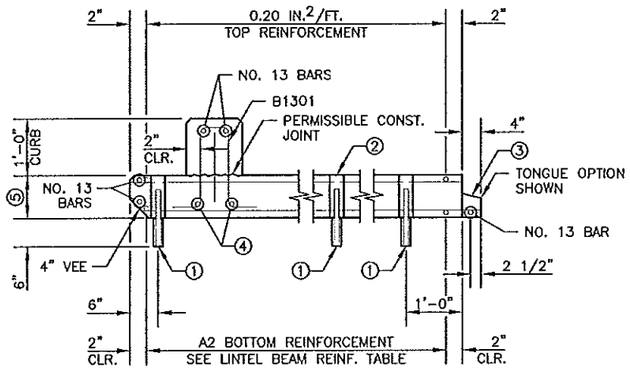


B1301



B1301
ALTERNATE

⑥
2 REQUIRED



SECTION C–C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

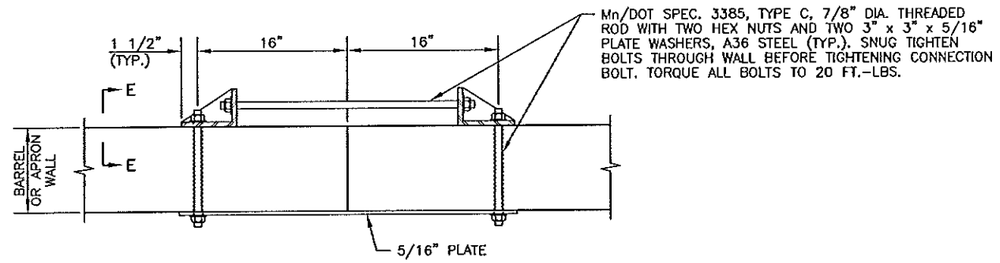
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15' SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30' OR 45' SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

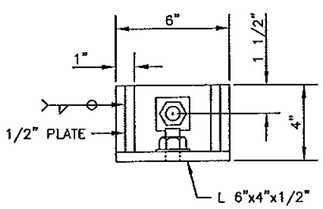
AS-BUILT

FEB 0 9 2012

ENGINEERING



PLAN VIEW



SECTION E–E

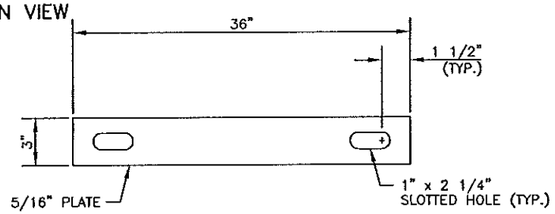


PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

DATE: 03-05-10

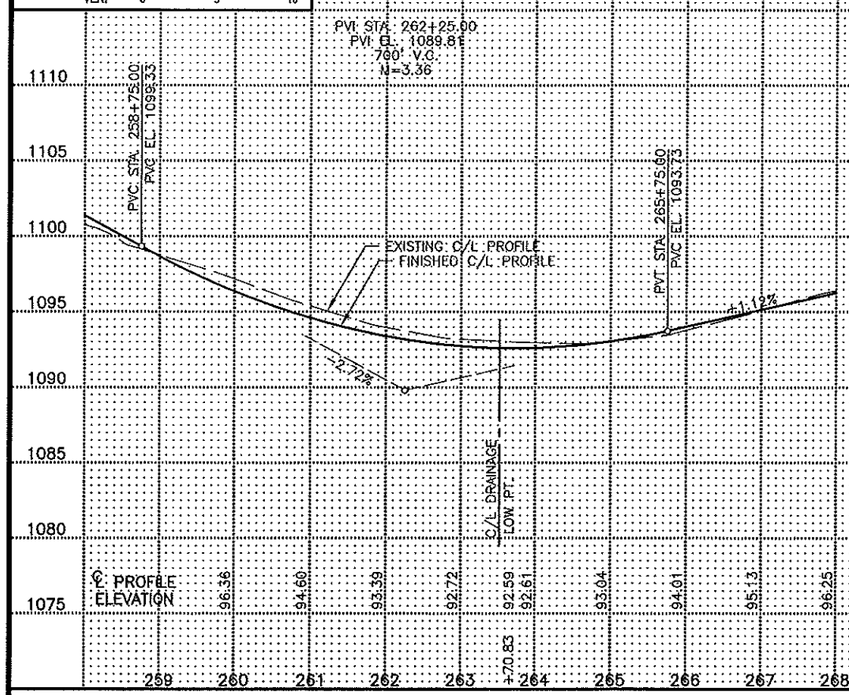
FILE NAME: P306-210B.DWG

REVISION: 09-17-2004
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 192+19.91 & STA. 192+30.09		FIG. 5-395.110(B)
CERTIFIED BY Kay M Brenick LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°	DES: DR: APPROVED: CHK: CHK: Sheet No. 251 of 299 Sheets	BRIDGE NO. 55J77

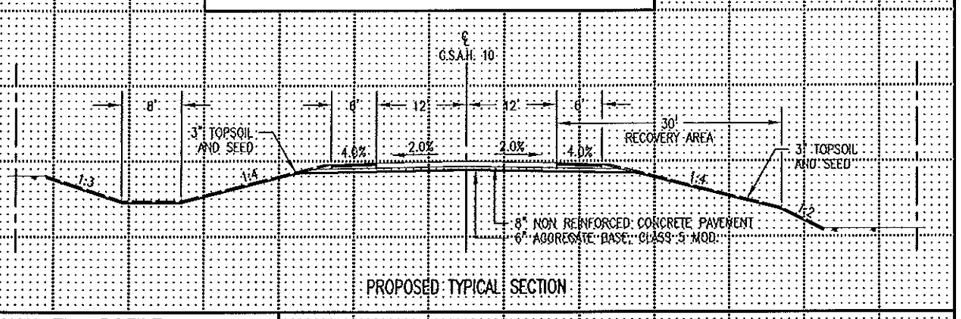
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

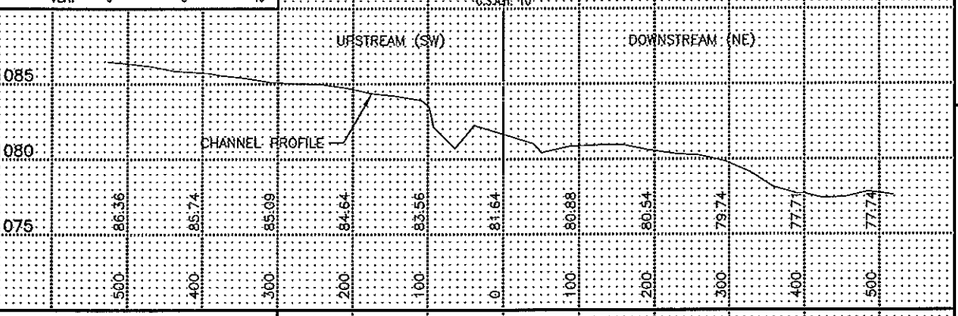
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

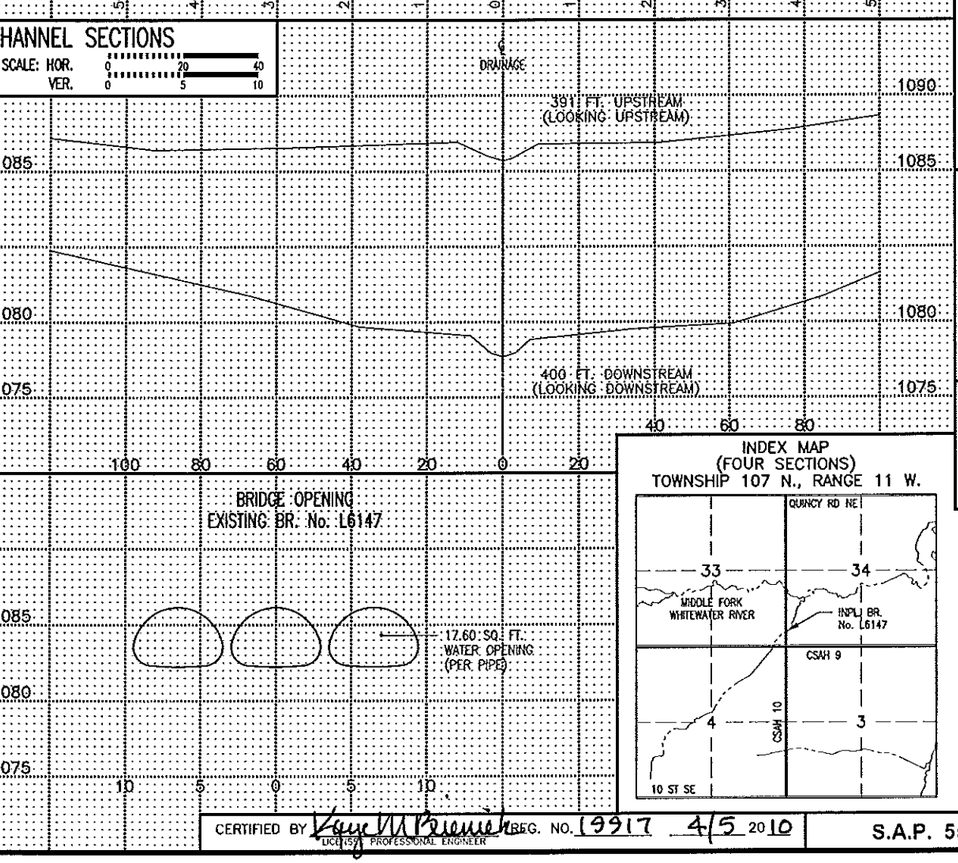
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10



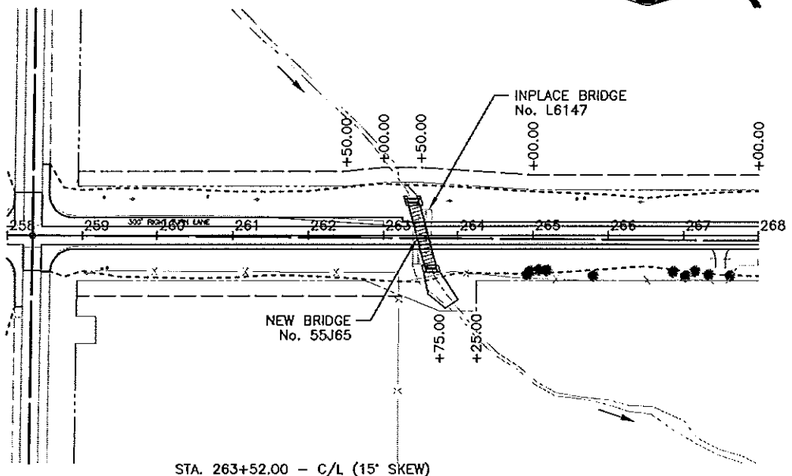
BRIDGE OPENING
EXISTING BR. No. L6147

PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

ELECTRIC – ALLIANT ENERGY (OVERHEAD)
TELEPHONE -- QWEST (UNDERGROUND)



STA. 263+52.00 – C/L (15° SKEW)
BRIDGE No. 55J65
REMOVE INPLACE BRIDGE No. L6147
14x4 x 83.00 L.F. P.C. BOX CULVERT
14x4 P.C. END SECTION (15° SKEW, INLET)
14x4 P.C. END SECTION (15° SKEW, OUTLET)
8 C.Y. CL. III RIPRAP AT INLET
75 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 258+33.32
Δ=00°29'59" LT.
X=704545.8398
Y=168999.3072

PI STA. 271+50.01
Δ=00°52'13" RT.
X=704523.7548
Y= 170315.8153

INDEX MAP
(FOUR SECTIONS)
TOWNSHIP 107 N., RANGE 11 W.

Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

3. Apparent highwater elevation _____ Obtained from _____

4. Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 08-18-06

Stream or ditch designation UNNAMED
Drainage area 0.63 SQ. MI.
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 430 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1084.3
Design mean velocity through structure 13.8 F.P.S. _____
Low superstructure at or above elevation 1085.52
Flowline elevation 1081.52 Skew angle 15°
Waterway area req'd below elevation _____ = _____ Sq. FT. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 430 C.F.S. at stage 1084.3 and mean velocity of 5.5 F.P.S. with 3.2 Ft. sreelhead
The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

AS-BUILT
DATE _____
FEB 09 2012
ENGINEERING

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY – NOVEMBER, 2005

Bench mark elevation 1115.99 (M.S.L. 1929 Adj.)
Location 120d SPIKE IN FIELD ENT. AT STA. 300+17 – RT.

CERTIFIED BY Kaye M Brenner REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

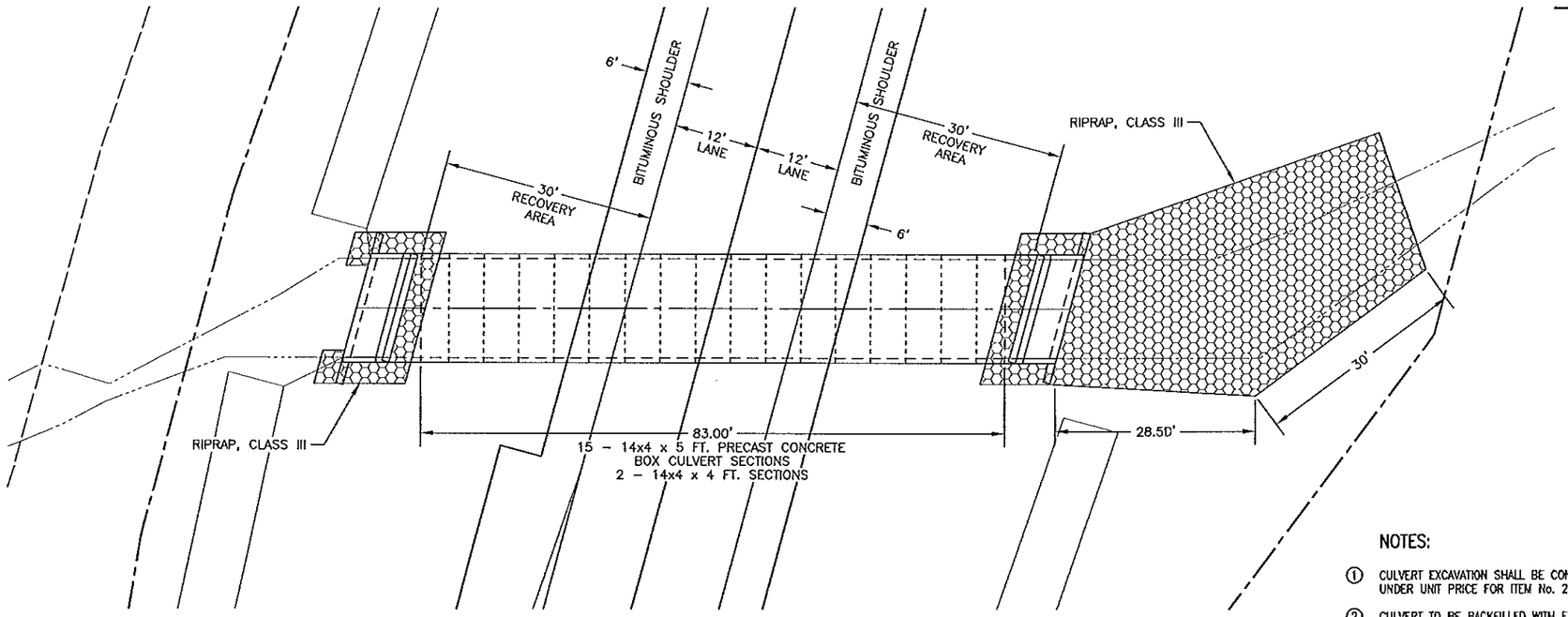
MINNESOTA
DEPARTMENT OF TRANSPORTATION

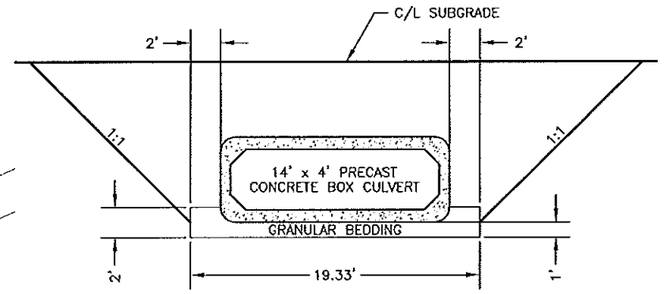
BRIDGE SURVEY

AT MILE POINT _____ ON C.S.A.H. 10 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 0.1 mi NORTH OF JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 33 & 34 TWP 107 N. R 11 W.
TOWNSHIP QUINCY COUNTY OLMSTED
BRIDGE No. 55J65

Sheet No. 252 of 299 Sheets

FILE NAME: P3068503.DWG DATE: 03-30-10

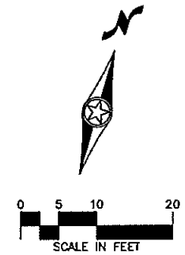


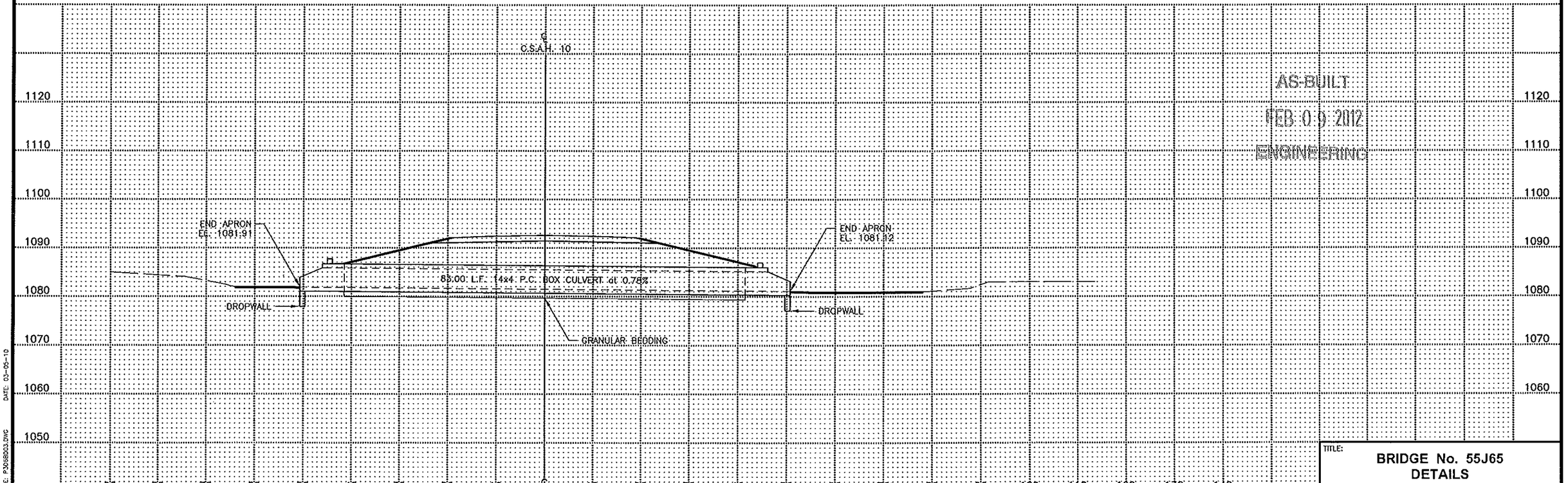


BRIDGE No. 55J65
STA. 263+52.00

NOTES:

1. CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.





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FEB 09 2012
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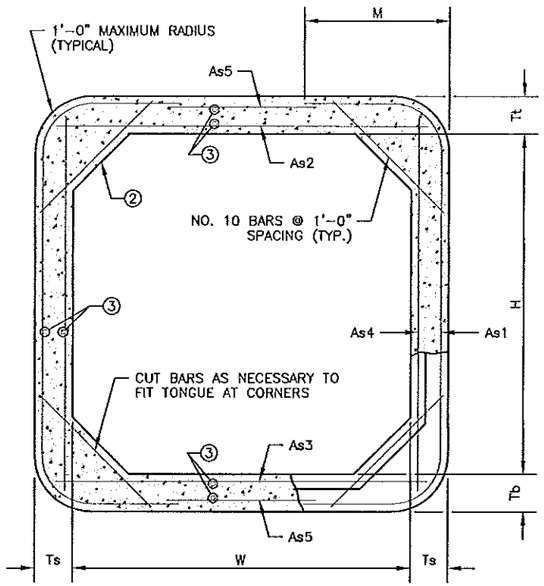
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CERTIFIED BY Paul M Bremer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

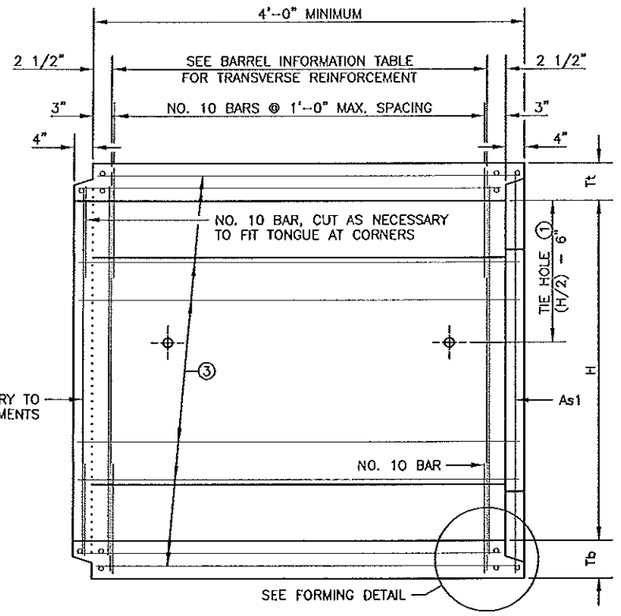
S.A.P. 55-610-22

TITLE:
BRIDGE No. 55J65
DETAILS

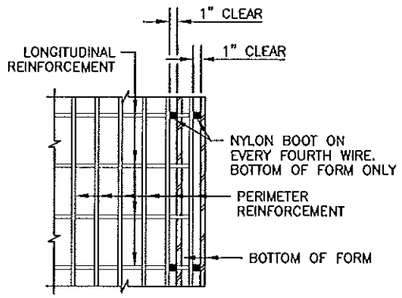
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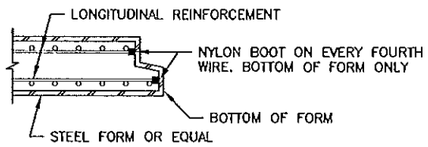
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

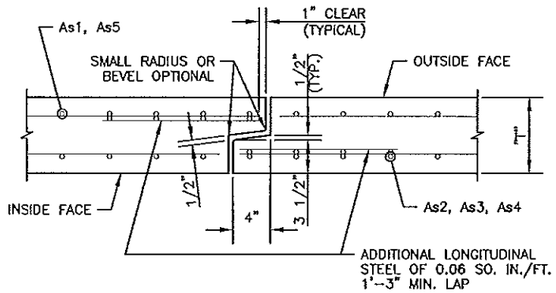


PLAN

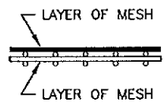


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
263+52.00	14' x 4'	2	5D00	2–6	14	4	10	10	8	4800	0.83	12'–9"	4'–2"	1.03	14'–6"	0.93	14'–6"	0.20	4'–6"	0.06	9'–0"

REVISION:

APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 263+52.00 FIG. 5-395.101(A)

CERTIFIED BY Kayell Premik LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

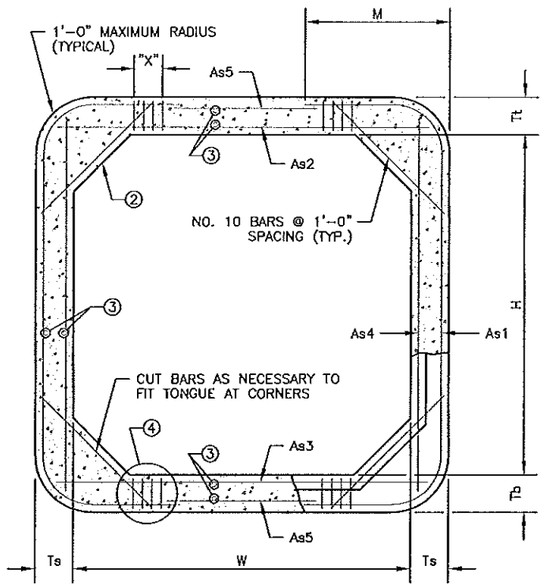
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CHK: CHK:

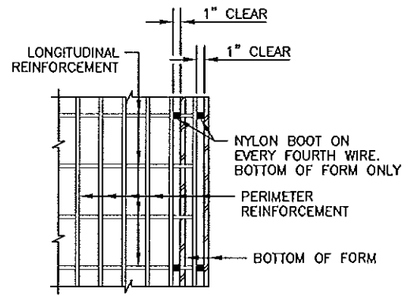
Sheet No. 254 of 299 Sheets

BRIDGE NO. 55J65

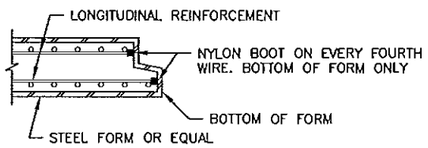
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TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

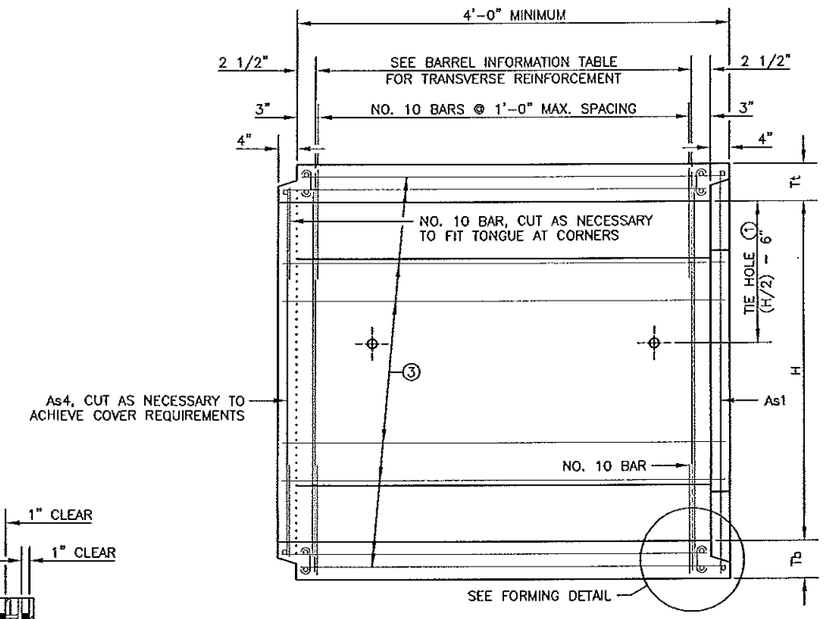


PLAN

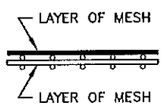


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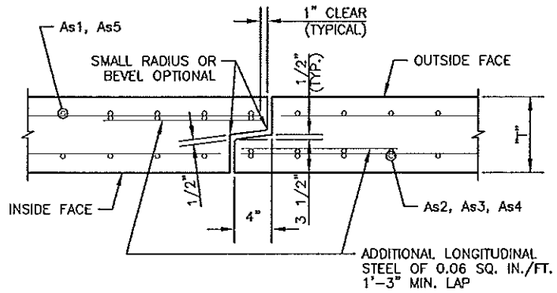
FORMING DETAIL



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

④ SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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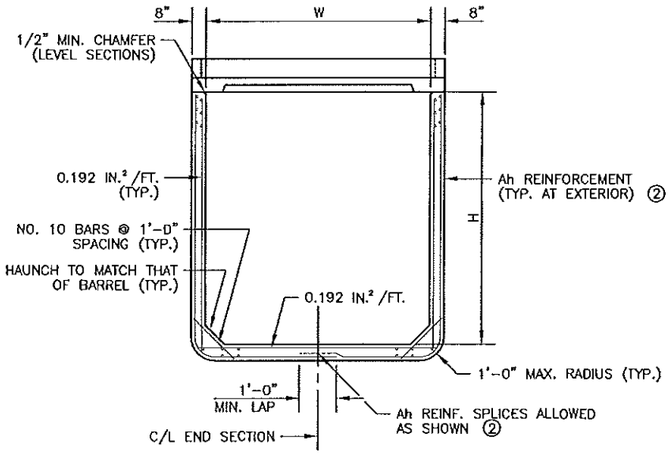
BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												④ SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

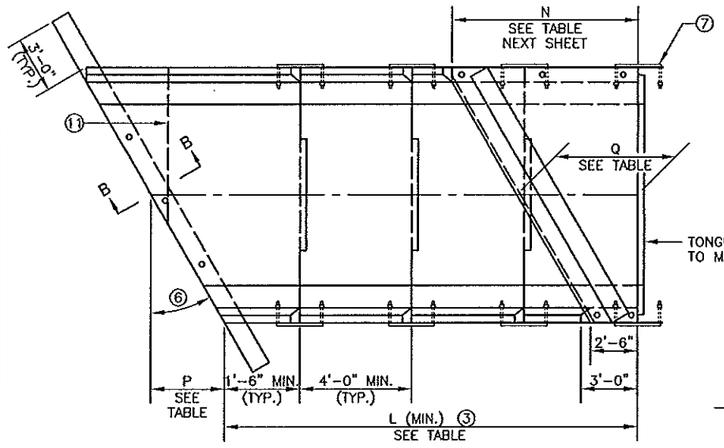
REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 263+52.00			FIG. 5-395.101(B)
CERTIFIED BY Kay M Brenneck LICENSED PROFESSIONAL ENGINEER REG. NO. 19914 4/5 2010	TITLE: BARREL DETAILS (SPECIAL DESIGN)	DES: / CHK:	DR: / CHK:	APPROVED:
		Sheet No. 255 of 299 Sheets		BRIDGE NO. 55J65

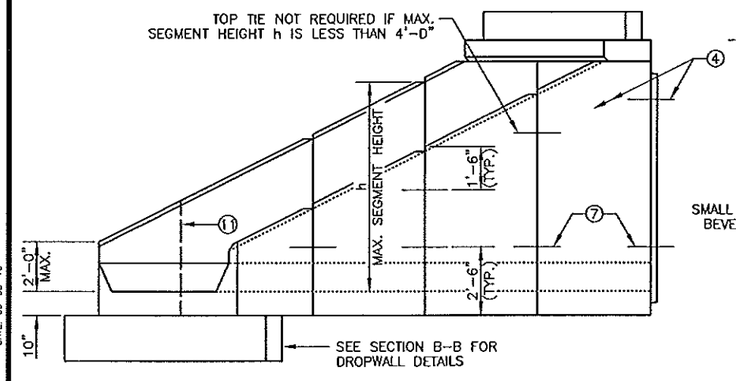
DATE: 03-05-10
FILE NAME: P306-3018.DWG



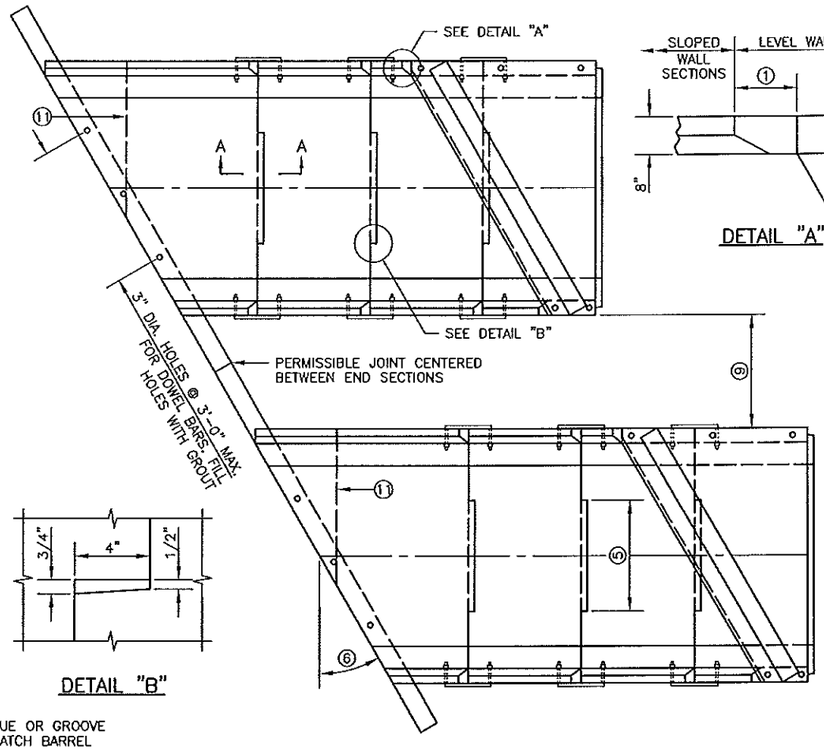
END VIEW



PLAN VIEW
SINGLE BARREL OPTION



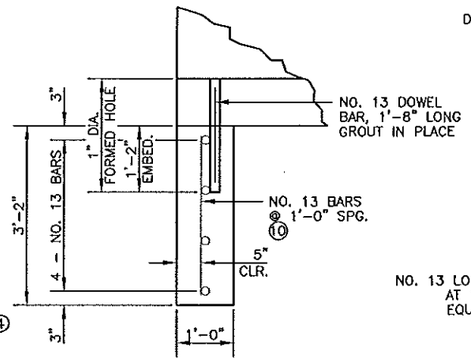
ELEVATION



PLAN VIEW
DOUBLE BARREL OPTION

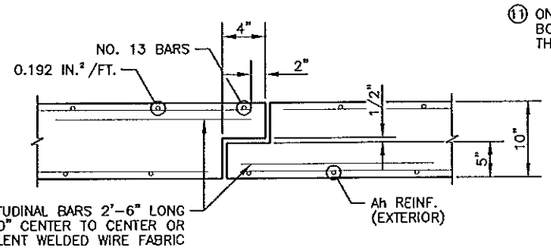
DETAIL "A"

DETAIL "B"

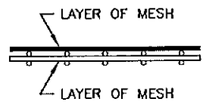


SECTION B-B

TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



SECTION A-A



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15°; 10 5/8" @ 30°; 1'-2" @ 45°

② SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2' UP TO 22 1/2', USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2' UP TO 37 1/2', USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2' UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

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LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
8	1'-3"	2'-8 3/8"	4'-8"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/8"	7'-8"

MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4"	7'-7 3/8"	8'-7 7/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 5/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 1/8"	30'-8 1/2"	36'-11 1/4"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
8	3'-9"	5'-2 3/8"	7'-2"
10	4'-0"	5'-9 1/4"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"

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S.A.P. 55-610-22 STA. 263+52.00

FIG. 5-395.110(A)

CERTIFIED BY Kayle M Brenneke
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 20 10

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°

DES: DR: APPROVED:
CHK: CHK:

Sheet No. 256 of 299 Sheets

BRIDGE NO. 55J65

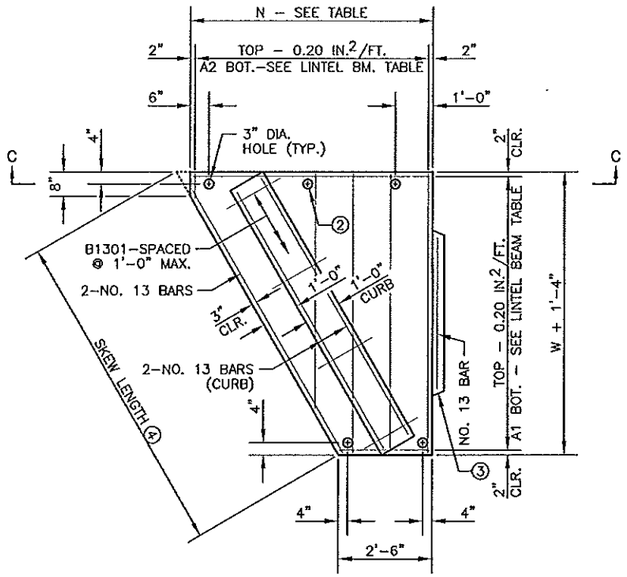
FILE NAME: P306-310A.DWG DATE: 05-05-10

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah (IN.²/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

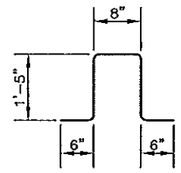
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

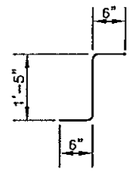
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB

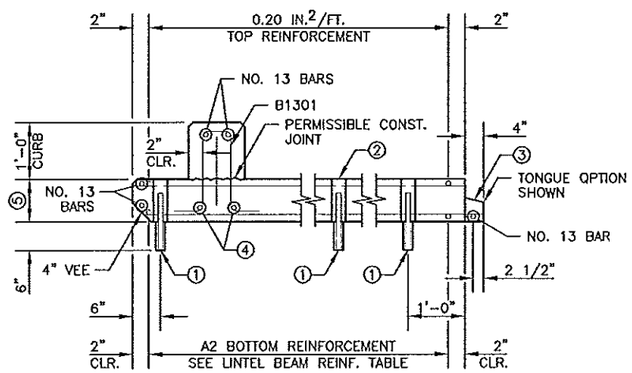


B1301



B1301 ALTERNATE

⑥ 2 REQUIRED



SECTION C–C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

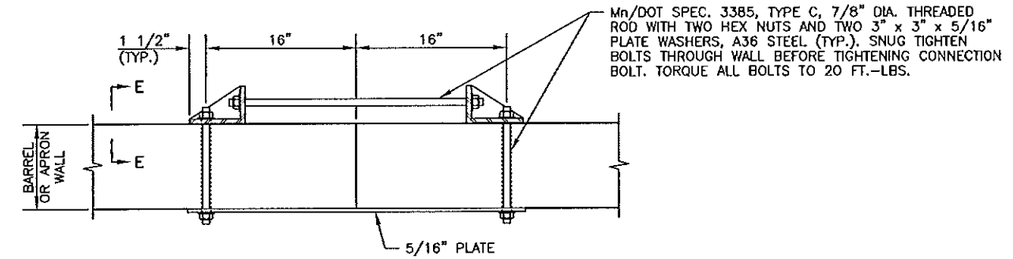
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15° SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30° OR 45° SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

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SECTION E–E

PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

REVISION: 09–17–2004

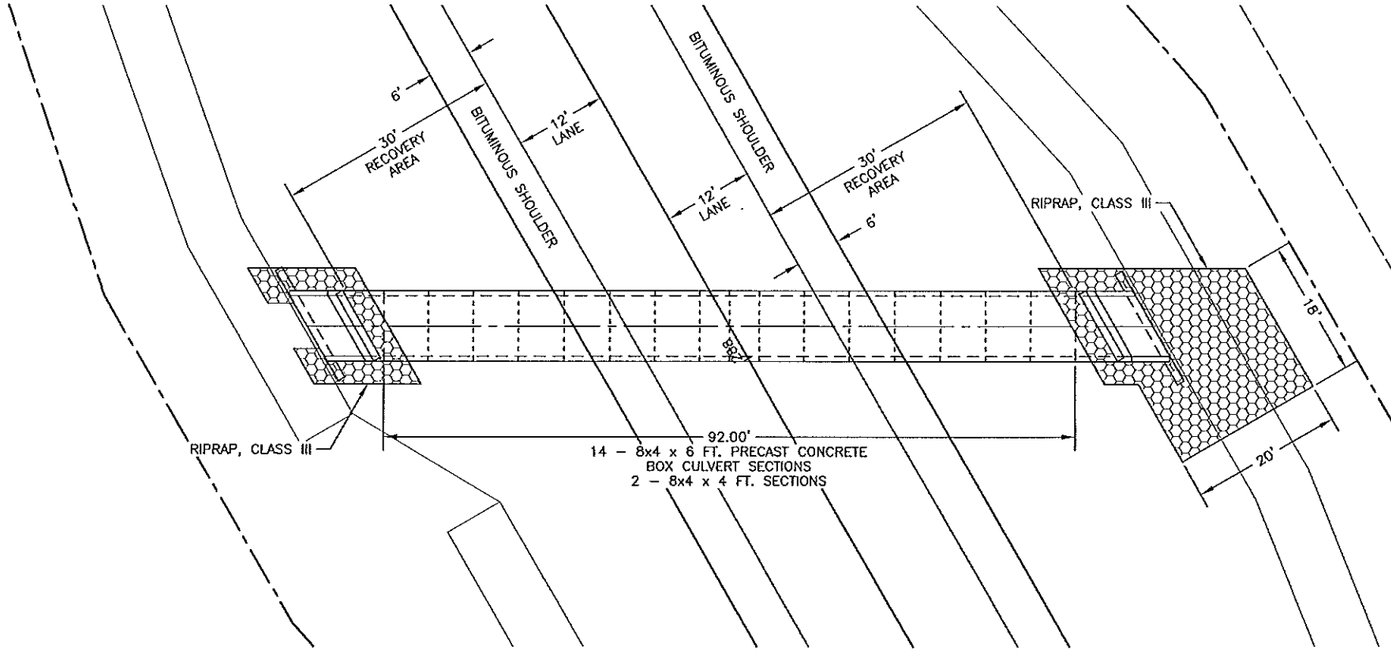
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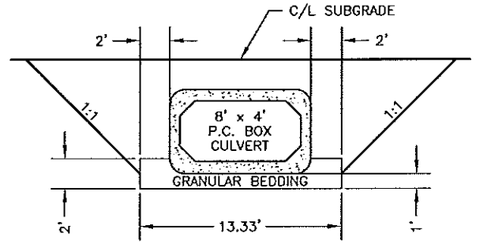
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 263+52.00		FIG. 5-395.110(B)
CERTIFIED BY Kaye M Prieniek LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 20 10	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7–1/2° TO 45°	DES: DR: APPROVED: CHK: CHK: Sheet No. 257 of 299 Sheets	BRIDGE NO. 55J65

DATE: 02-25-10

FILE NAME: P386-3106.DWG





8' x 4' CONCRETE BOX
STA. 288+05.00

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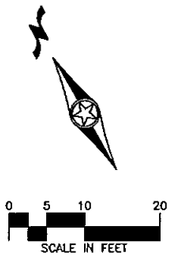
ENGINEERING

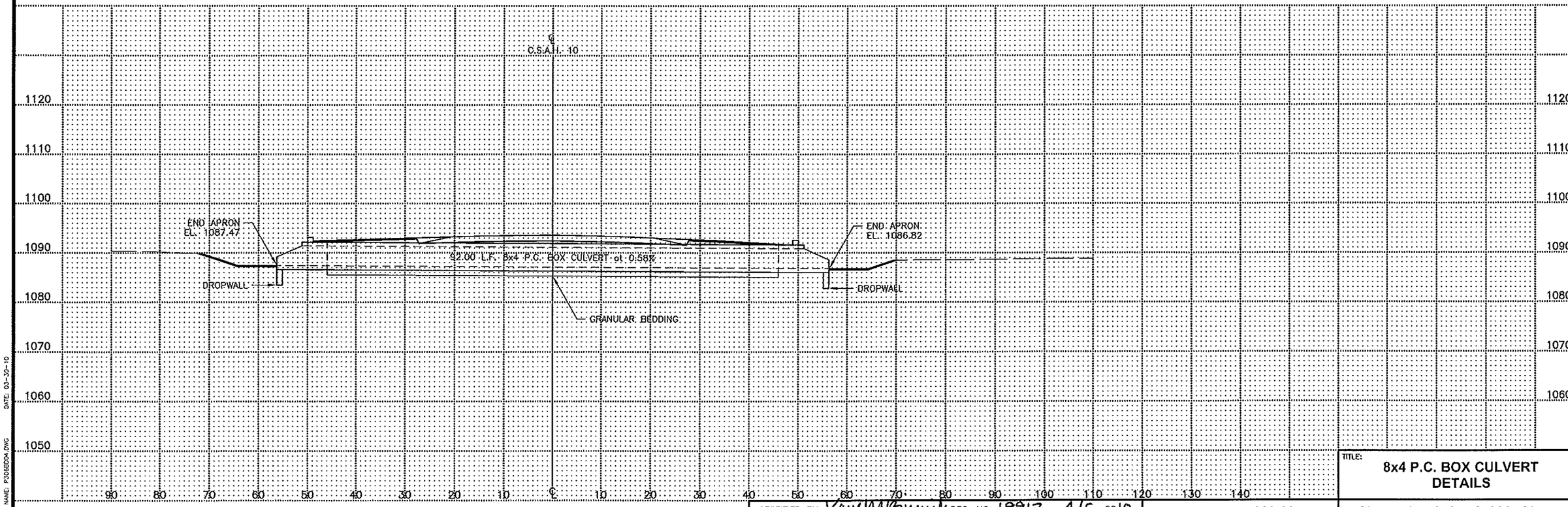
NOTES:

① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.





CERTIFIED BY Lawrence Brennick REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

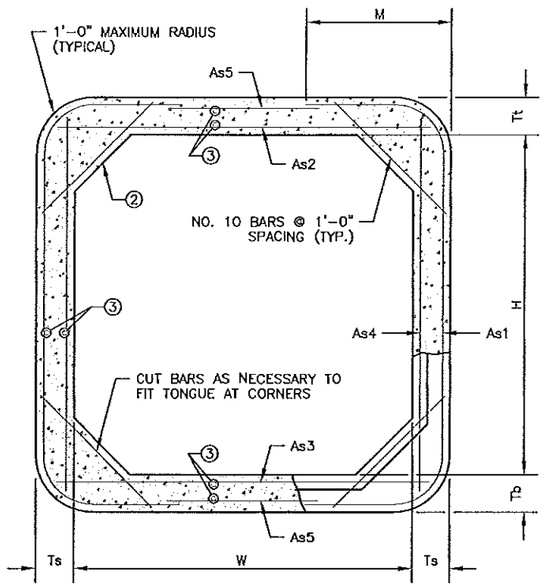
S.A.P. 55-610-22

TITLE: 8x4 P.C. BOX CULVERT DETAILS

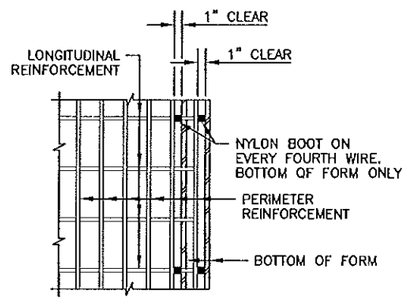
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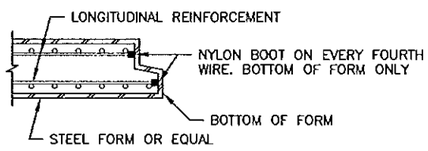
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TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

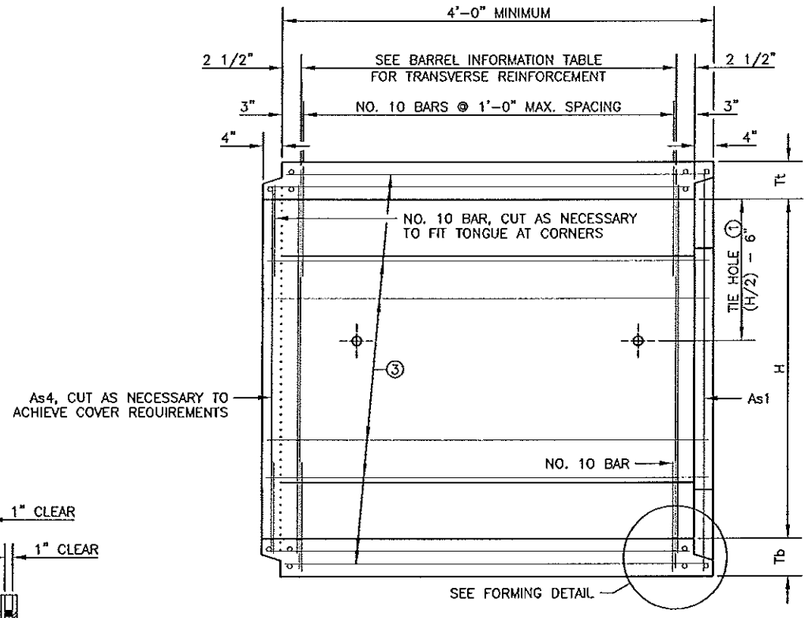


PLAN

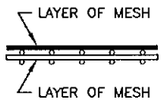


SECTION

FORMING DETAIL



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

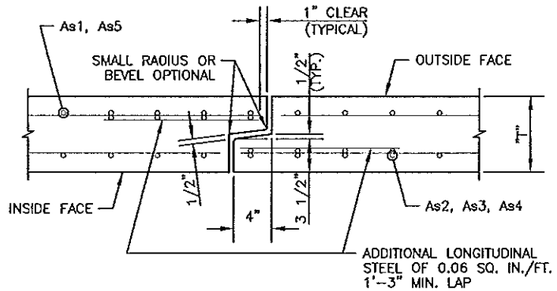
CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.



TONGUE AND GROOVE JOINT DETAIL

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
288+05.00	8' x 4'	1	5000	<2	8	4	9	10	8	3235	0.41	9'-3"	2'-6"	0.80	8'-6"	0.53	8'-6"	0.20	4'-6"	0.22	6'-3"

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S.A.P. 55-610-22 STA. 288+05.00 FIG. 5-395.101(A)

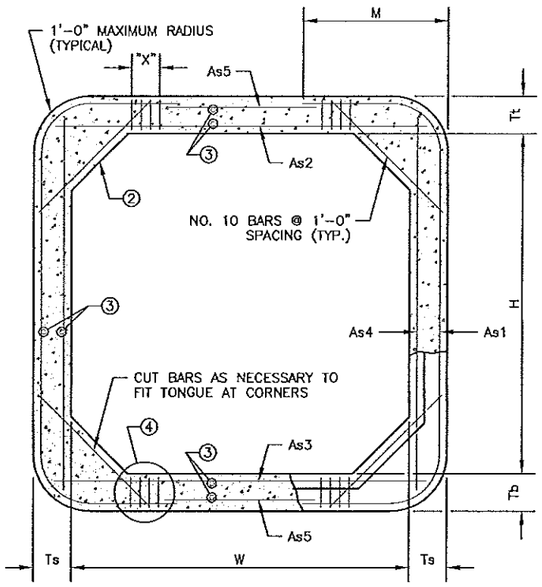
CERTIFIED BY Kaye M Brunnette LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: BARREL DETAILS

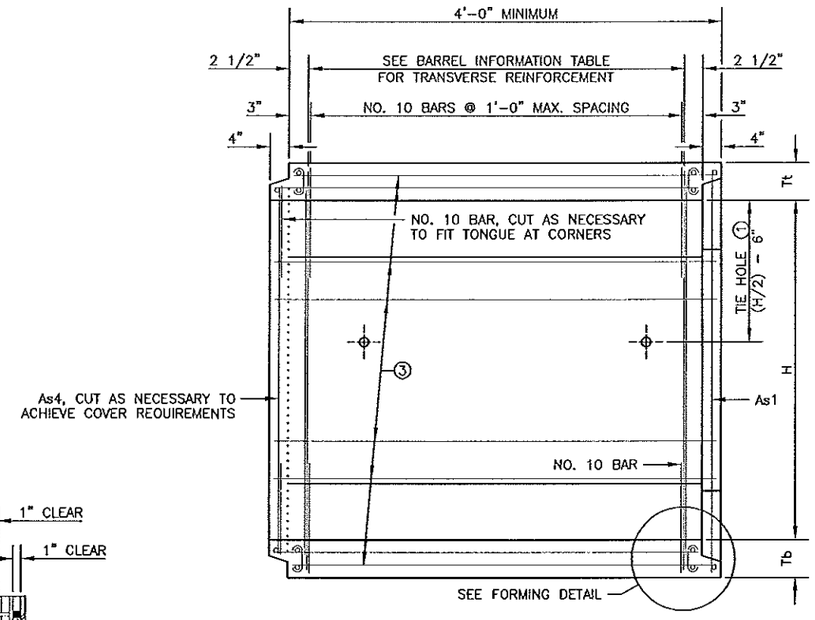
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Sheet No. 259 of 299 Sheets

8 x 4 BOX CULVERT

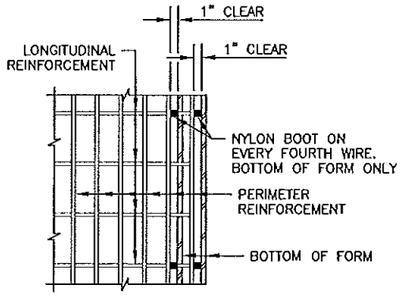
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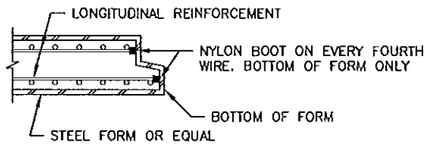
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

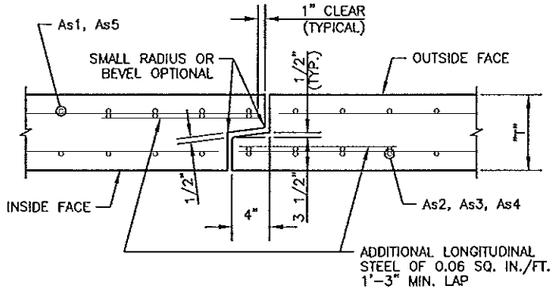


PLAN

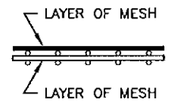


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

④ SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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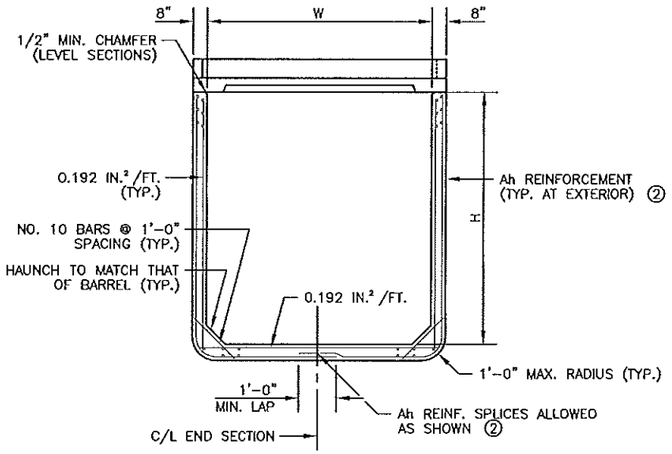
BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												④ SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

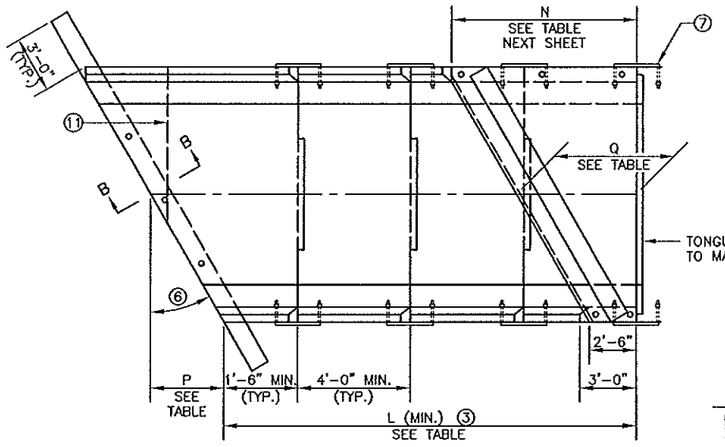
REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 288+05.00		FIG. 5-395.101(B)
CERTIFIED BY Kay M Bennich LICENSED PROFESSIONAL ENGINEER	TITLE: BARREL DETAILS (SPECIAL DESIGN)	DES: / CHK:	DR: / CHK: / APPROVED:
REG. NO. 19917 4/5 20 10		Sheet No. 260 of 299 Sheets	8 x 4 BOX CULVERT

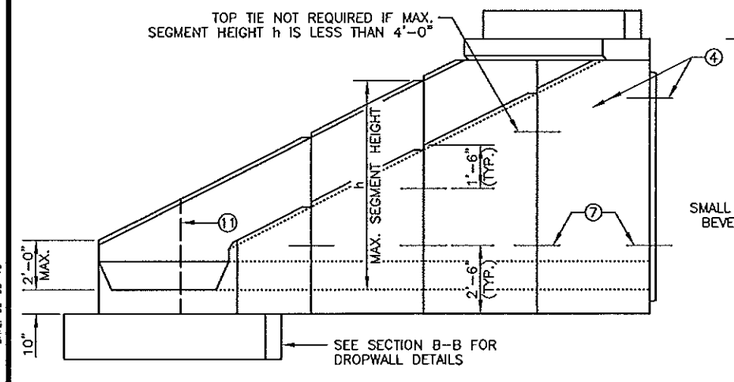
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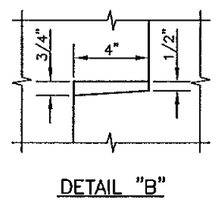
END VIEW



PLAN VIEW
SINGLE BARREL OPTION

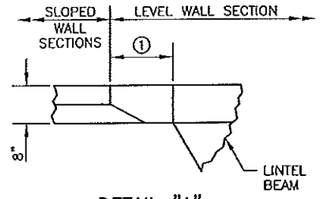


ELEVATION



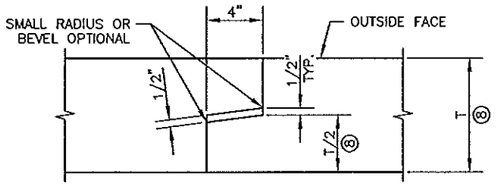
DETAIL "B"

PLAN VIEW
DOUBLE BARREL OPTION

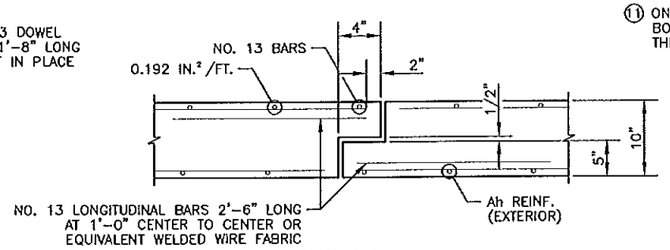


DETAIL "A"

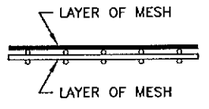
SECTION B-B



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



SECTION A-A



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15'; 10 5/8" @ 30'; 1'-2" @ 45'

② SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2' UP TO 22 1/2', USE A 15' SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2' UP TO 37 1/2', USE A 30' SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2' UP TO 45', USE A 45' SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIRED ONLY ON HIGH FILL SIDE FOR 45' SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

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LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
8	1'-3"	2'-8 3/8"	4'-8"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/8"	7'-8"

MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4"	7'-7 3/8"	8'-7 7/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 5/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 1/8"	30'-8 1/2"	36'-11 1/4"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
8	3'-9"	5'-2 3/8"	7'-2"
10	4'-0"	5'-9 1/4"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"

REVISION: 09-17-2004
APPROVED: DECEMBER 11, 2000
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FIG. 5-395.110(A)

CERTIFIED BY Kaye M Brenneke LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°

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Sheet No. 261 of 299 Sheets

8 x 4 BOX CULVERT

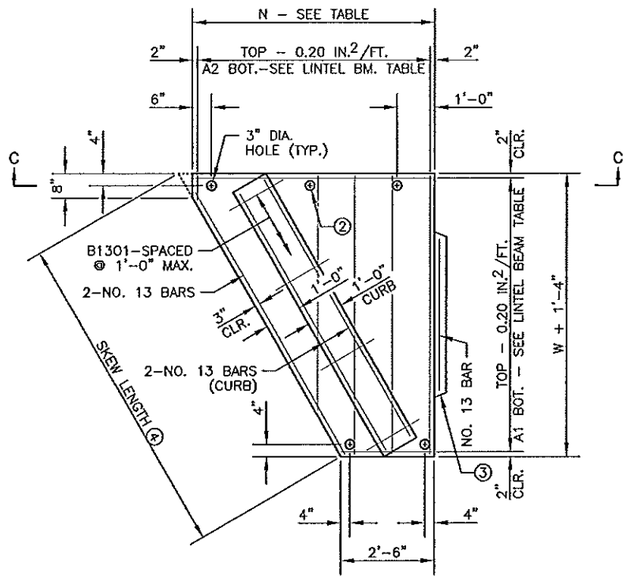
DATE: 03-05-10
FILE NAME: P305-410A.DWG

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah (IN.² /FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

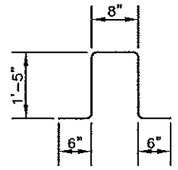
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

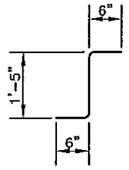
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB

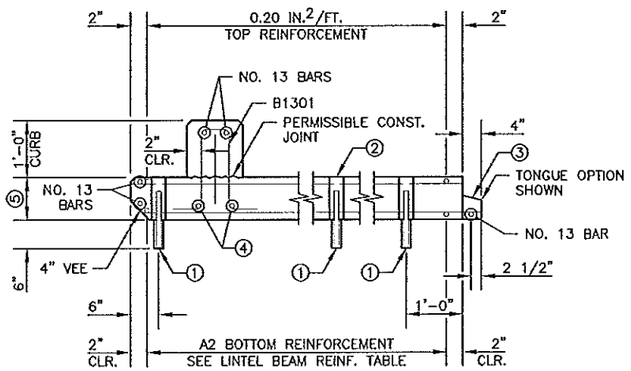


B1301



B1301
ALTERNATE

⑥
2 REQUIRED



SECTION C–C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

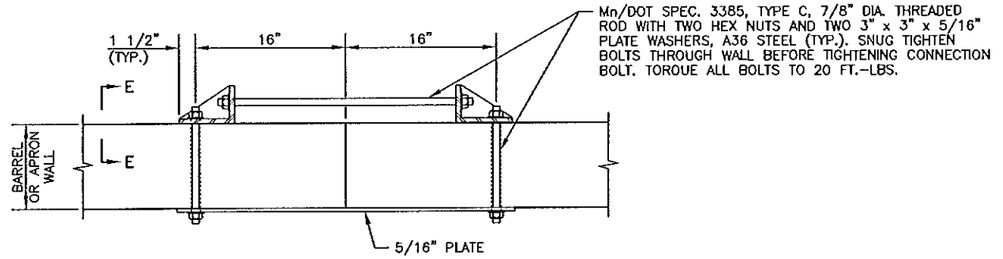
③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

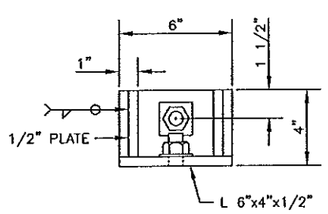
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15' SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30' OR 45' SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

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PLAN VIEW



SECTION E–E

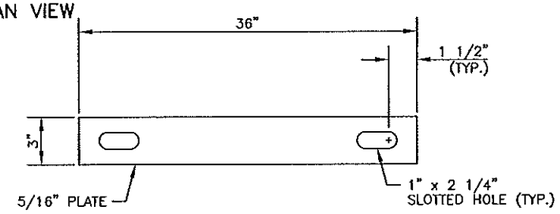


PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

DATE: 03-05-10
FILE NAME: P306-410B.DWG

REVISION: 09-17-2004
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 288+05.00 FIG. 5-395.110(B)

CERTIFIED BY Kay M Bremich LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 20 10

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7–1/2° TO 45°

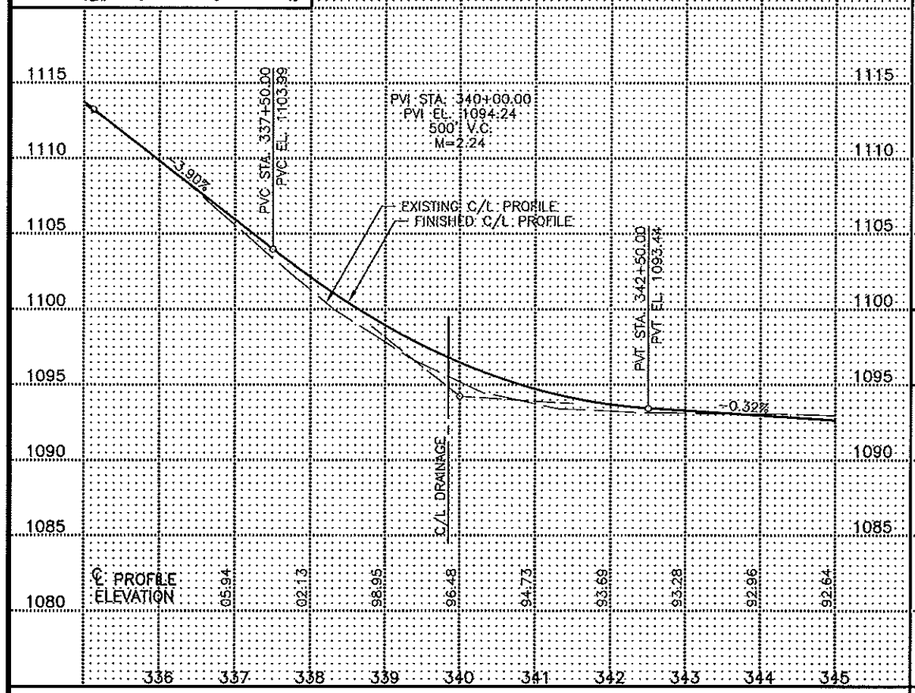
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CHK: CHK:

Sheet No. 262 of 299 Sheets

8 x 4 BOX CULVERT

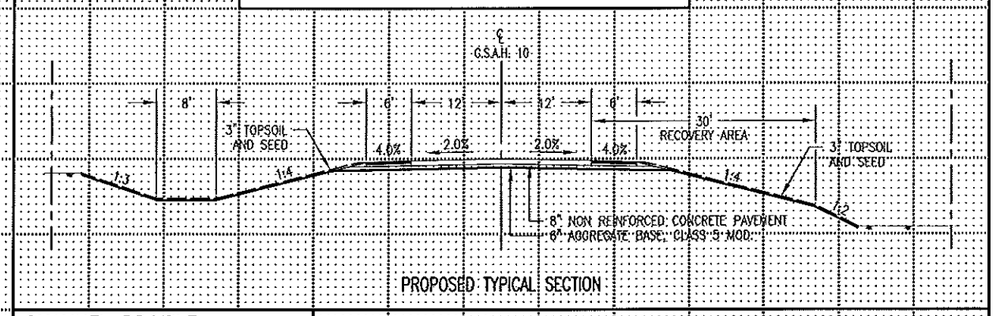
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

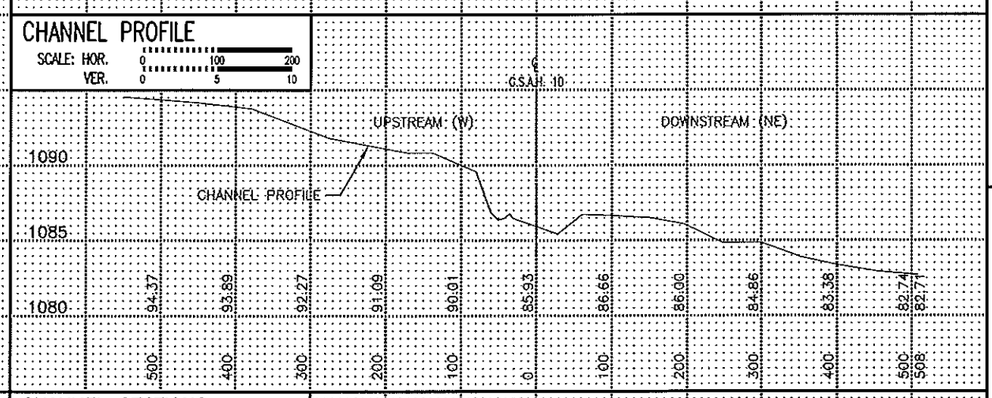
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

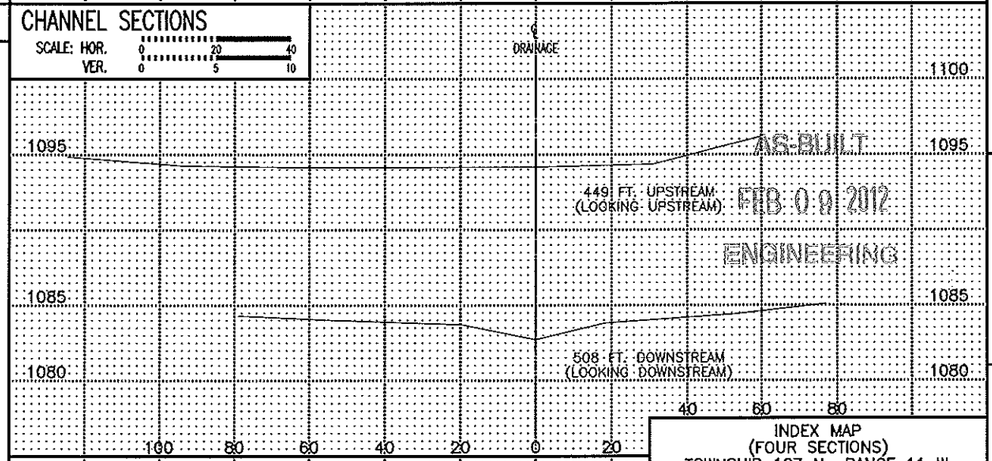
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10

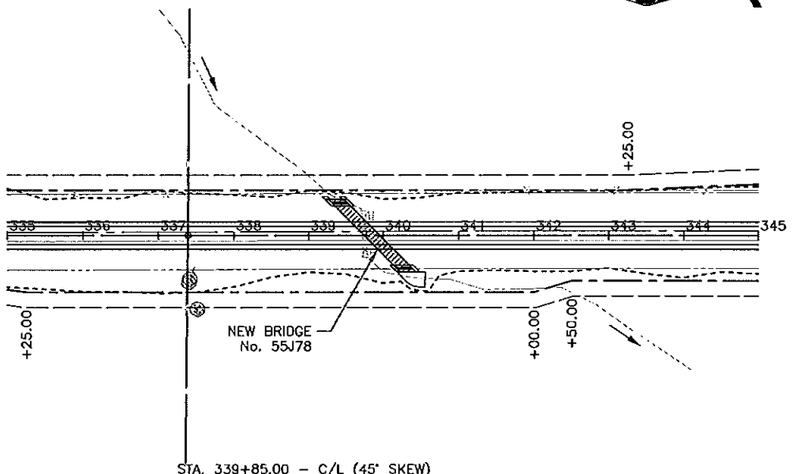


PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

ELECTRIC – ALLIANT ENERGY (OVERHEAD)
TELEPHONE – QWEST (UNDERGROUND)



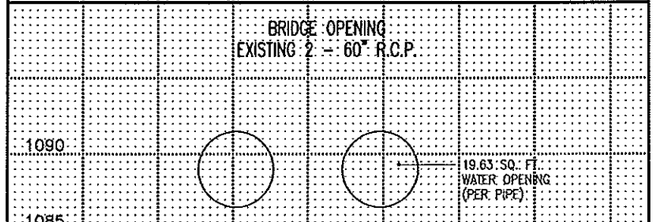
STA. 339+85.00 – C/L (45° SKEW)
BRIDGE No. 55J78
REMOVE INPL. 2 – 60" x 63 L.F. RCP
14x4 x 105.00 L.F. P.C. BOX CULVERT
1 – 14x4 P.C. END SECTION (45° SKEW, INLET)
1 – 14x4 P.C. END SECTION (45° SKEW, OUTLET)
10 C.Y. CL. III RIPRAP AT INLET
37 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 337+39.17
Δ=00°00'04" LT.
X=704473.5539
Y=176904.7570

PI STA. 363+75.67
Δ=00°16'44" LT.
X=704448.2271
Y= 179541.1310

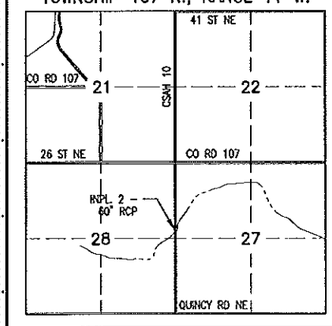
BRIDGE OPENING

EXISTING 2 – 60" R.C.P.



INDEX MAP

(FOUR SECTIONS)
TOWNSHIP 107 N., RANGE 11 W.



Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

3. Apparent highwater elevation _____ Obtained from _____

4. Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 02-16-09

Stream or ditch designation DRY RUN
Drainage area 0.95 SQ. MI.
Max. flood on record UNKNOWN Design flood (10 yr. freq.) 260 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1087.1
Design mean velocity through structure 9.4 F.P.S.
Low superstructure at or above elevation 1090.90
Flowline elevation 1086.90 Skew angle 45°
Waterway area req'd below elevation _____ = _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 660 C.F.S. at stage 1087.7 and mean velocity of 11.1 F.P.S. with 5.1 Ft. swellhead The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

DATE _____

Bridge survey sheets made from: SURVEY CONDUCTED BY
OLMSTED COUNTY – OCTOBER, 2008

Bench mark elevation 1125.78 (M.S.L. 1929 Adj.)
Location 120d SPIKE IN FIELD ENT. AT STA. 330+60 – RT.

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

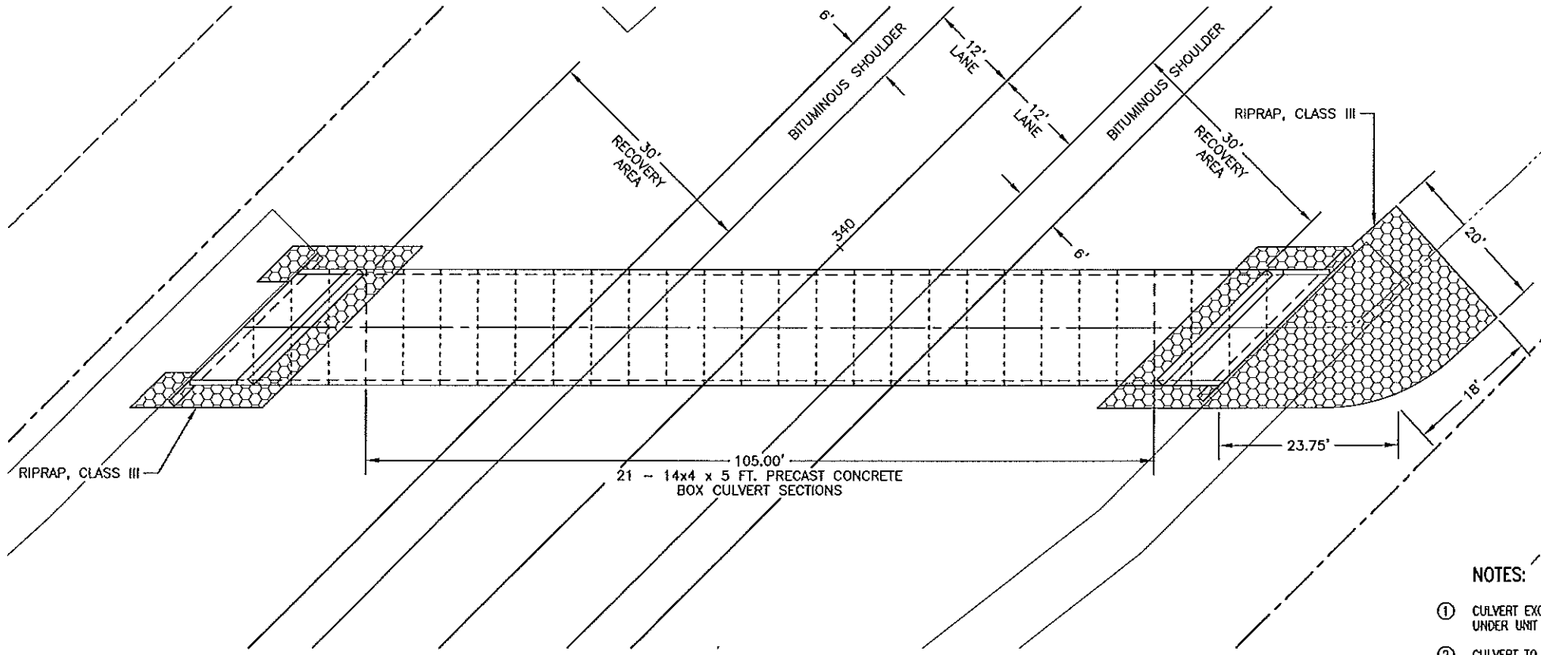
AT MILE POINT _____ ON C.S.A.H. 10
(T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.55 mi NORTH OF
JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 27 & 28 TWP 107 N. R 11 W.
TOWNSHIP QUINCY COUNTY OLMSTED
BRIDGE No. 55J78

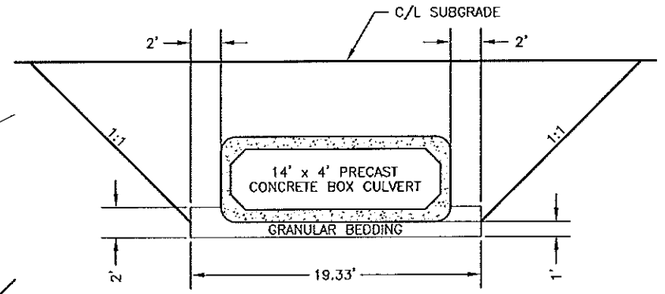
CERTIFIED BY Gary M Brenneis REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 263 of 299 Sheets

DATE: 03-05-10
FILE NAME: P3068505.DWG





BRIDGE No. 55J78
STA. 339+85.00

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ENGINEERING

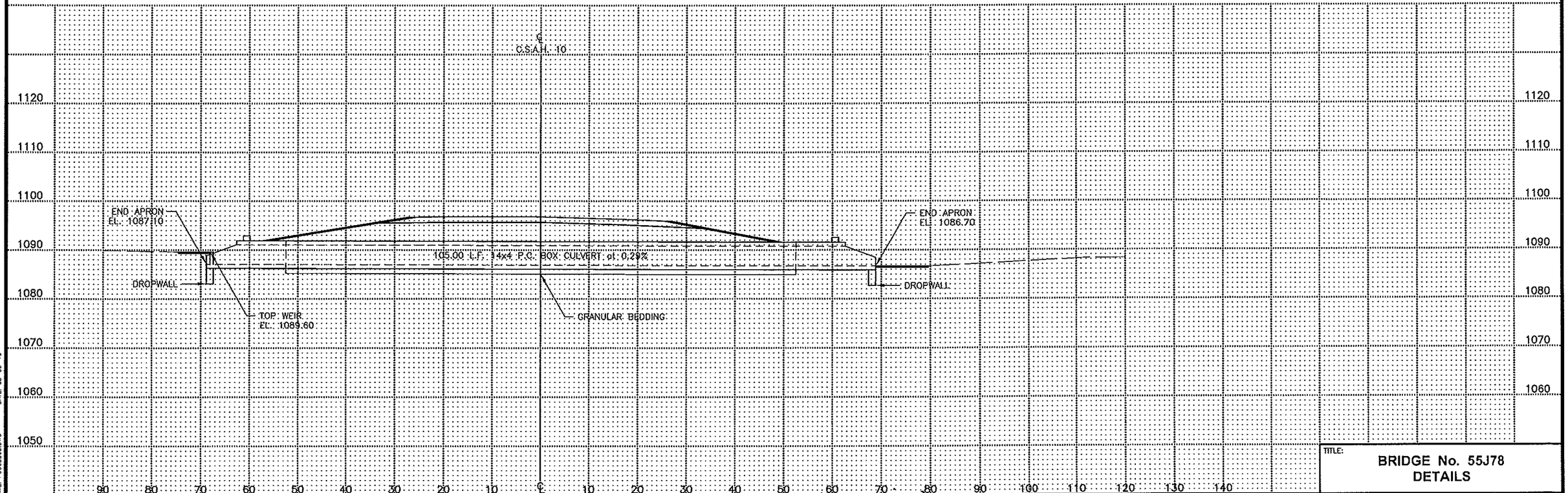
NOTES:

① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.

0 5 10 20
SCALE IN FEET



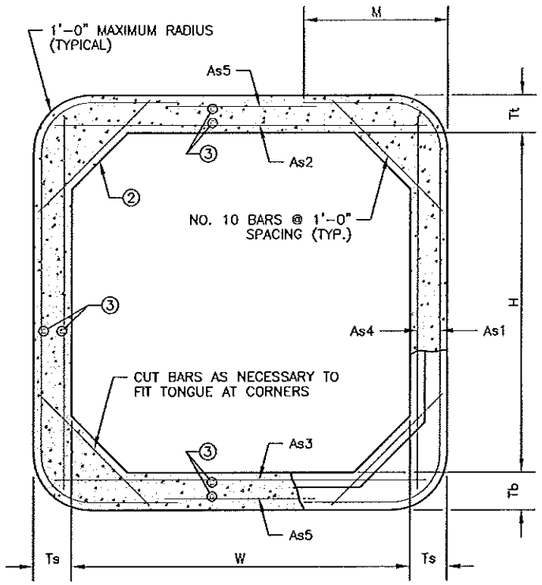
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FILE NAME: P306BD05.DWG

CERTIFIED BY Kay M Brenneke REG. NO. 19917 4/5 2010
DCE | SEA PROFESSIONAL ENGINEER

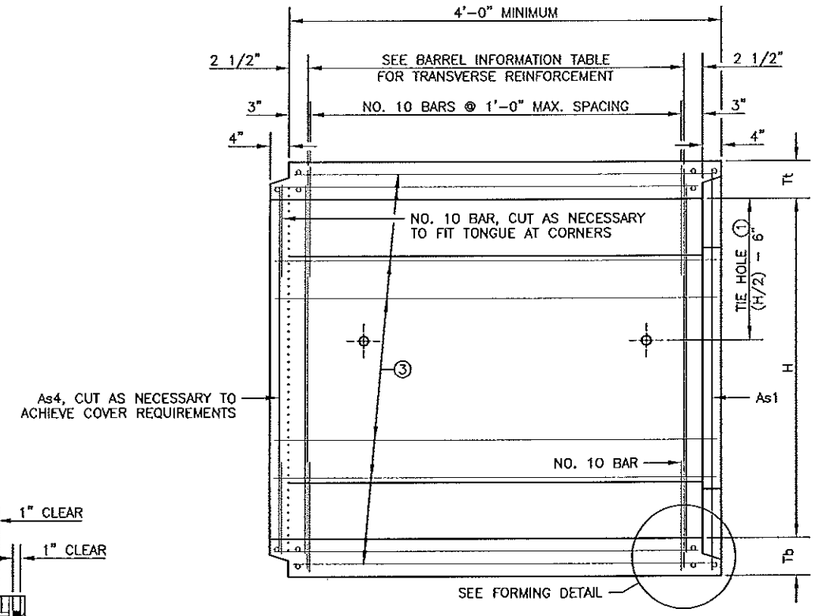
S.A.P. 55-610-22

TITLE:
BRIDGE No. 55J78
DETAILS

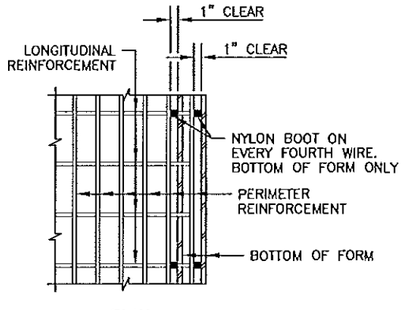
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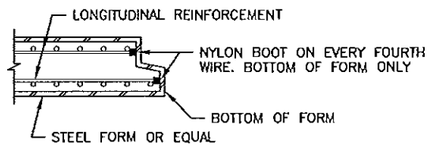
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

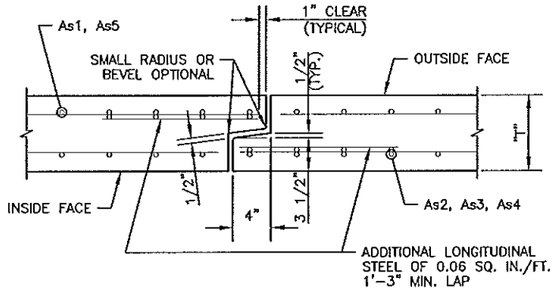


PLAN

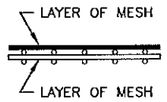


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS -- 6" TO 12"
10'-0" WIDTH -- 10" TO 12"
12'-0" AND 14'-0" WIDTHS -- 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
339+85.00	14' x 4'	2	5000	2-6	14	4	10	10	8	4800	0.83	12'-9"	4'-2"	1.03	14'-6"	0.93	14'-6"	0.20	4'-6"	0.06	9'-0"

REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 339+85.00

FIG. 5-395.101(A)

CERTIFIED BY Kay M Brennick LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

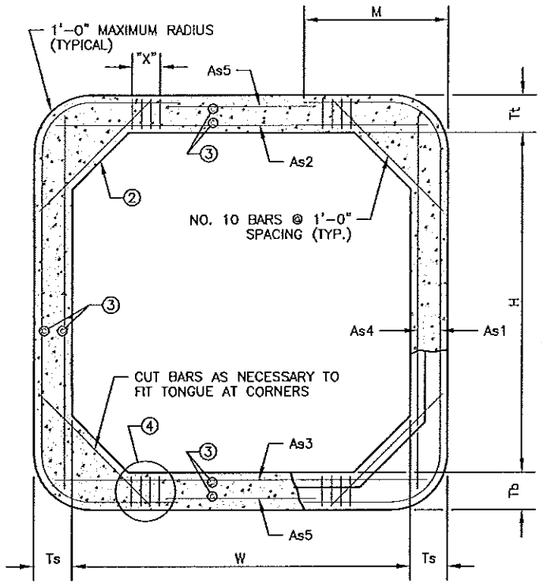
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DES: CHK: DR: CHK: APPROVED:

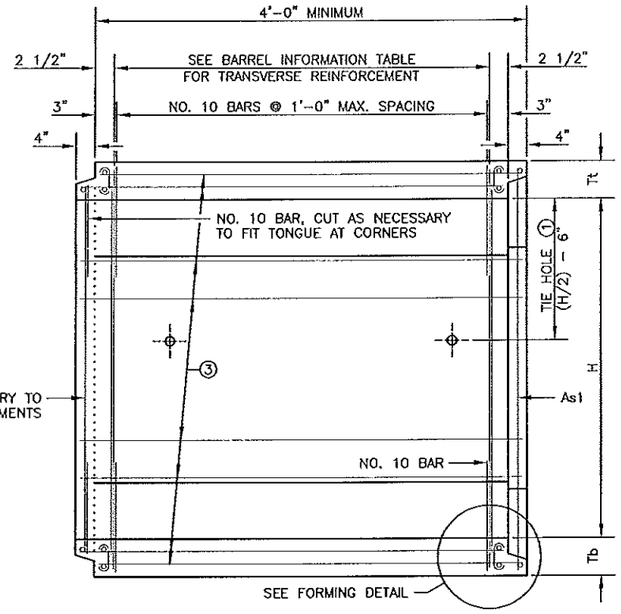
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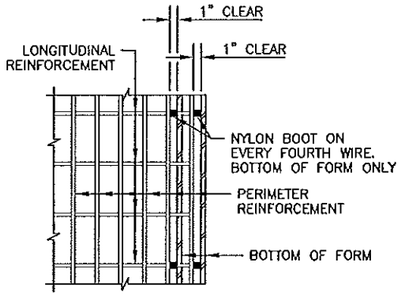
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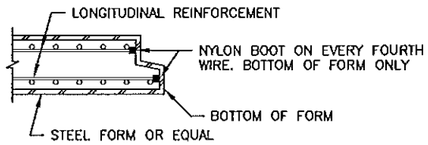
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

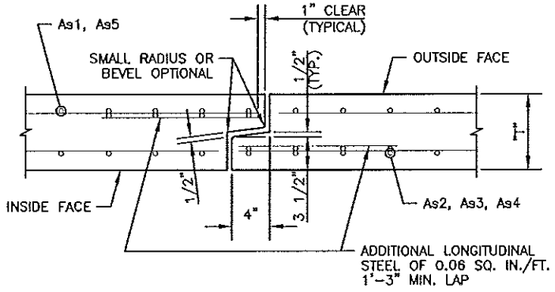


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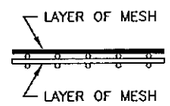


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS -- 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)				AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

REVISION:

APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 339+85.00 FIG. 5-395.101(B)

CERTIFIED BY Kaye M Bruneik
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 20 10

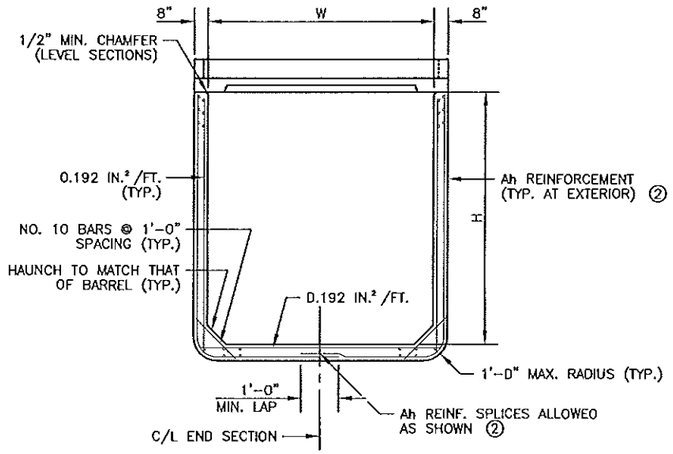
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CHK: CHK:

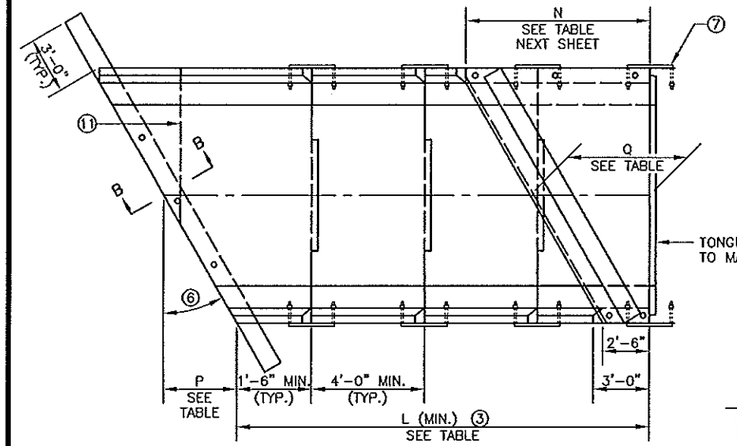
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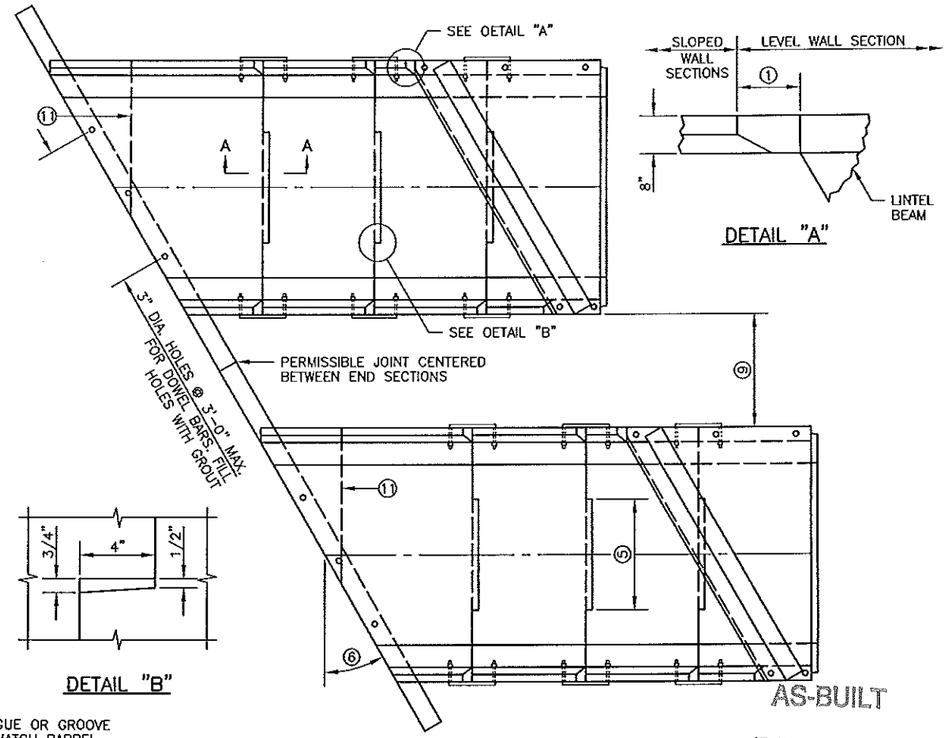
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END VIEW



PLAN VIEW
SINGLE BARREL OPTION



PLAN VIEW
DOUBLE BARREL OPTION

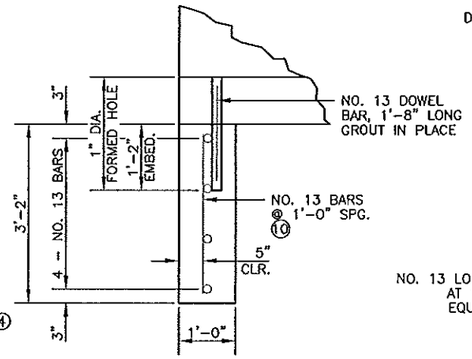
DETAIL "A"

DETAIL "B"

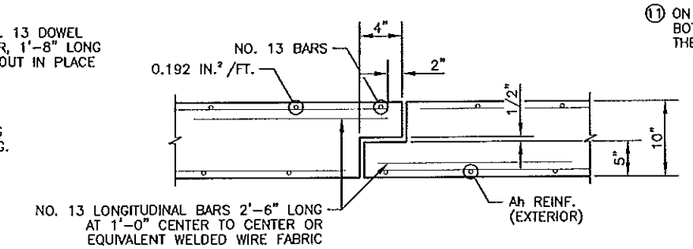
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FEB 0 9 2012

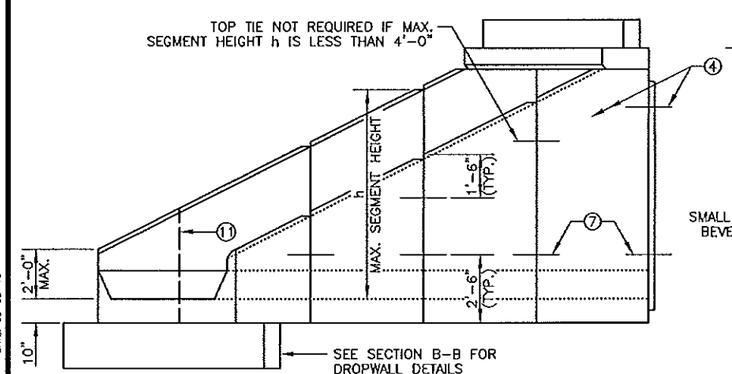
ENGINEERING



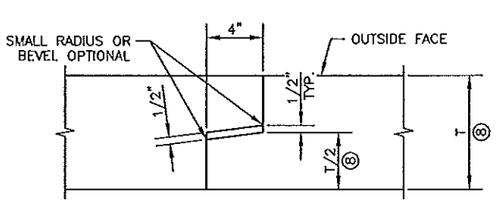
SECTION B-B



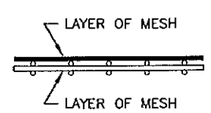
SECTION A-A



ELEVATION



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15°; 10 5/8" @ 30°; 1'-2" @ 45°

② SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS.
5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE.
CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 252D) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4"	7'-7 3/8"	8'-7 7/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 5/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 1/8"	30'-8 1/2"	36'-11 1/4"

LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
8	1'-3"	2'-8 3/8"	4'-8"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/8"	7'-8"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
8	3'-9"	5'-2 3/8"	7'-2"
10	4'-0"	5'-9 1/4"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"

DATE: 02-05-10

FILE NAME: P305-510A.DWG

REVISION: 09-17-2004

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 339+85.00

FIG. 5-395.110(A)

CERTIFIED BY Kaye M Brunick LICENSED PROFESSIONAL ENGINEER

REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°

DES: DR: APPROVED:

CHK: CHK:

Sheet No. 267 of 299 Sheets

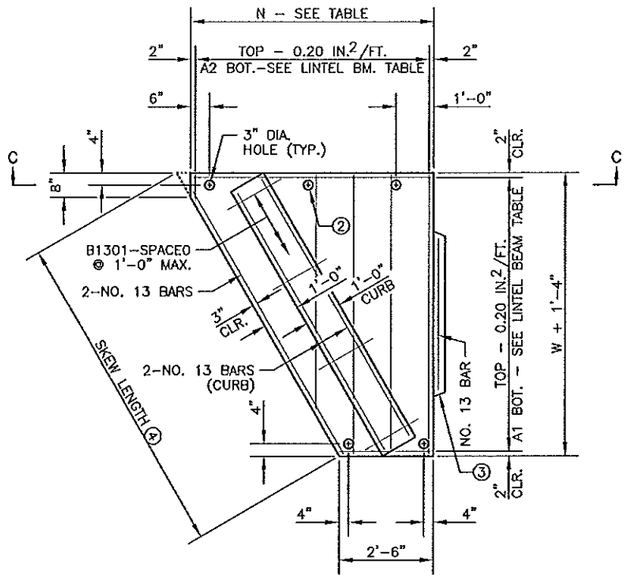
BRIDGE NO. 55J78

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah (IN.²/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

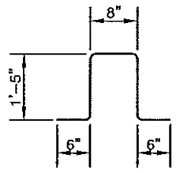
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

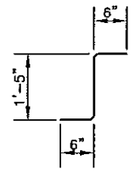
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB

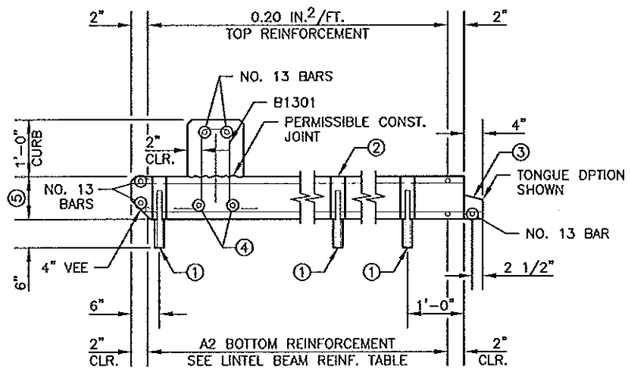


B1301



B1301
ALTERNATE

⑥
2 REQUIRED



SECTION C-C

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'-0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

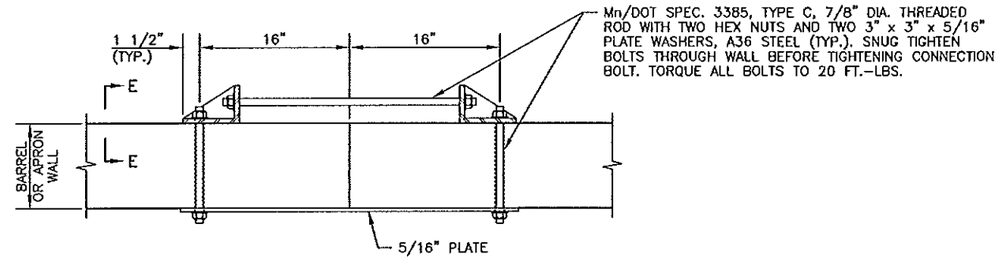
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15' SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30° OR 45° SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

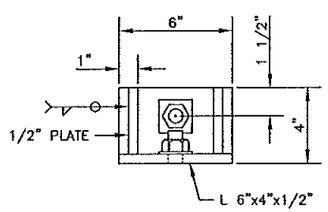
AS-BUILT

FEB 09 2012

ENGINEERING



PLAN VIEW



SECTION E-E

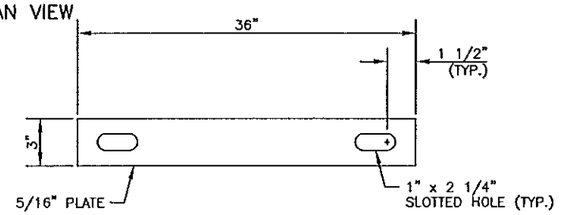


PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

DATE: 03-05-10

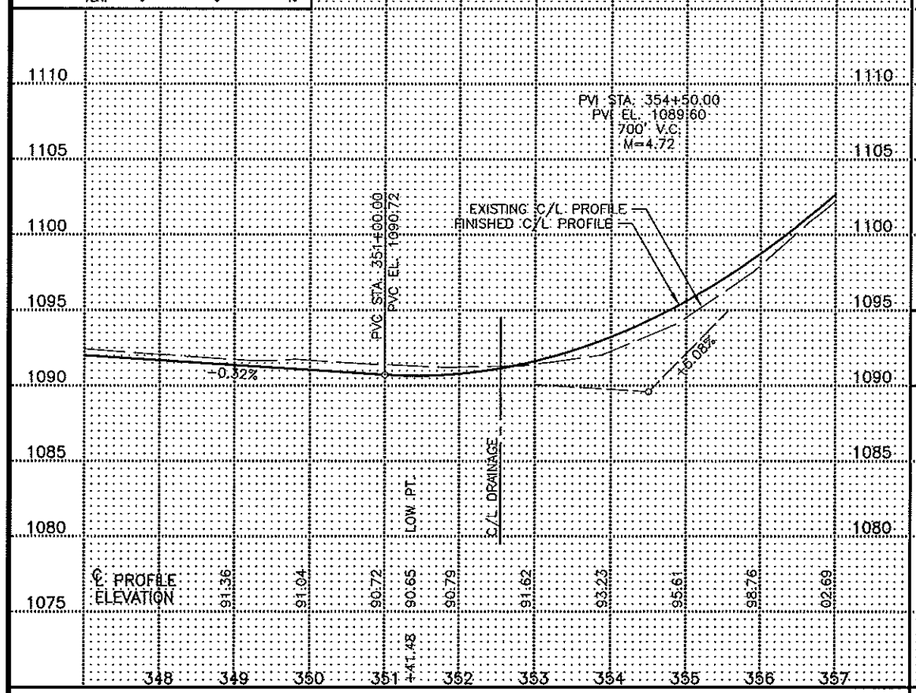
FILE NAME: P306-5108.DWG

REVISION: 09-17-2004
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 339+85.00			FIG. 5-395.110(B)
CERTIFIED BY Faye M Boeneke LICENSED PROFESSIONAL ENGINEER	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°	DES:	DR:	APPROVED:
REG. NO. 19917 4/5 2010		CHK:	CHK:	BRIDGE NO. 55J78
		Sheet No. 268 of 299 Sheets		

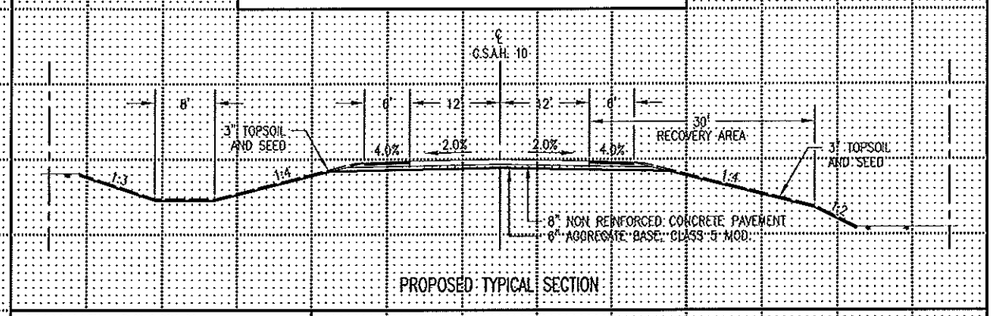
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

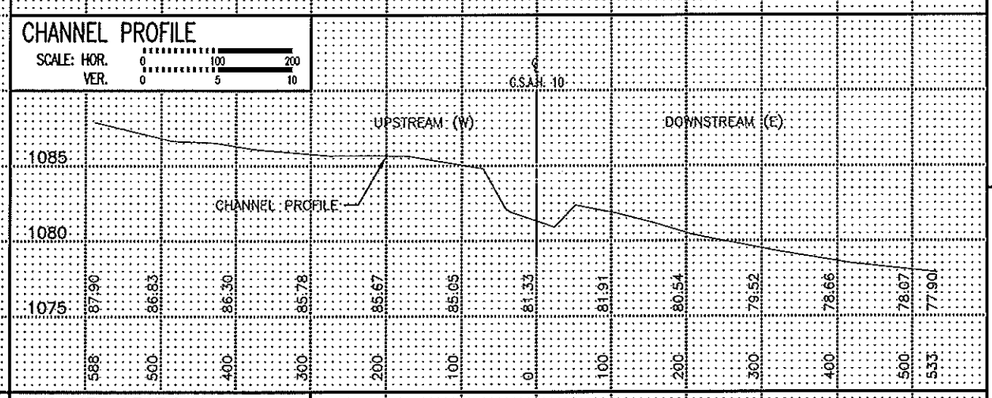
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

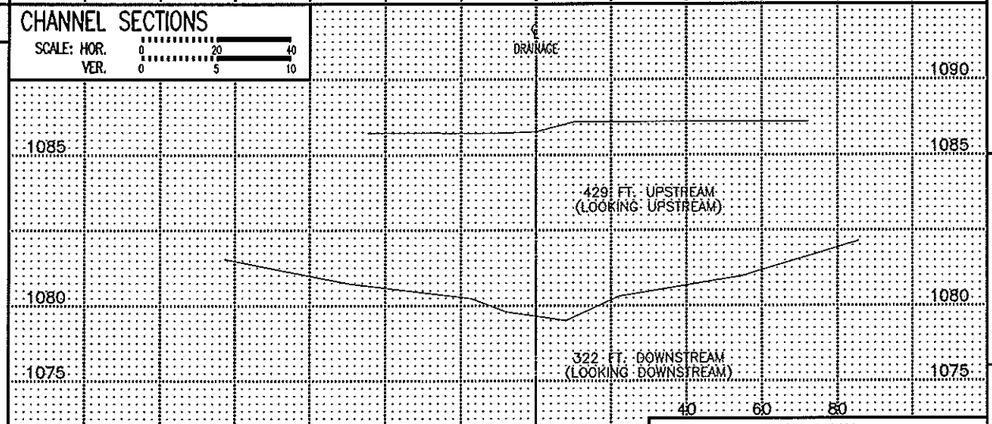
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



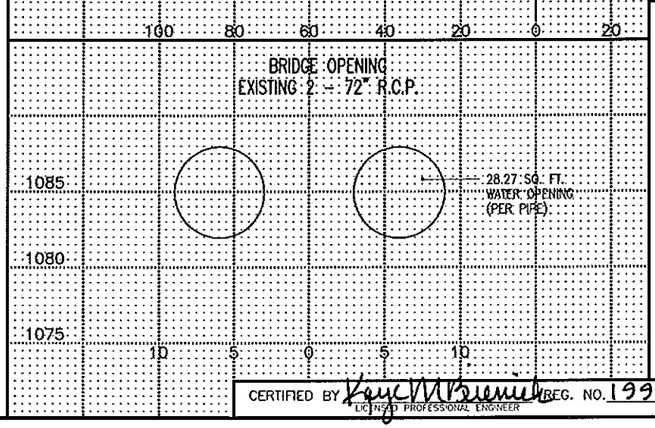
CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10



BRIDGE OPENING

EXISTING 2 - 72" R.C.P.

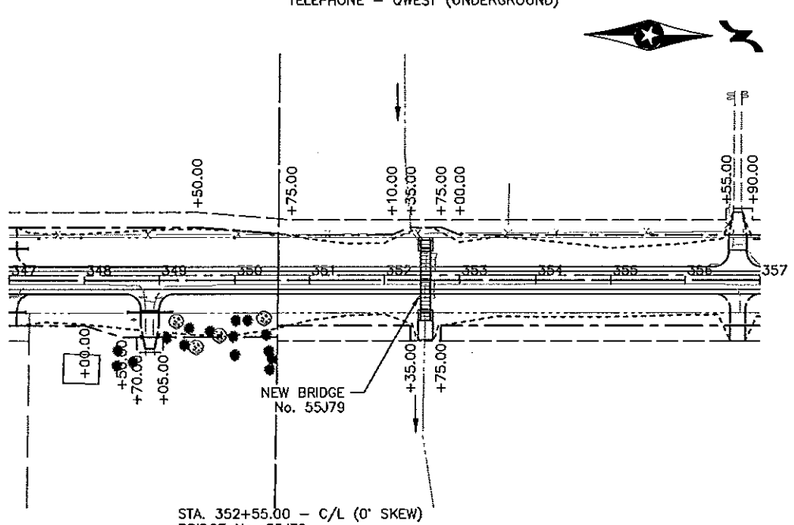


PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

   ELECTRIC – ALLIANT ENERGY (OVERHEAD)
   TELEPHONE – QWEST (UNDERGROUND)

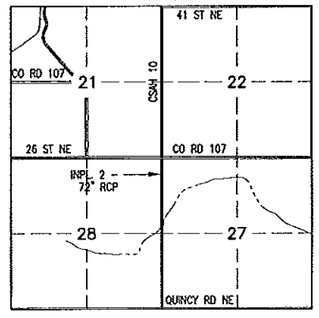


STA. 352+55.00 – C/L (0° SKEW)
BRIDGE No. 55J79
REMOVE INPL. 2 – 72" x 60 L.F. R.C.P.
12x6 x 83.00 L.F. P.C. BOX CULVERT
1 – 12x6 P.C. END SECTION (0° SKEW, INLET)
1 – 12x6 P.C. END SECTION (0° SKEW, OUTLET)
9 C.Y. CL. III RIPRAP AT INLET
34 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 337+39.17
Δ=00°00'04" LT.
X=704473.5539
Y=176904.7570

PI STA. 363+75.67
Δ=00°16'44" LT.
X=704448.2271
Y= 179541.1310

INDEX MAP
(FOUR SECTIONS)
TOWNSHIP 107 N., RANGE 11 W.



Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

3. Apparent highwater elevation _____ Obtained from _____

4. Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 01-28-09

Stream or ditch designation UNNAMED
Drainage area 0.45 SQ. MI.
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 570 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1081.6
Design mean velocity through structure 12.6 F.P.S. _____
Low superstructure at or above elevation 1088.30
Flowline elevation 1082.30 Skew angle 0°
Waterway area req'd below elevation _____ = _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 570 C.F.S. at stage 1081.6 and mean velocity of 5.3 F.P.S. with 8.3 Ft. sweatheod
The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

DATE _____

AS-BUILT

FEB 0 9 2012

ENGINEERING

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY – OCTOBER, 2008

Bench mark elevation 1127.79 (M.S.L. 1929 Adj.)
Location 120d SPIKE IN FIELD ENT. AT STA. 367+28 – RT.

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

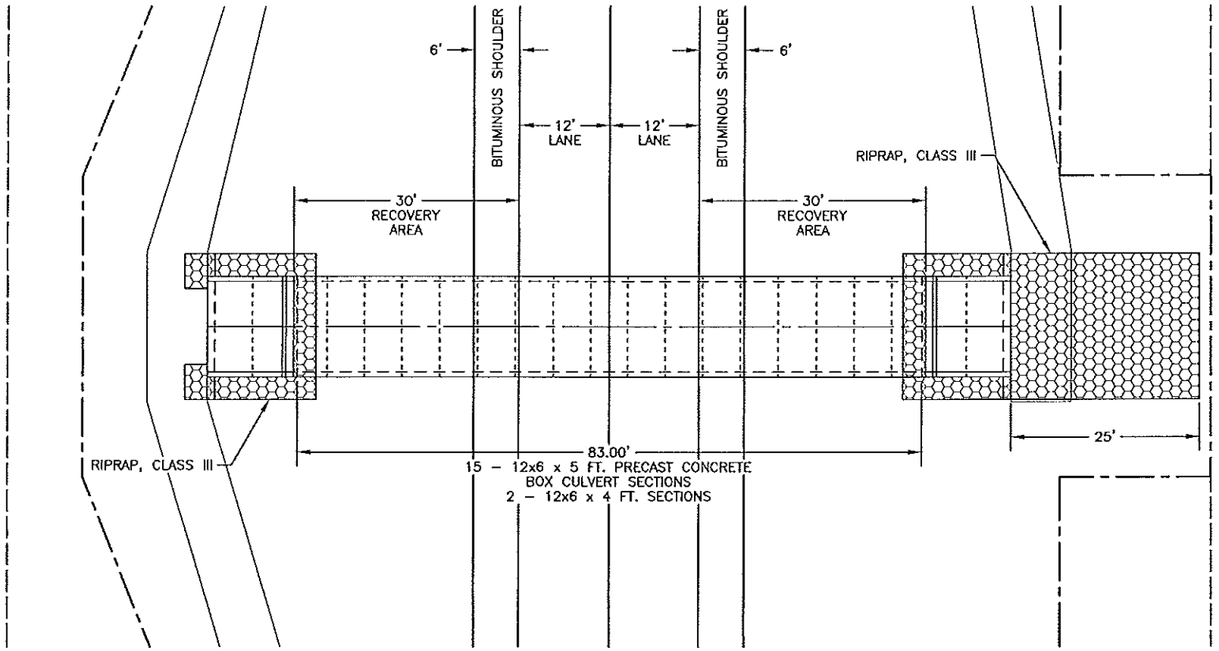
AT MILE POINT _____ ON C.S.A.H. 10 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.8 mi NORTH OF JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 27 & 28 TWP 107 N. R 11 W.
TOWNSHIP QUINCY COUNTY OLMSTED
BRIDGE No. 55J79

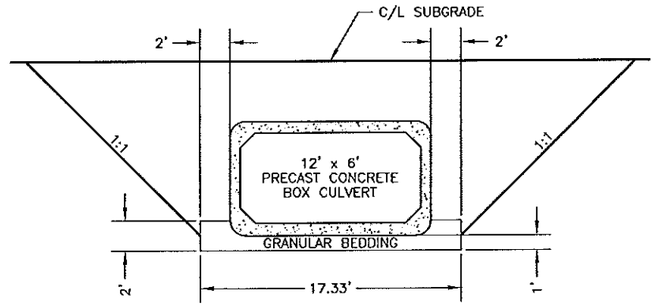
CERTIFIED BY Kayc M Bienert REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 269 of 299 Sheets

FILE NAME: P0308506.DWG DATE: 03-05-10





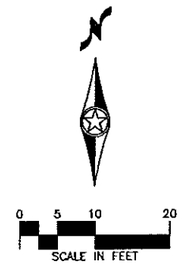
BRIDGE No. 55J79
STA. 352+55.00

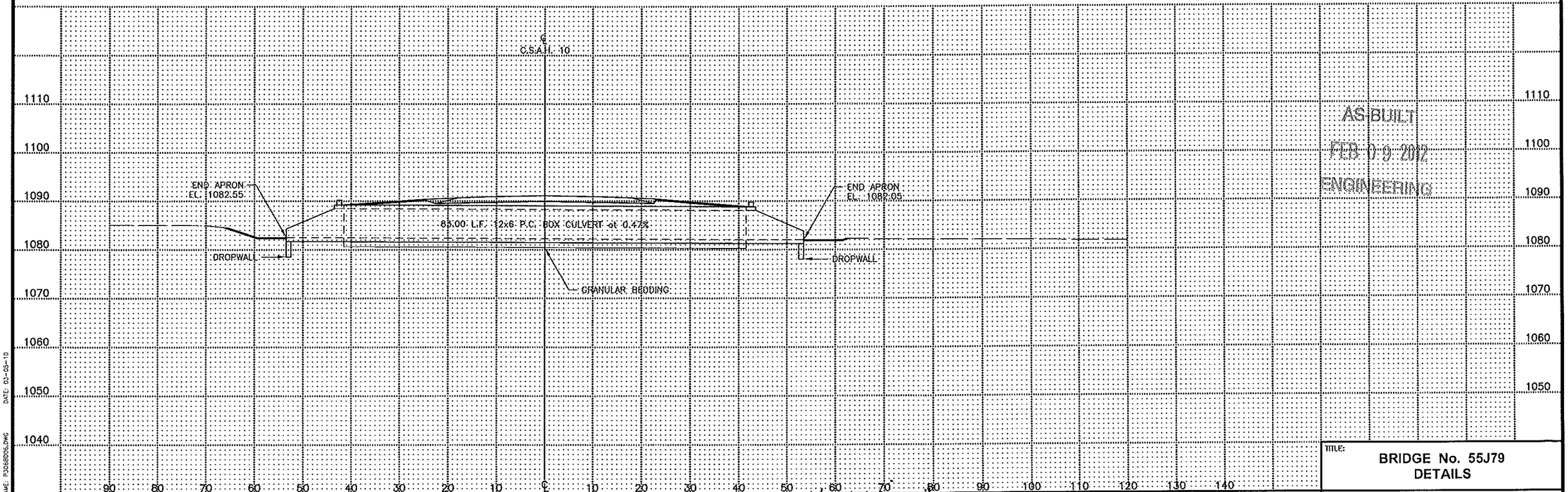
NOTES:

① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.





AS-BUILT
FEB 09 2012
ENGINEERING

CERTIFIED BY Kevin M Biernat REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

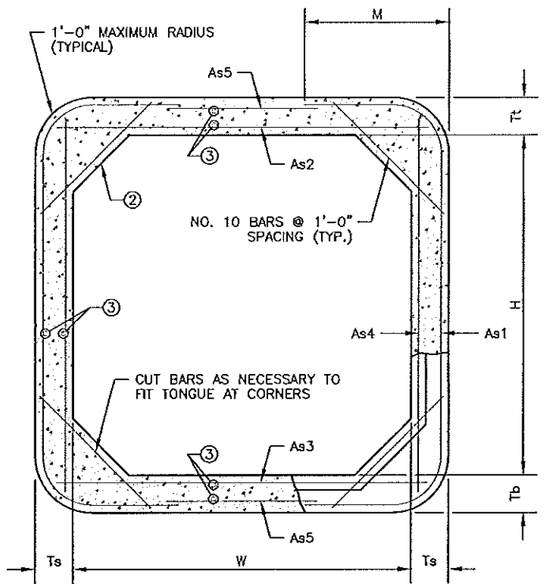
S.A.P. 55-610-22

TITLE:
BRIDGE No. 55J79
DETAILS

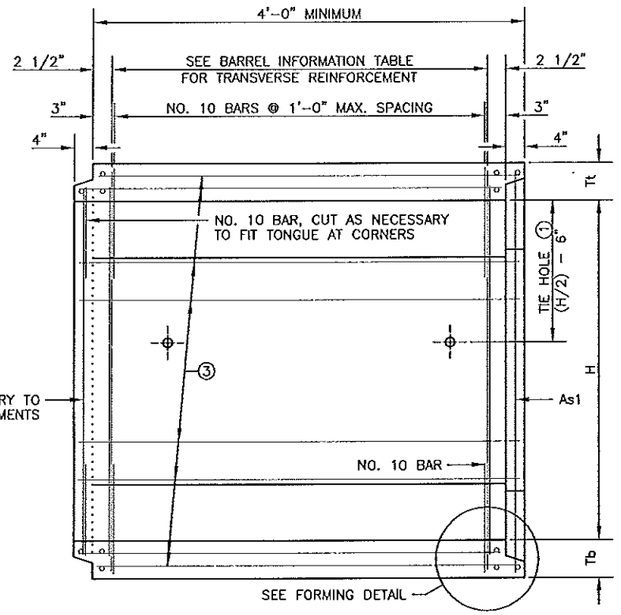
Sheet No. 270 of 299 Sheets

DATE: 03-05-10

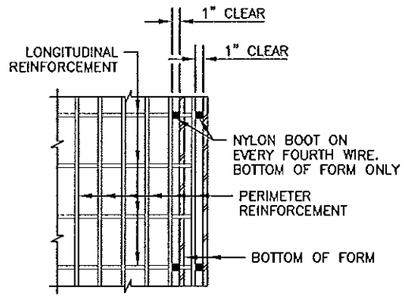
FILE NAME: P3068D06.DWG



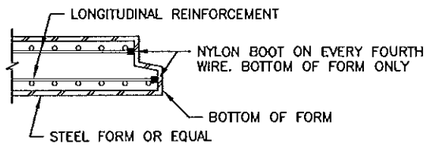
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

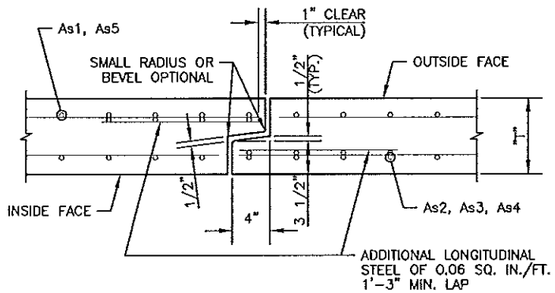


PLAN

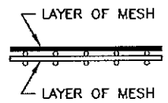


SECTION

FORMING DETAIL



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
352+55.00	12' x 6'	1	5000	<2	12	6	9	10	8	4585	0.68	13'-5"	3'-7"	1.17	12'-6"	0.93	12'-6"	0.20	6'-6"	0.22	8'-2"

REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 352+55.00 FIG. 5-395.101(A)

CERTIFIED BY: Kay M Brunich
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

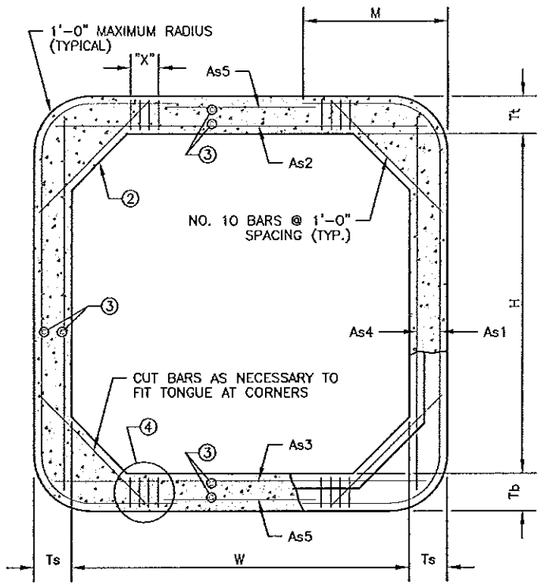
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DES: DR: APPROVED:
CHK: CHK:

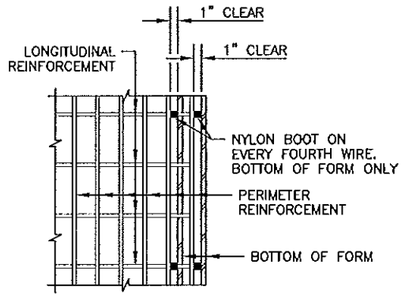
Sheet No. 271 of 299 Sheets

BRIDGE NO. 55J79

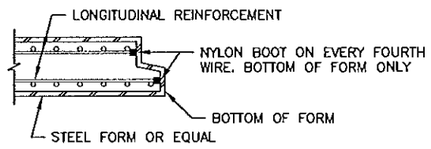
DATE: 03-05-10
FILE NAME: P306-601A.DWG



TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

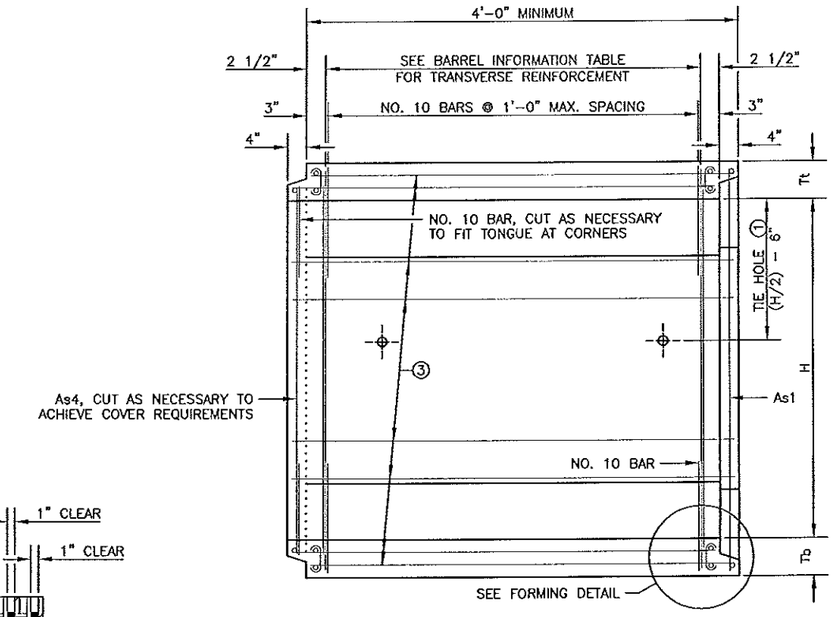


PLAN

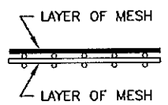


SECTION

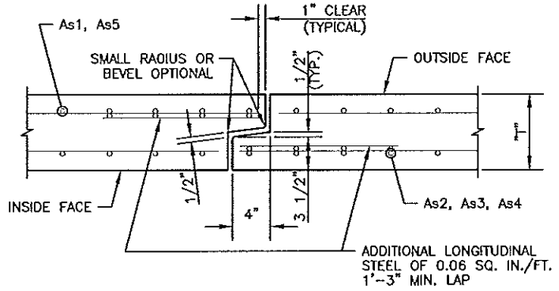
FORMING DETAIL



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

④ SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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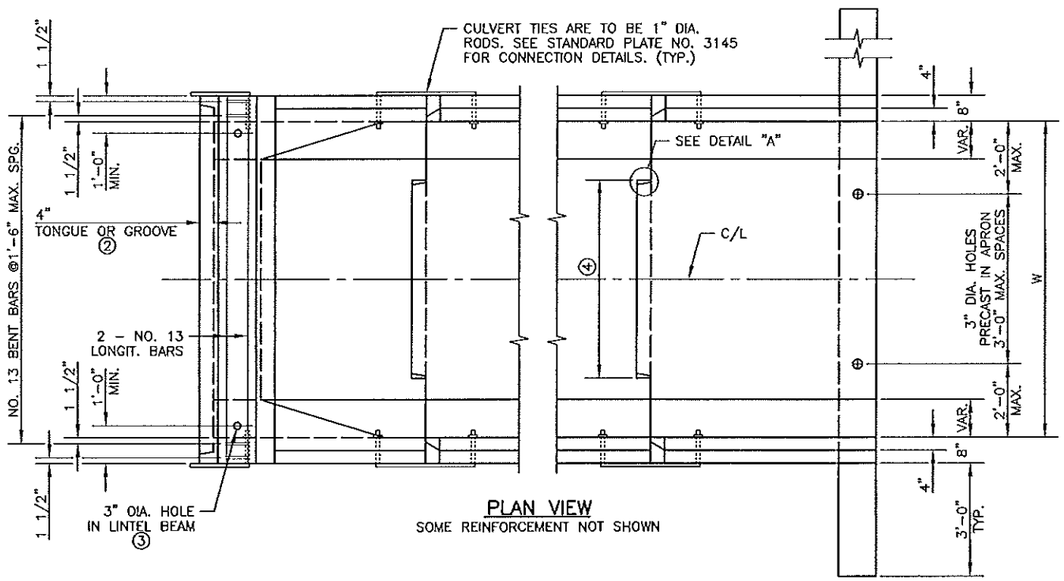
BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												④ SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

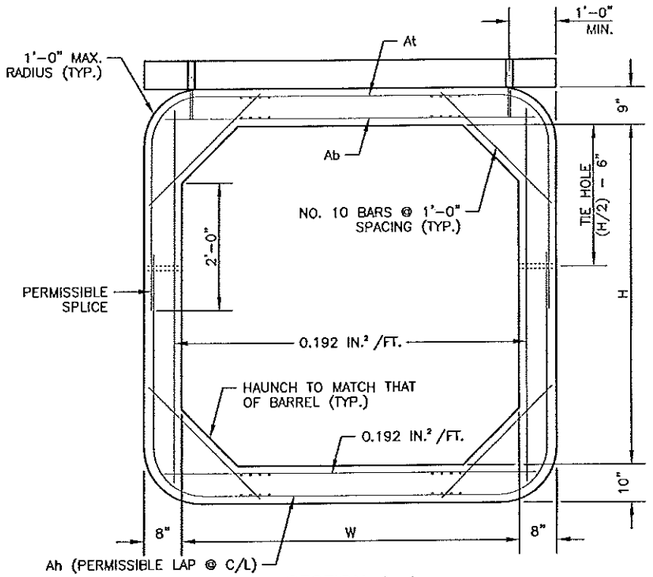
REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 352+55.00	FIG. 5-395.101(B)
CERTIFIED BY Kay M Bierwirth	TITLE: BARREL DETAILS (SPECIAL DESIGN)	DES: DR: APPROVED:
LICENSED PROFESSIONAL ENGINEER		CHK: CHK:
REG. NO. 19917 4/5 2010		Sheet No. 272 of 299 Sheets
		BRIDGE NO. 55J79

DATE: 03-05-10
FILE NAME: P306-601B.DWG



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A-A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

(1) WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

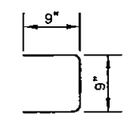
(2) CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

(3) FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

(4) 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

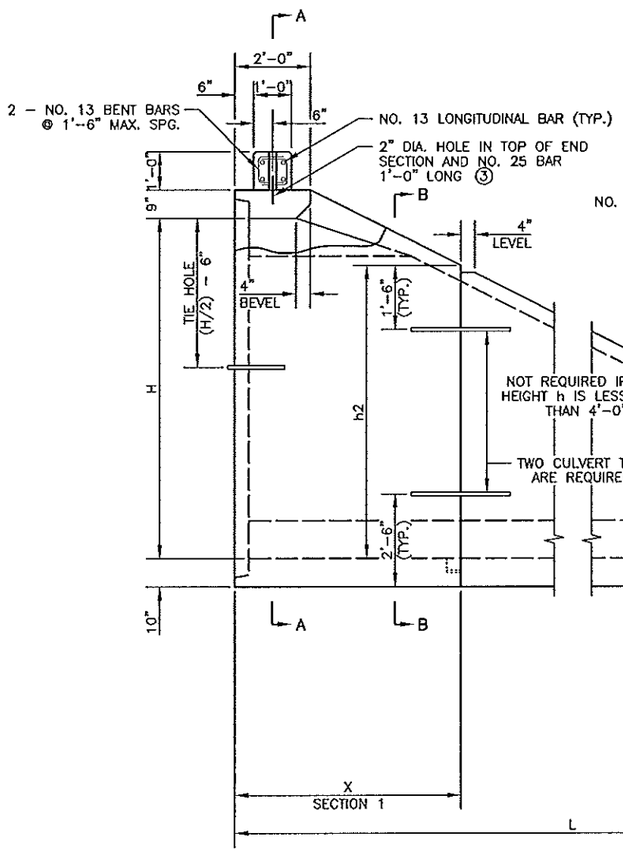
(5) AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

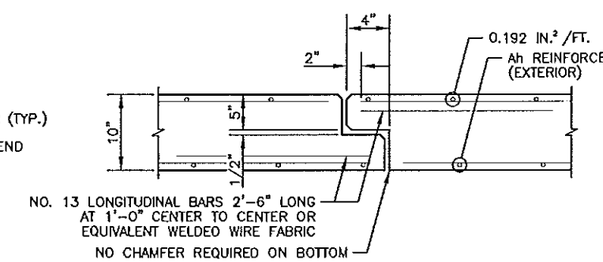
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FEB 0 9 2012
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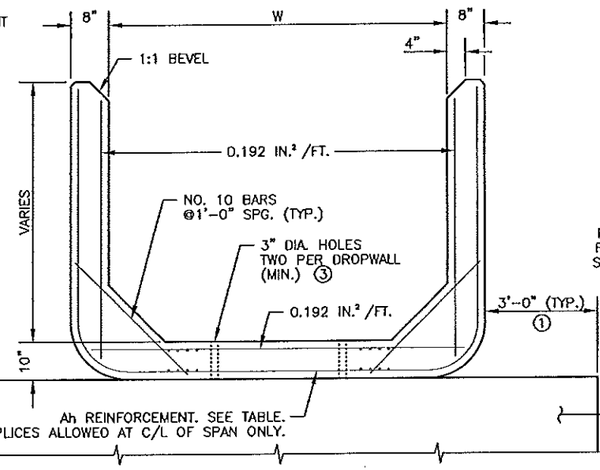
FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

NO. 13 BENT BAR



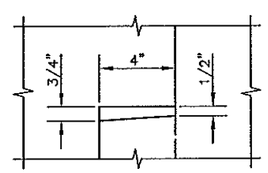


TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



SECTION B-B

At, Ab REINFORCEMENT		
WIDTH (FT.)	At ($IN.^2/FT.$)	Ab ($IN.^2/FT.$)
6	0.27	0.44
8	0.47	0.60
10	0.62	0.74
12	0.88	1.06
14	1.20	1.58



DETAIL "A"

SIDE ELEVATION

APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	Ah	
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH ($IN.^2/FT.$)

DATE: 03-05-10
FILE NAME: P306-602.DWG

REVISION: 06-30-2003
APPROVED: DECEMBER 11, 2000
Darrell L. Klenning
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 352+55.00 | FIG. 5-395.102

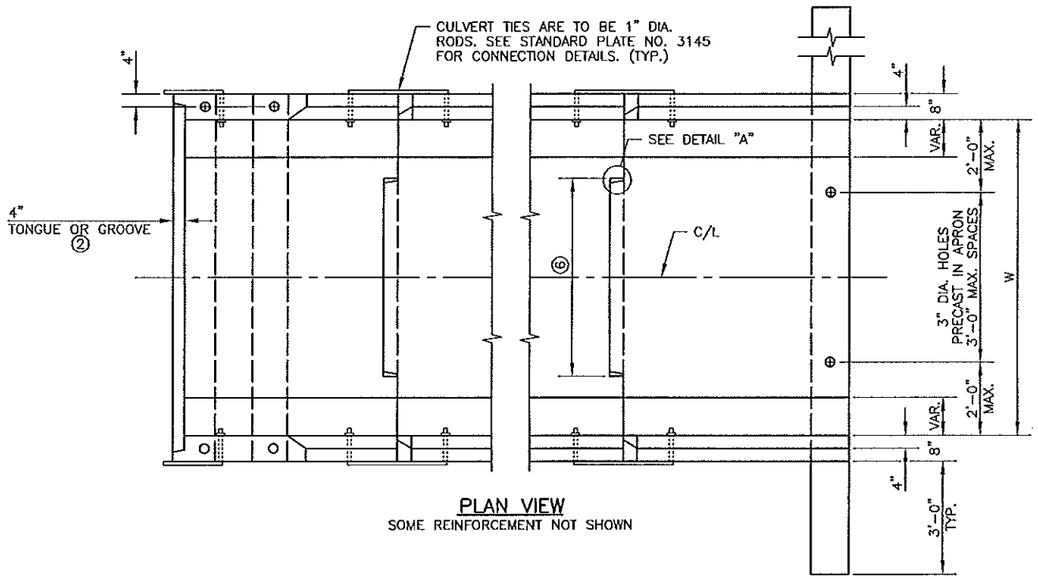
CERTIFIED BY Kay M Bennick LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE I - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

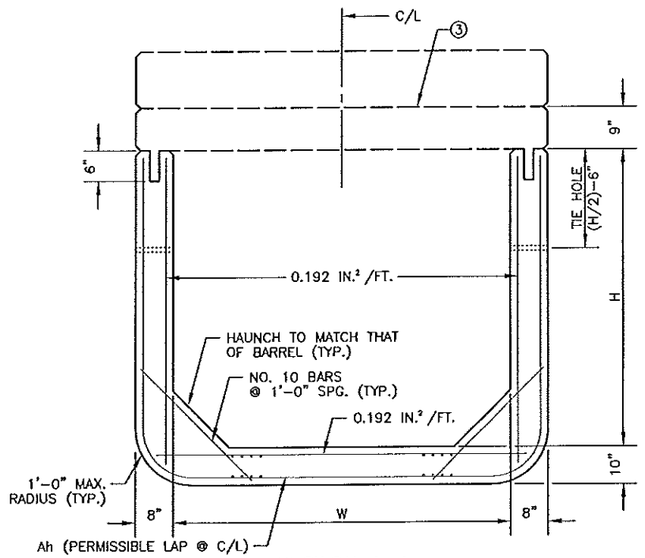
DES: | DR: | APPROVED:
CHK: | CHK:

Sheet No. 273 of 299 Sheets

BRIDGE NO. 55J79



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A-A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

① WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

③ SEE FIG. 5-395.104(B) FOR LINTEL BEAM DETAILS.

④ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

⑤ 2" DIAMETER HOLE, 6" DEEP IN TOP OF THE SECTION WALL.

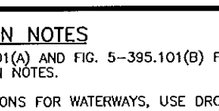
⑥ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GRDOVE ON C/L OF EACH APRON JOINT.

⑦ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

AS-BUILT

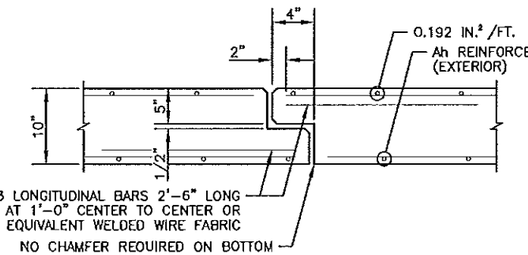
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ENGINEERING

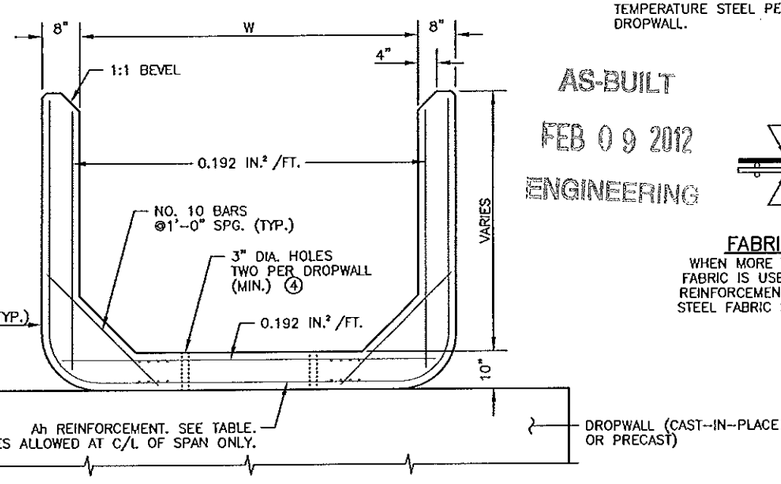


FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

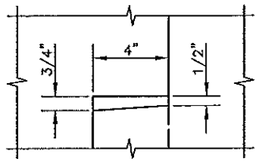


TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



SECTION B-B

SIDE ELEVATION



DETAIL "A"

APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	Ah	
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN.² /FT.)

DATE: 03-05-10

FILE NAME: P306-5044.DWG

REVISION: 06-30-2003

APPROVED: DECEMBER 11, 2000

Darrell L. Cumming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 352+55.00

FIG. 5-395.104(A)

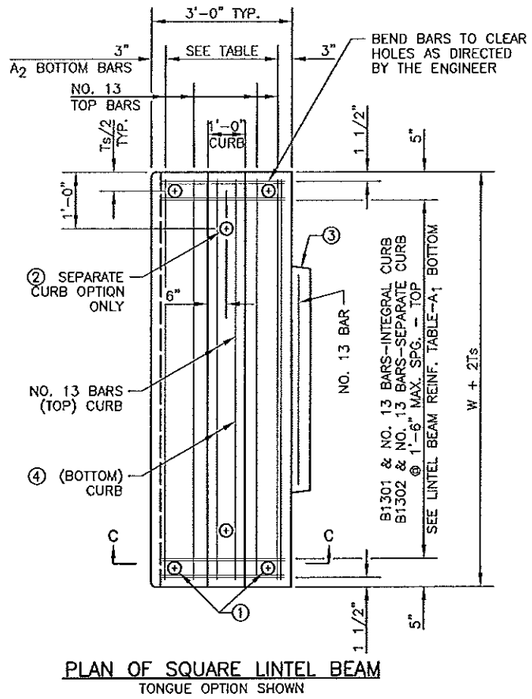
CERTIFIED BY Kyle M Berenich
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 20 10

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

DES: DR: APPROVED:
CHK: CHK:

Sheet No. 274 of 299 Sheets

BRIDGE NO. 55J79



PLAN OF SQUARE LINTEL BEAM
TONGUE OPTION SHOWN

LINTEL BEAM BOTTOM REINFORCEMENT		
WIDTH W (FT.)	A_1	A_2
6	NO. 13 @ 1'-2"	NO. 13 @ 9 1/2"
8	NO. 13 @ 8"	NO. 16 @ 8"
10	NO. 16 @ 8"	NO. 19 @ 7 1/2"
12	NO. 16 @ 6"	NO. 19 @ 6"
14	NO. 19 @ 6"	NO. 22 @ 6"

NOTE: MAXIMUM BAR SPACING GIVEN, REDUCE AS NECESSARY.

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

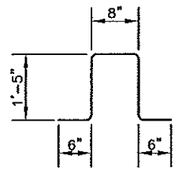
① 3" DIA. HOLE THROUGH LINTEL BEAM AND 2" DIA. HOLE IN TOP OF WALL SECTION. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

② 3" DIA. HOLE THROUGH CURB AND 2" DIA. HOLE IN LINTEL BEAM. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

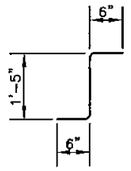
③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT HAUNCH.

④ FOR SPANS UNDER 10'-0", USE NO. 25 BARS. FOR SPANS OF 10'-0" TO 12'-0", USE NO. 29 BARS. FOR 14'-0" SPAN, USE NO. 32 BARS.

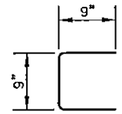
⑤ ALTERNATE BAR BEND MAY BE USED FOR B1301.



B1301

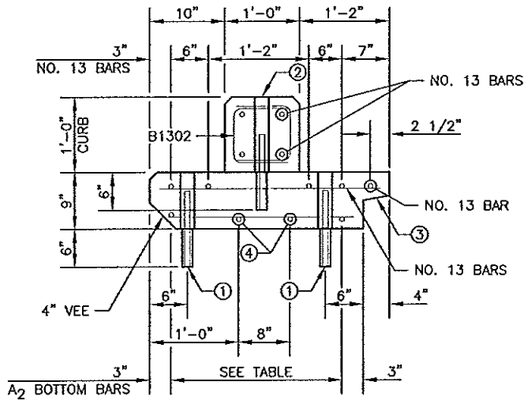


B1301
ALTERNATE
⑤
2 REQUIRED

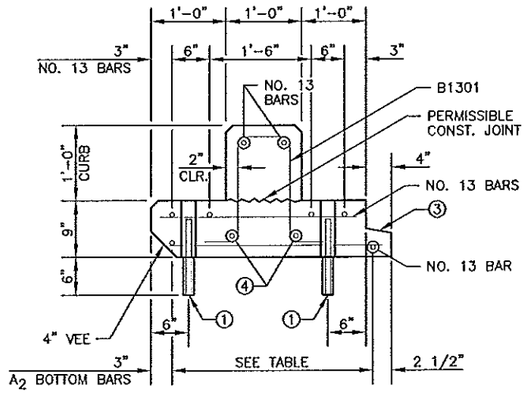


B1302

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FEB 0 9 2012
ENGINEERING



SECTION C-C
SEPARATE CURB OPTION WITH GROOVE
ADDITIONAL REINFORCEMENT IN GROOVE NOT SHOWN



SECTION C-C
INTEGRAL CURB OPTION WITH TONGUE
ADDITIONAL REINFORCEMENT IN TONGUE NOT SHOWN

FILE NAME: P306-6048.DWG DATE: 03-05-10

REVISION:
APPROVED: DECEMBER 11, 2000
Donald L. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 352+55.00

FIG. 5-395.104(B)

CERTIFIED BY Kaye M Borowiak LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 20 10

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

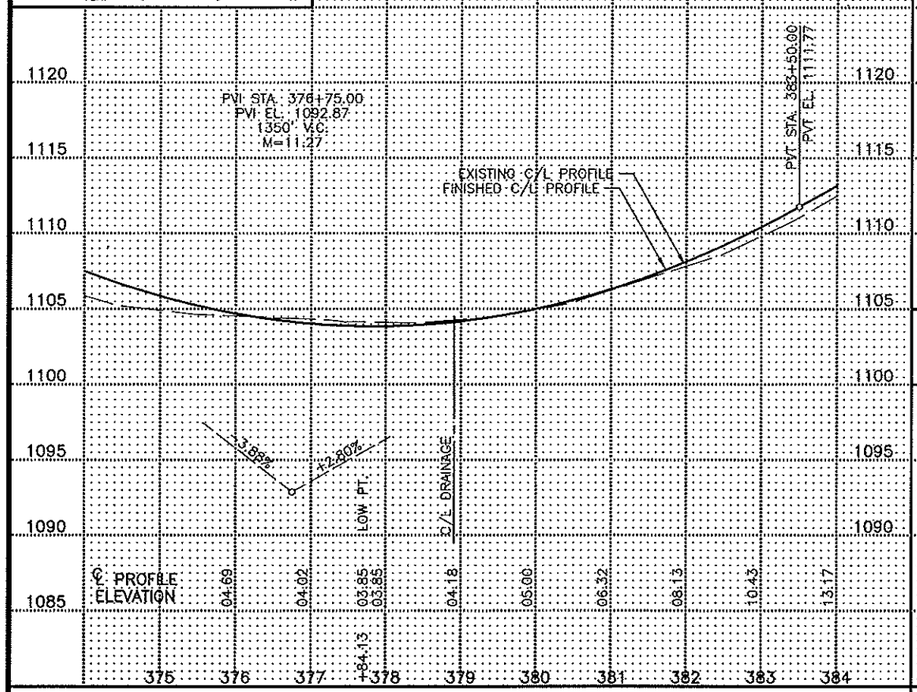
DES: DR: APPROVED:
CHK: CHK:

Sheet No. 275 of 299 Sheets

BRIDGE NO. 55J79

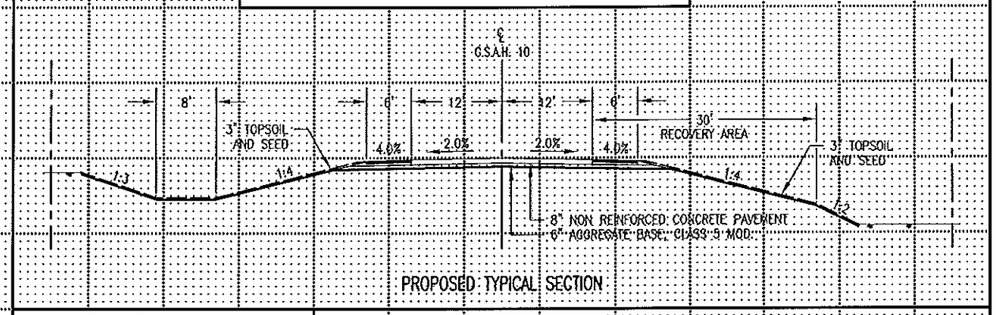
CONTRACTED PROFILE

SCALE: HOR. 0 100 200
VER. 0 5 10



TYPICAL SECTIONS & PERTINENT DATA

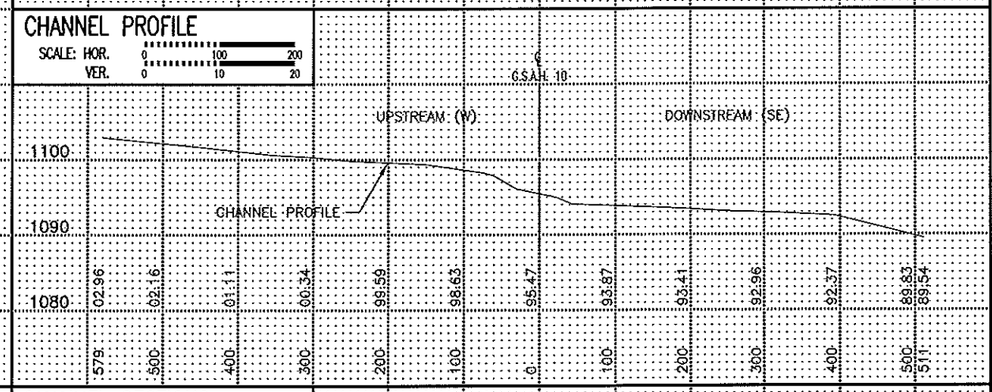
SCALES AS SHOWN



PROPOSED TYPICAL SECTION

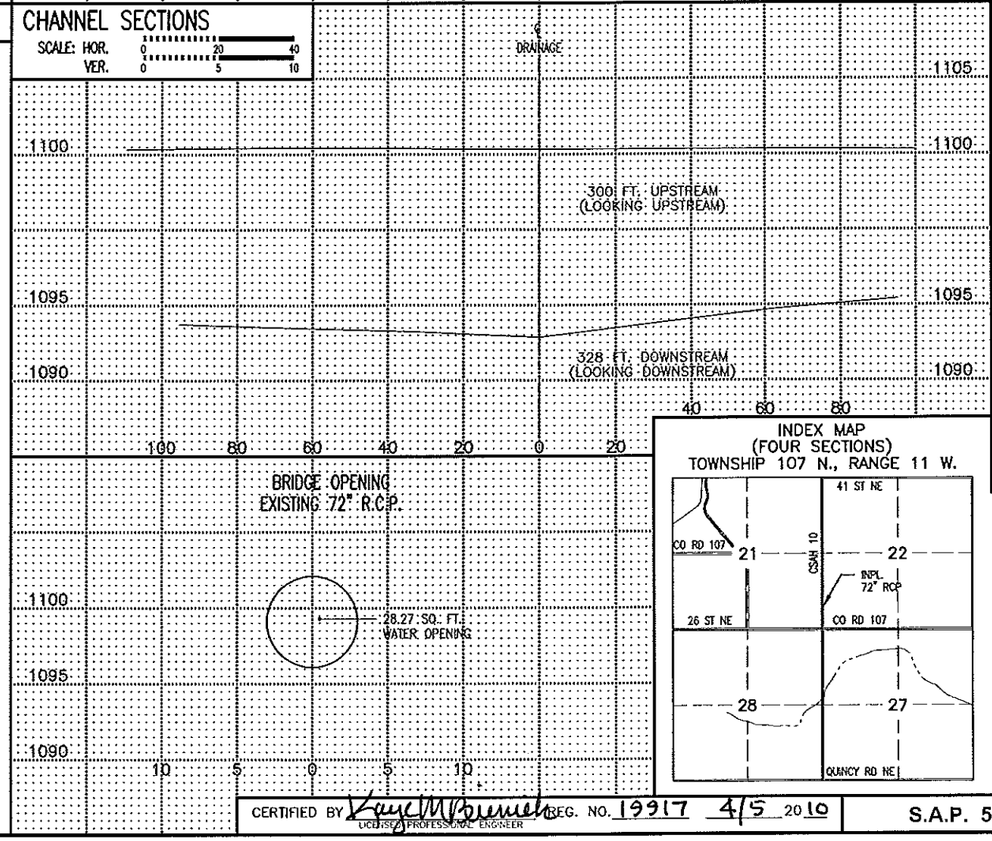
CHANNEL PROFILE

SCALE: HOR. 0 100 200
VER. 0 10 20



CHANNEL SECTIONS

SCALE: HOR. 0 20 40
VER. 0 5 10

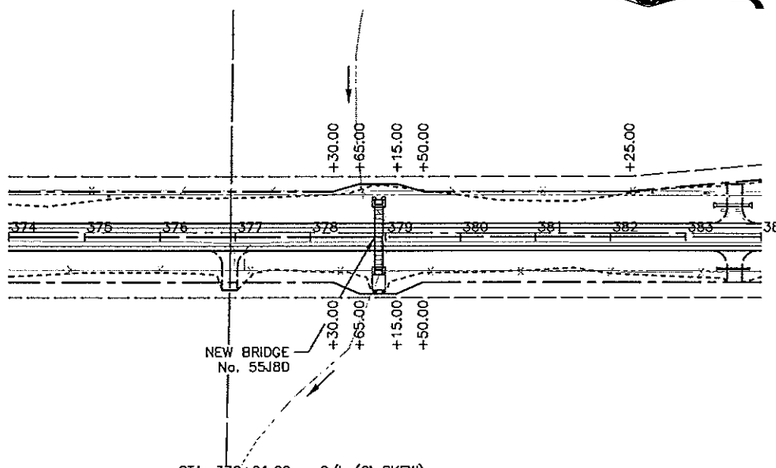


PLAT

0 100 200

1. UTILITIES ARE PRESENT IN CONSTRUCTION AREA. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES.

   ELECTRIC – ALLIANT ENERGY (OVERHEAD)
   TELEPHONE – QWEST (UNDERGROUND)



STA. 378+91.00 – C/L (0° SKEW)
BRIDGE No. 55J80
REMOVE INPL. 72" x 53 L.F. R.C.P.
10x4 x 84.00 L.F. P.C. BOX CULVERT
1 – 10x4 P.C. END SECTION (0° SKEW, INLET)
1 – 10x4 P.C. END SECTION (0° SKEW, OUTLET)
7 C.Y. CL. III RIPRAP AT INLET
25 C.Y. CL. III RIPRAP AT OUTLET

PI STA. 363+75.67
Δ=00°16'44" LT.
X=704448.2271
Y=179541.1310

PI STA. 390+11.21
Δ=00°01'32" RT.
X=704410.0867
Y= 182176.3954

DATE: 03-05-10
FILE NAME: P306BSD7.DWG

Fed. Proj. No. .

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area, etc.

3. Apparent highwater elevation _____ Obtained from _____

4. Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 01-28-09

Stream or ditch designation DRY RUN
Drainage area 0.27 SQ. MI.
Max. flood on record UNKNOWN Design flood (50 yr. freq.) 400 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1096.5
Design mean velocity through structure 14.4 F.P.S. _____
Low superstructure at or above elevation 1099.10
Flowline elevation 1095.10 Skew angle 0°
Waterway area req'd below elevation _____ = _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 500 C.F.S. at stage 1096.6 and mean velocity of 14.6 F.P.S. with 6.9 Ft. swelthead The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

AS-BUILT DATE _____

FEB 09 2011

ENGINEERING

Bridge survey sheets made from: SURVEY CONDUCTED BY
OLMSTED COUNTY – OCTOBER, 2008

Bench mark elevation 1127.79 (M.S.L. 1929 Adj.)
Location 120d SPIKE IN FIELD ENT. AT STA. 367+28 – RT.

INDEX MAP
(FOUR SECTIONS)
TOWNSHIP 107 N., RANGE 11 W.

MINNESOTA
DEPARTMENT OF TRANSPORTATION

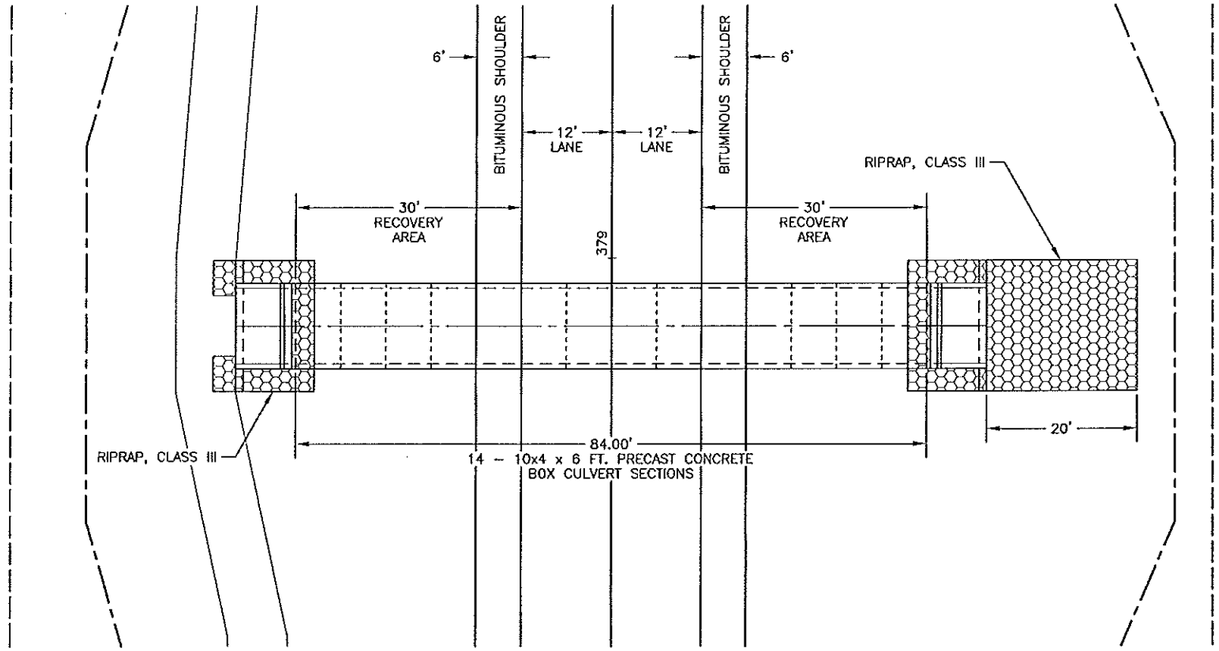
BRIDGE SURVEY

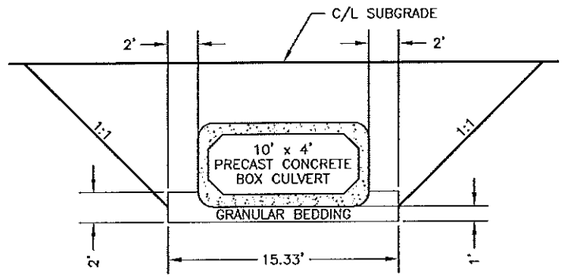
AT MILE POINT _____ ON C.S.A.H. 10 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 2.3 mi NORTH OF
JCT. OF C.S.A.H. 9 & C.S.A.H. 10
SEC 21 & 22 TWP 107 N. R 11 W.
TOWNSHIP QUINCY COUNTY OLMSTED
BRIDGE No. 55J80

CERTIFIED BY Lance M. Brenner REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 276 of 299 Sheets





BRIDGE No. 55J80
STA. 378+91.00

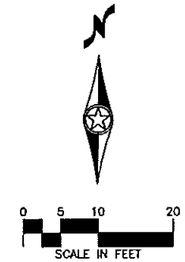
AS-BUILT
FEB 09 2010
ENGINEER

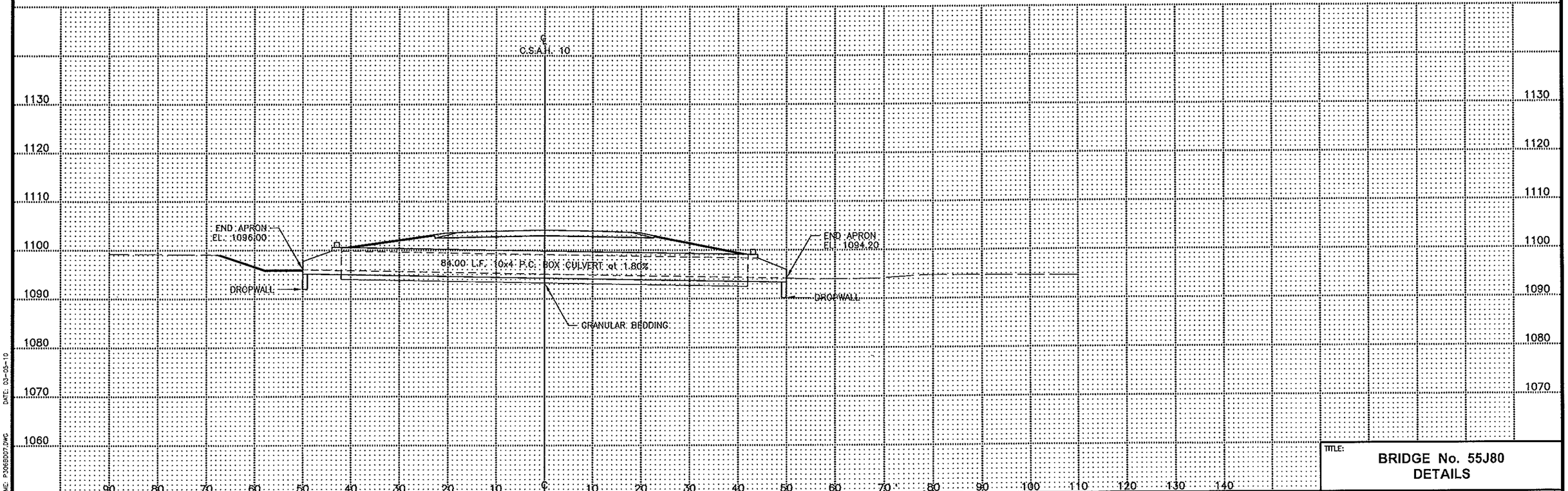
NOTES:

① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.





CERTIFIED BY Gary M Bunnell *LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

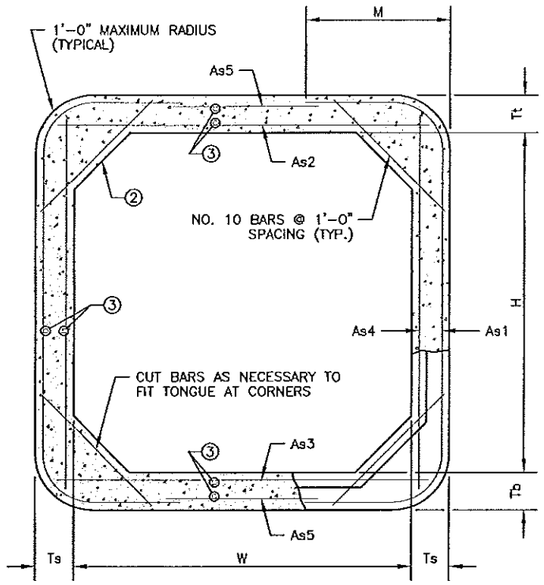
S.A.P. 55-610-22

TITLE:
BRIDGE No. 55J80
DETAILS

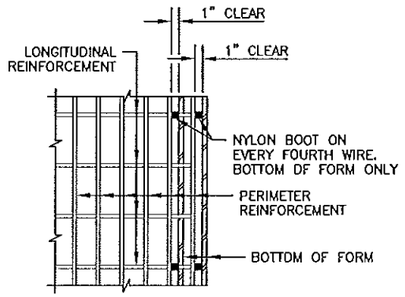
Sheet No. 277 of 299 Sheets

DATE: 03-05-10

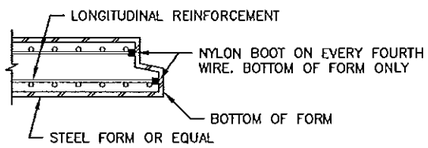
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TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

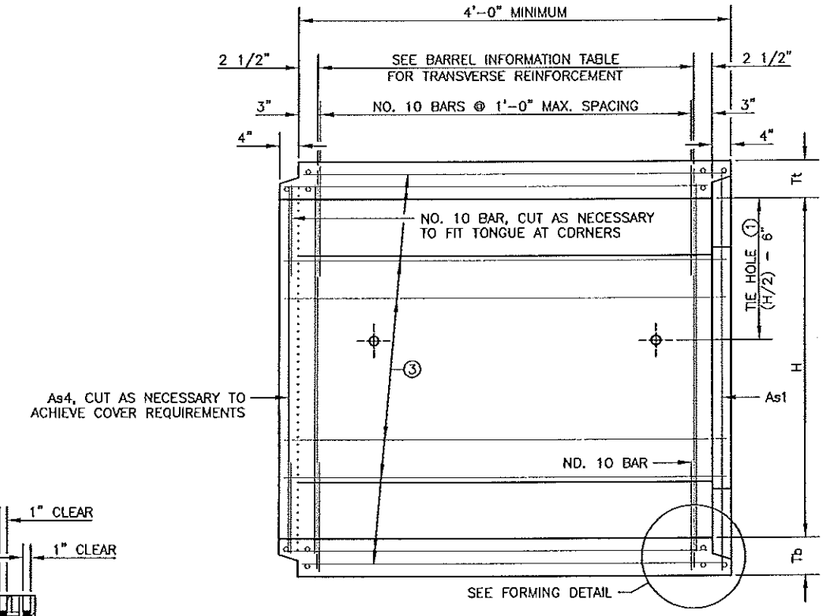


PLAN

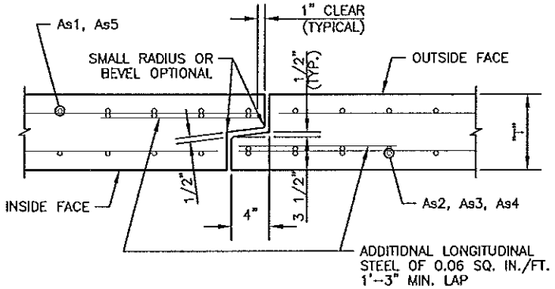


SECTION

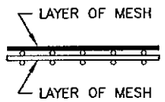
FORMING DETAIL



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH DR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
378+91.00	10' x 4'	2	5000	2–8	10	4	9	10	8	3710	0.57	9'–9"	2'–9"	0.74	10'–6"	0.68	10'–6"	0.20	4'–6"	0.06	7'–9"

REVISION:

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 . STA. 378+91.00

FIG. 5-395.101(A)

CERTIFIED BY Kayce M Bennett
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19170 4/5 2010

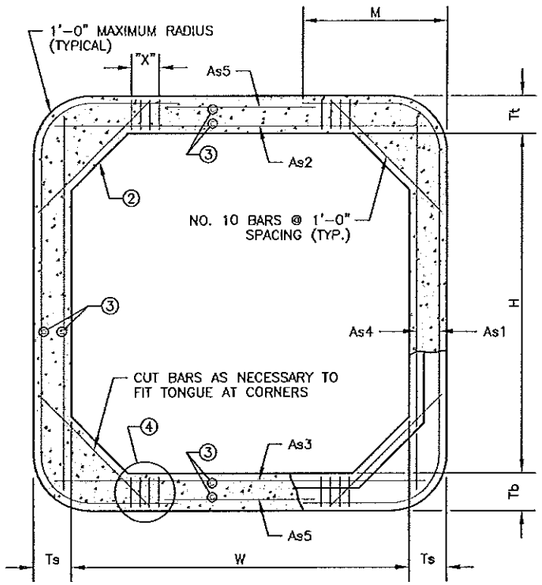
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DES: DR: APPROVED:
CHK: CHK:

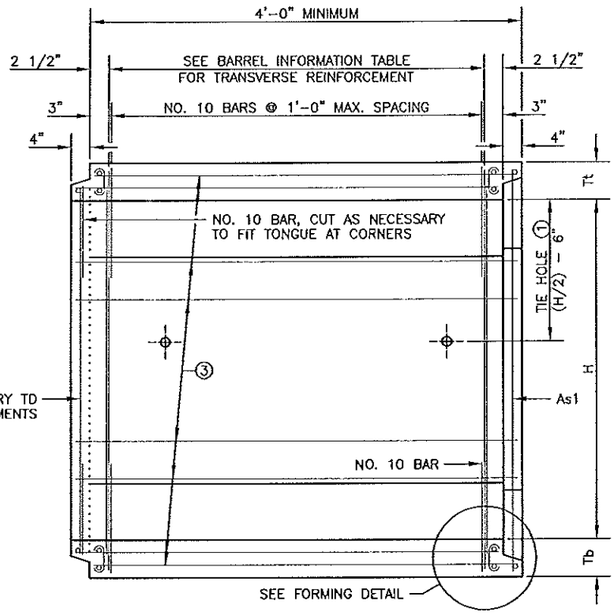
Sheet No. 278 of 299 Sheets

BRIDGE NO. 55J80

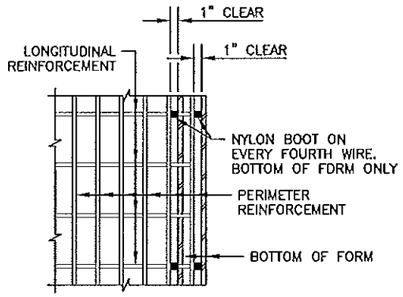
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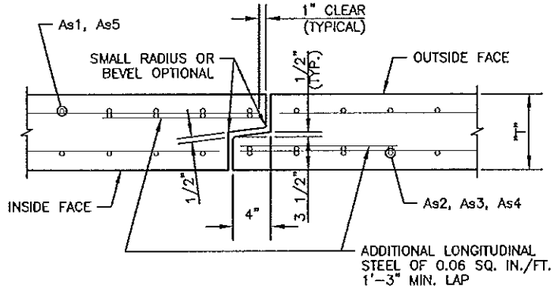
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



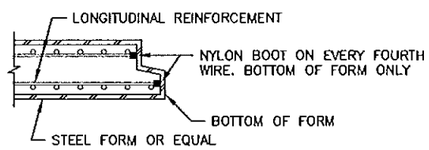
LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



PLAN

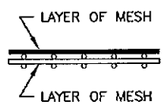


TONGUE AND GROOVE JOINT DETAIL



SECTION

FORMING DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GRODVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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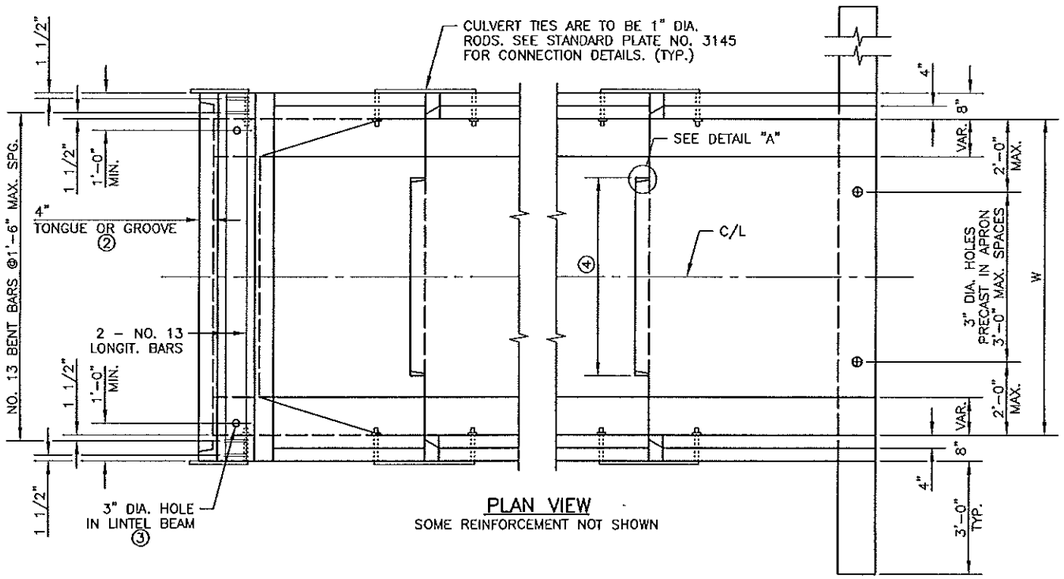
BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT												(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5					
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

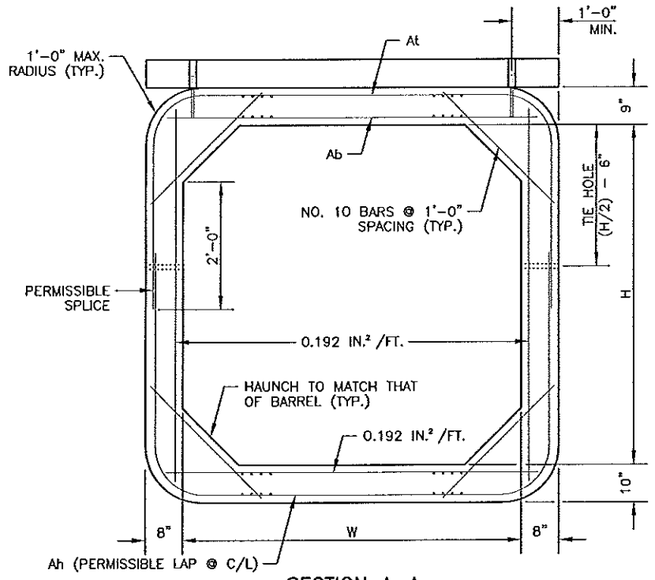
REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 378+91.00	FIG. 5-395.101(B)
CERTIFIED BY Gary M Brunner LICENSED PROFESSIONAL ENGINEER	TITLE: BARREL DETAILS (SPECIAL DESIGN)	DES: / DR: / APPROVED:
REG. NO. 19917 4/5 2010		CHK: / CHK:
		Sheet No. 279 of 299 Sheets
		BRIDGE NO. 55J80

DATE: 03-05-10
FILE NAME: P305-7018.DWG



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A–A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

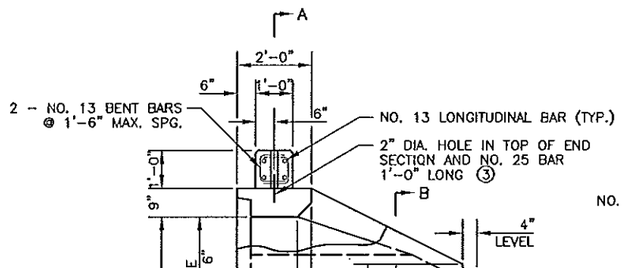
① WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

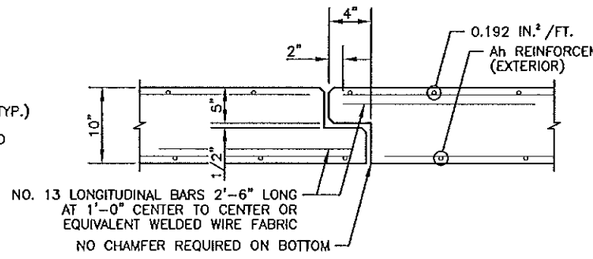
② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

③ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

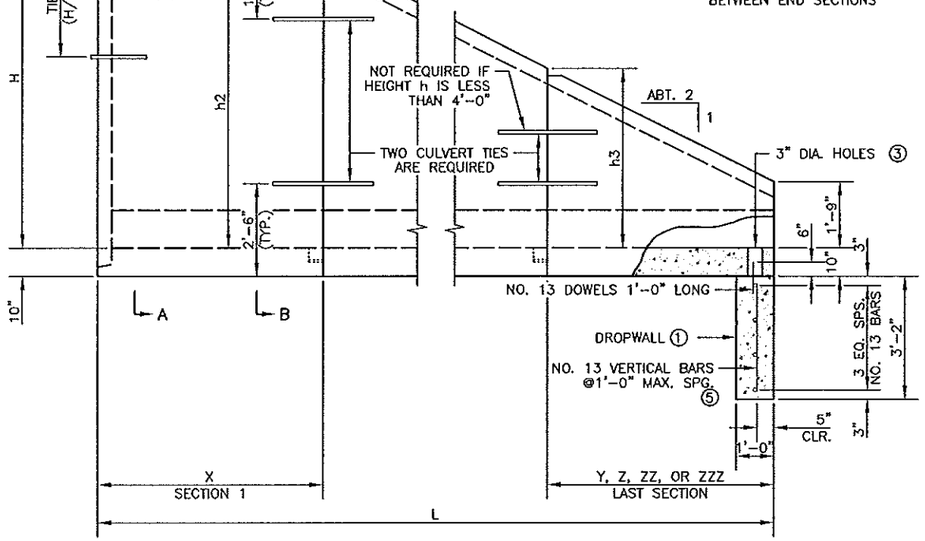
④ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑤ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

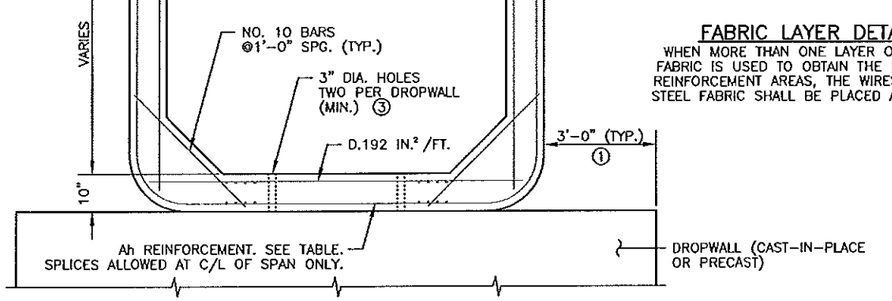




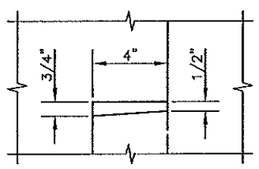
TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



SIDE ELEVATION

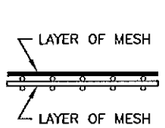


SECTION B–B

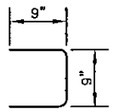


DETAIL "A"

AS-BUILT
FEB 0 9 2012
ENGINEERING



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



NO. 13 BENT BAR

At, Ab REINFORCEMENT		
WIDTH (FT.)	At (IN.² /FT.)	Ab (IN.² /FT.)
6	0.27	0.44
8	0.47	0.60
10	0.62	0.74
12	0.88	1.06
14	1.20	1.58

APRON DIMENSIONS & Ah REINFORCEMENT

H FT.	L FT.	SECTION 1 X	SECTION 1 Ah	h2	SECTION 2 Y	SECTION 2 Ah	h3	SECTION 3 Z	SECTION 3 Ah	h4	SECTION 4 ZZ	SECTION 4 Ah	h5	SECTION 5 ZZZ	SECTION 5 Ah	h6
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN.² /FT.)

REVISION: 06-30-2003
APPROVED: DECEMBER 11, 2000
Darrell L. Manning
STATE BRIDGE ENGINEER

DATE: 03-05-10
FILE NAME: P306-702.DWG

S.A.P. 55-610-22 STA. 378+91.00 FIG. 5-395.102

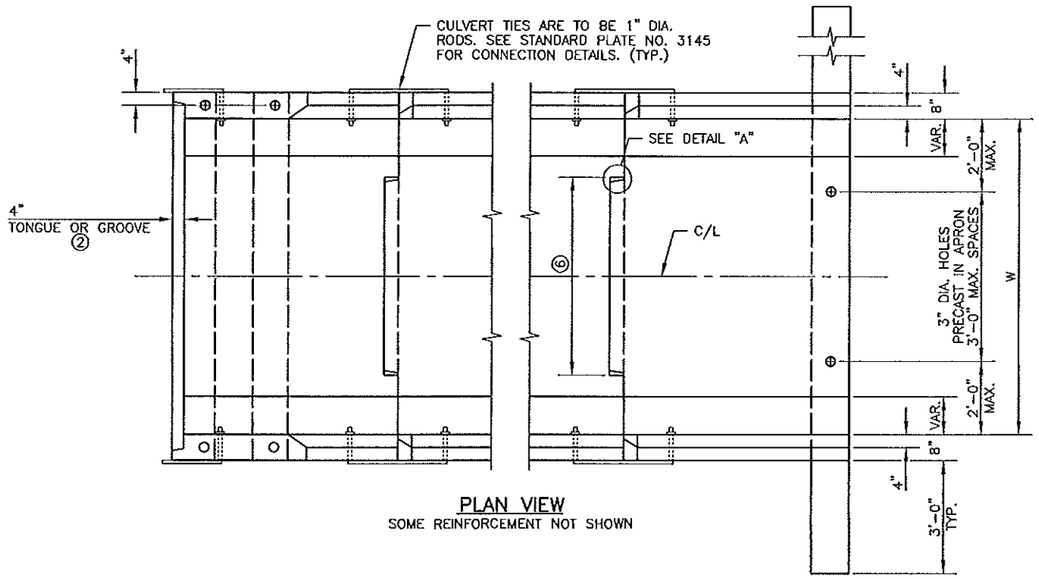
CERTIFIED BY Kaye M Burnich LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE I - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

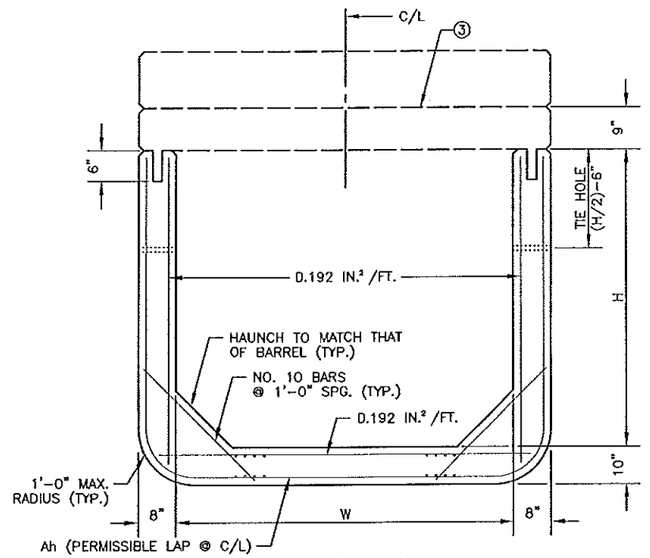
DES: DR: APPROVED:
CHK: CHK:

Sheet No. 280 of 299 Sheets

BRIDGE NO. 55J80



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A–A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

① WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

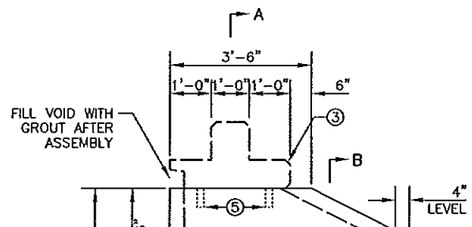
③ SEE FIG. 5-395.104(B) FOR LINTEL BEAM DETAILS.

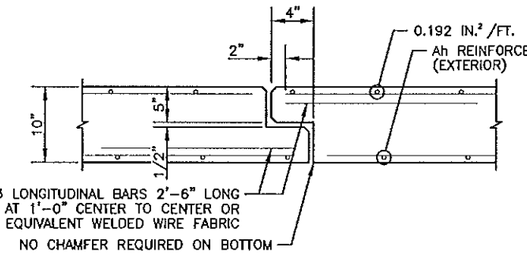
④ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

⑤ 2" DIAMETER HOLE, 6" DEEP IN TOP OF THE SECTION WALL.

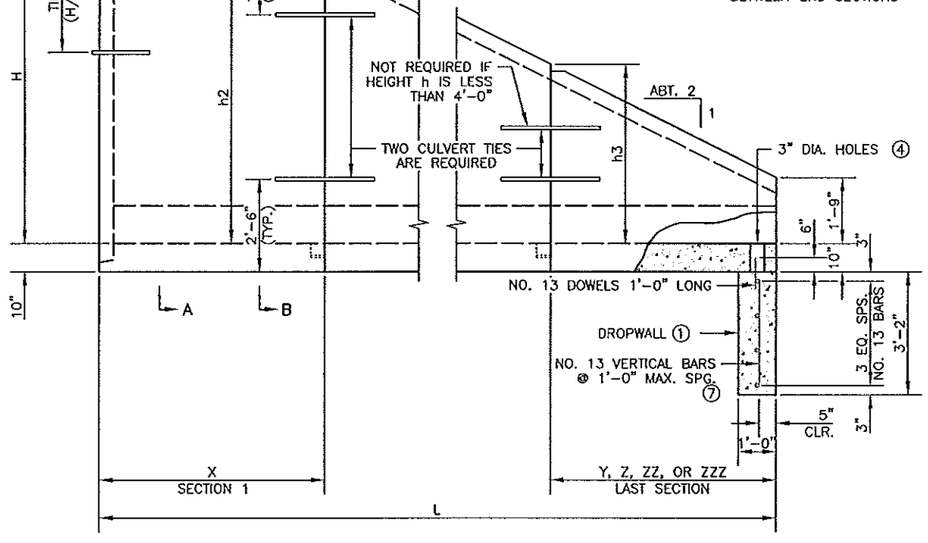
⑥ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑦ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

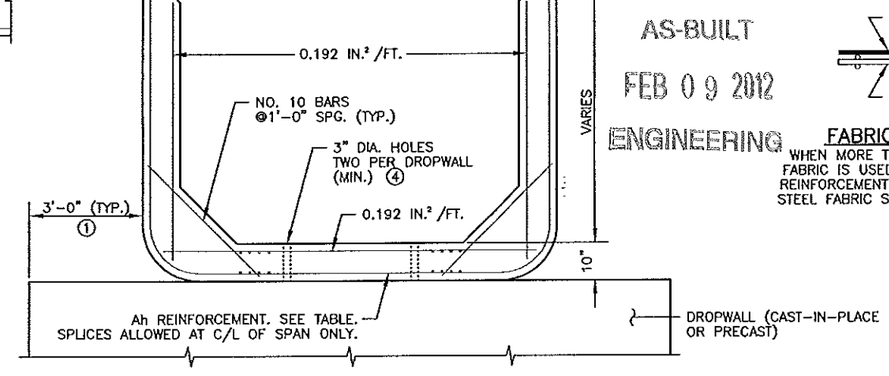




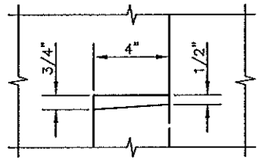
TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



SIDE ELEVATION

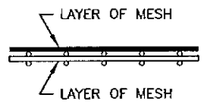


SECTION B–B



DETAIL "A"

AS-BUILT
FEB 09 2012
ENGINEERING



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	Ah	
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN.² /FT.)

REVISION: 06-30-2003
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 378+91.00

CERTIFIED BY Kaye M Bunnik
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

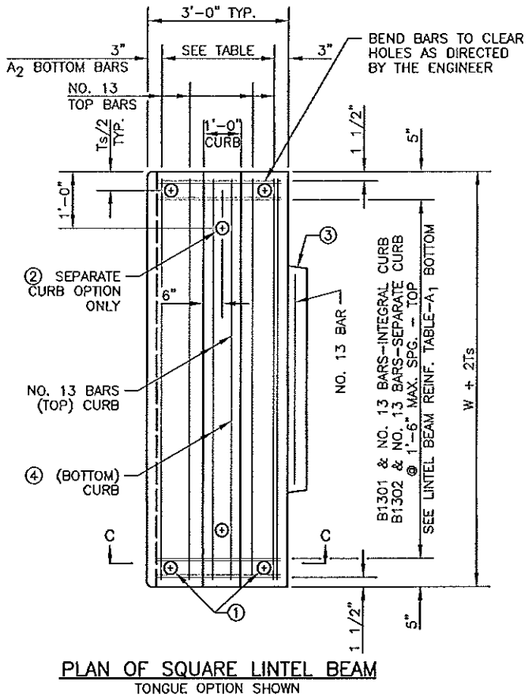
FIG. 5-395.104(A)

DES: DR: APPROVED:
CHK: CHK:

Sheet No. 281 of 299 Sheets

BRIDGE NO. 55J80

DATE: 03-05-10
FILE NAME: P395-704A.DWG



PLAN OF SQUARE LINTEL BEAM
TONGUE OPTION SHOWN

LINTEL BEAM BOTTOM REINFORCEMENT		
WIDTH W (FT.)	A_1	A_2
6	NO. 13 @ 1'-2"	NO. 13 @ 9 1/2"
8	NO. 13 @ 8"	NO. 16 @ 8"
10	NO. 16 @ 8"	NO. 19 @ 7 1/2"
12	NO. 16 @ 6"	NO. 19 @ 6"
14	NO. 19 @ 6"	NO. 22 @ 6"

NOTE: MAXIMUM BAR SPACING GIVEN, REDUCE AS NECESSARY.

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

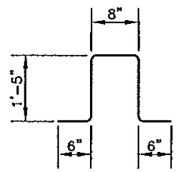
① 3" DIA. HOLE THROUGH LINTEL BEAM AND 2" DIA. HOLE IN TOP OF WALL SECTION. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

② 3" DIA. HOLE THROUGH CURB AND 2" DIA. HOLE IN LINTEL BEAM. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

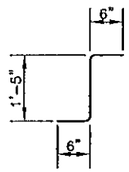
③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT HAUNCH.

④ FOR SPANS UNDER 10'-0", USE NO. 25 BARS. FOR SPANS OF 10'-0" TO 12'-0", USE NO. 29 BARS. FOR 14'-0" SPAN, USE NO. 32 BARS.

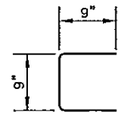
⑤ ALTERNATE BAR BEND MAY BE USED FOR B1301.



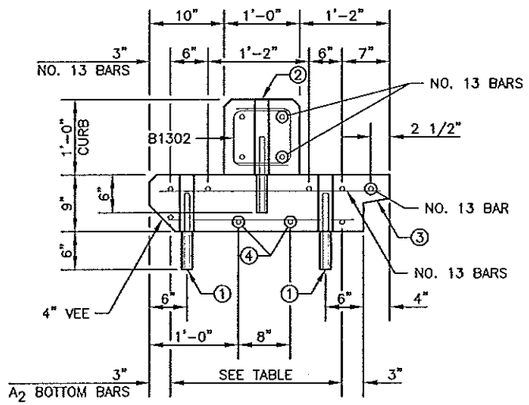
B1301



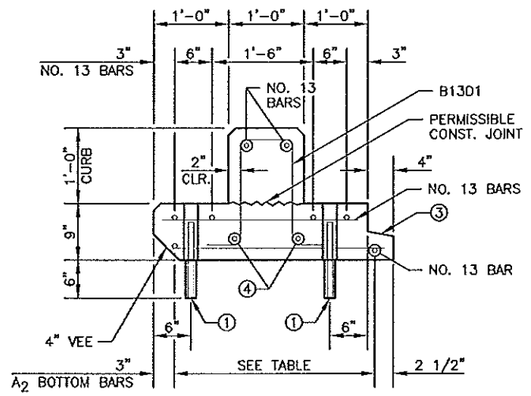
B1301
ALTERNATE
⑤
2 REQUIRED



B1302



SECTION C-C
SEPARATE CURB OPTION WITH GROOVE
ADDITIONAL REINFORCEMENT IN GROOVE NOT SHOWN



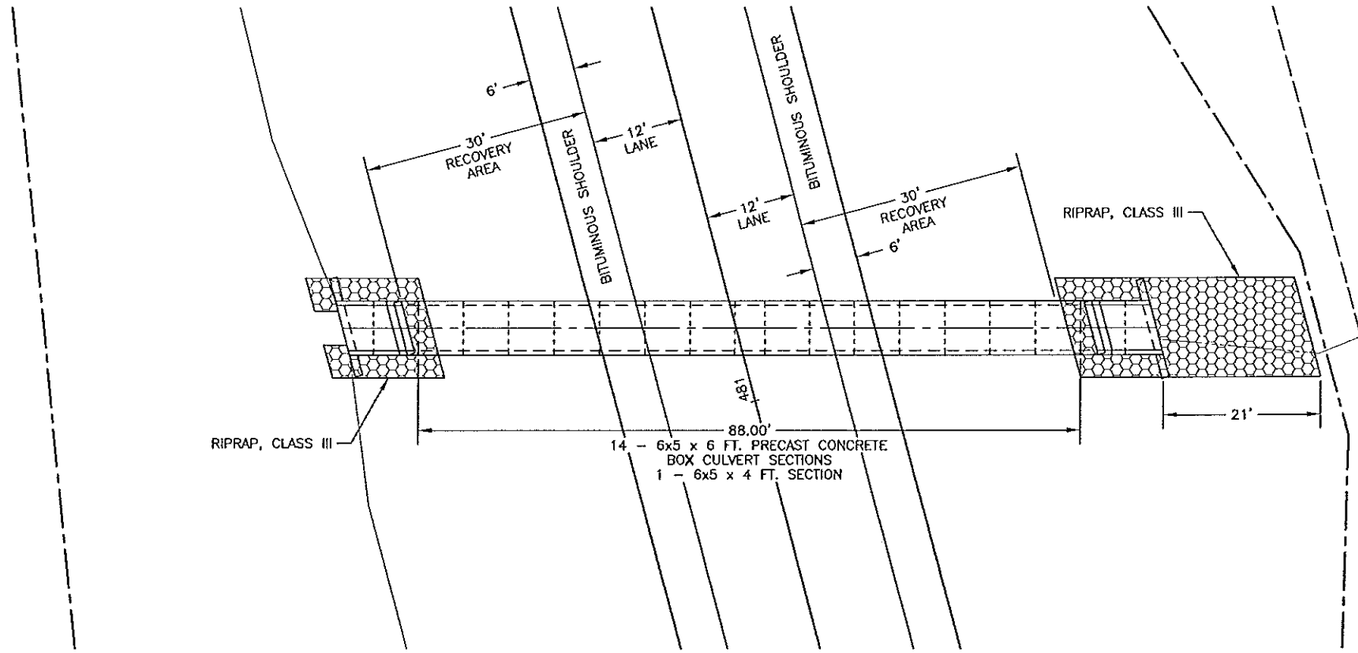
SECTION C-C
INTEGRAL CURB OPTION WITH TONGUE
ADDITIONAL REINFORCEMENT IN TONGUE NOT SHOWN

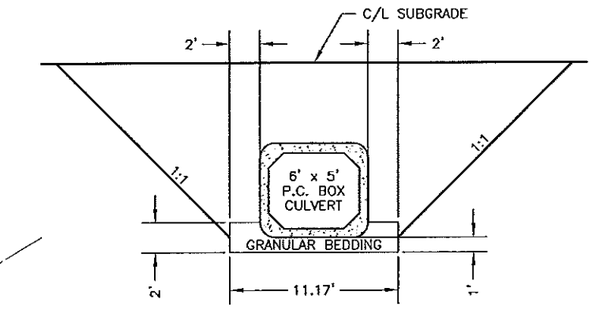
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DATE: 03-05-10
FILE NAME: P305-7046.DWG

REVISION:
APPROVED: DECEMBER 11, 2000
Donald L. Cunningham
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 378+91.00	FIG. 5-395.104(B)
CERTIFIED BY Kay M Brunsik LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2'	DES: DR: APPROVED: CHK: CHK: Sheet No. 282 of 299 Sheets BRIDGE NO. 55J80





6' x 5' CONCRETE BOX
STA. 480+82.00

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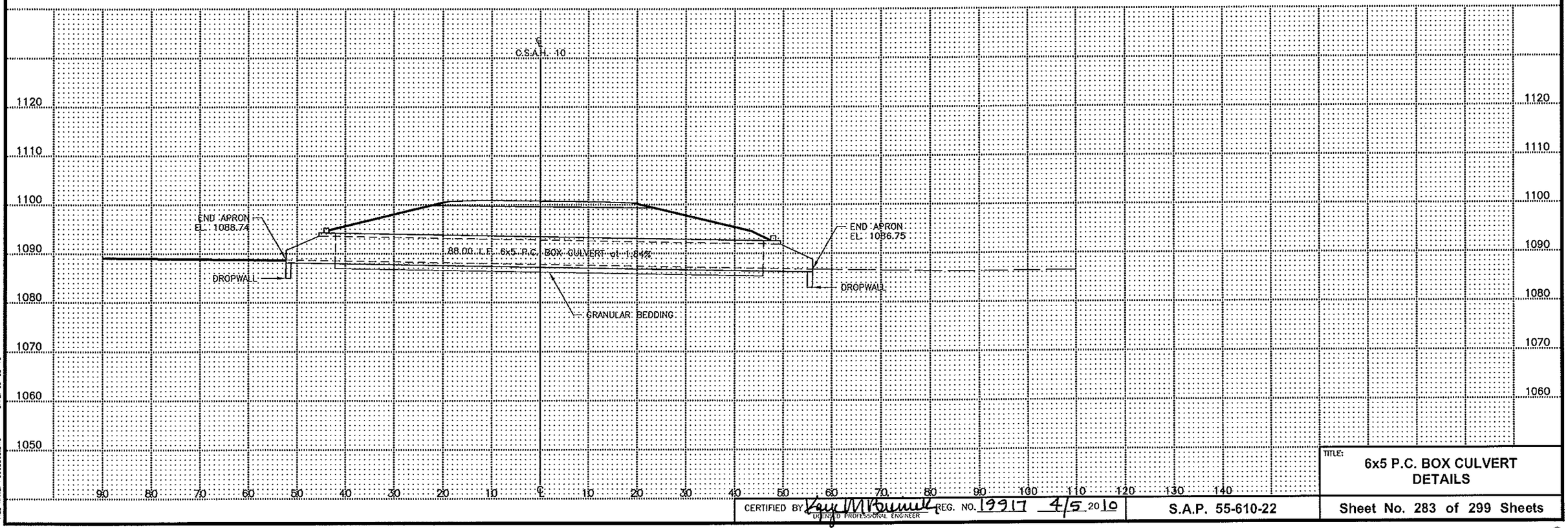
NOTES:

① CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.

② CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

③ GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.

0 5 10 20
SCALE IN FEET



CERTIFIED BY Kevin M Burmeister REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

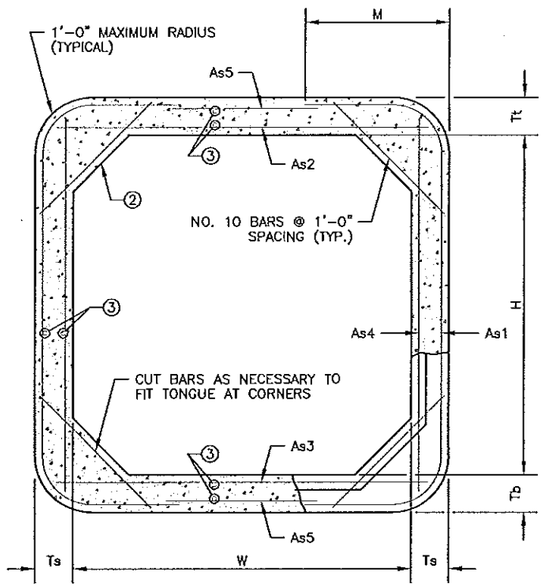
S.A.P. 55-610-22

TITLE: 6x5 P.C. BOX CULVERT DETAILS

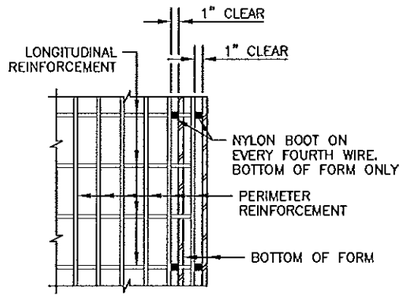
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DATE: 03-05-10

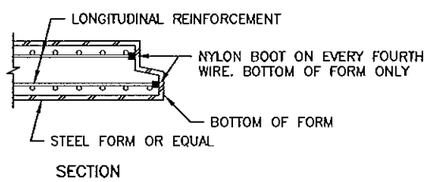
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TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

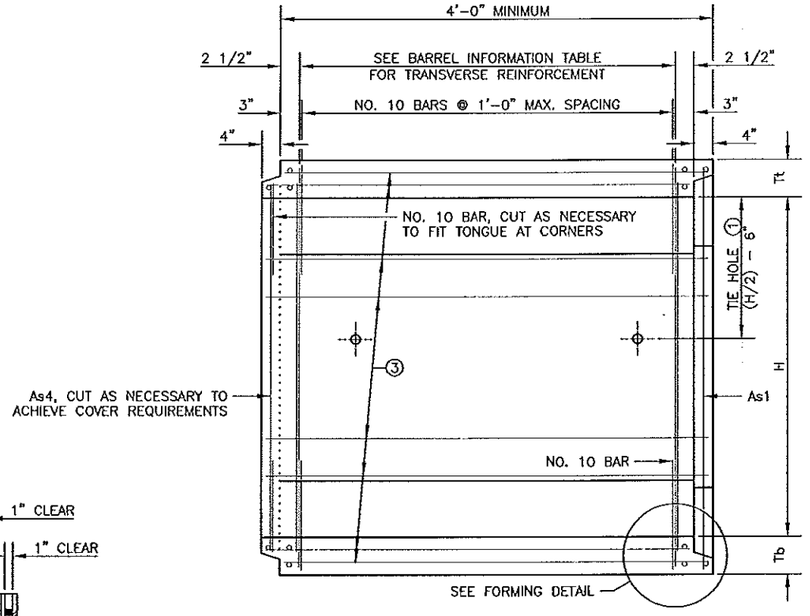


PLAN



SECTION

FORMING DETAIL



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

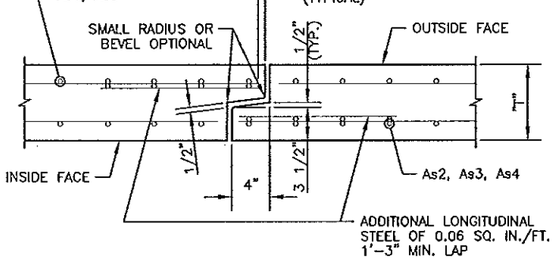
CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

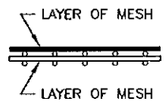
① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS -- 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT											
											As1			As2		As3		As4		As5	
					W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)
481+10.00	6' x 5'	2	5000	2--15	6	5	8	7	7	2470	0.40	9'-1"	2'-2"	0.53	6'-6"	0.60	6'-6"	0.20	5'--6"	0.06	5'-0"

REVISION:

APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 481+10.00

FIG. 5-395.101(A)

CERTIFIED BY: Kyle M Rosenich
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19919 4/5 2010

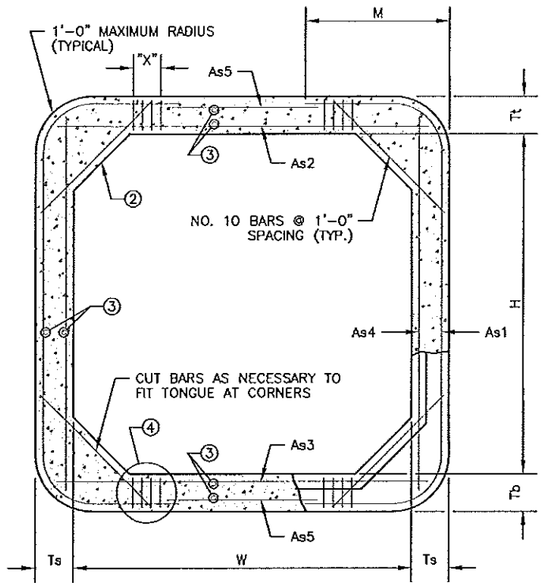
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DES: DR: APPROVED:
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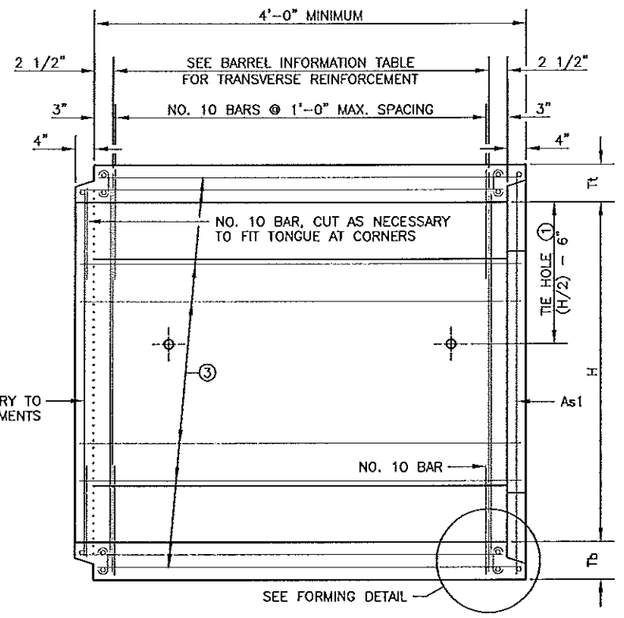
Sheet No. 284 of 299 Sheets

6 x 5 BOX CULVERT

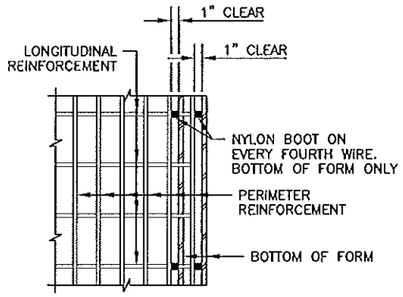
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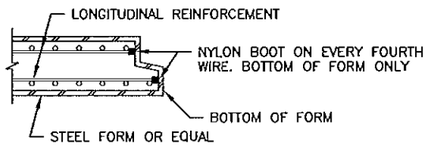
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

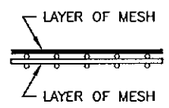


PLAN

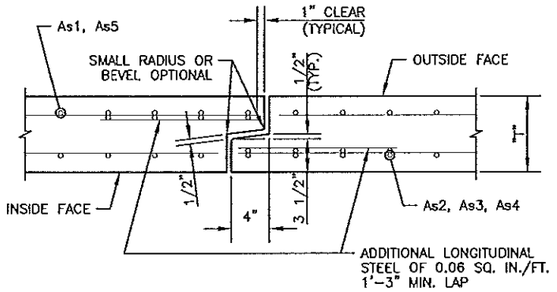


SECTION

FORMING DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATIDN.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIREO TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORGEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

(1) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

(4) SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)	(4) SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 481+10.00 FIG. 5-395.101(B)

CERTIFIED BY Kayle M Brennick LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

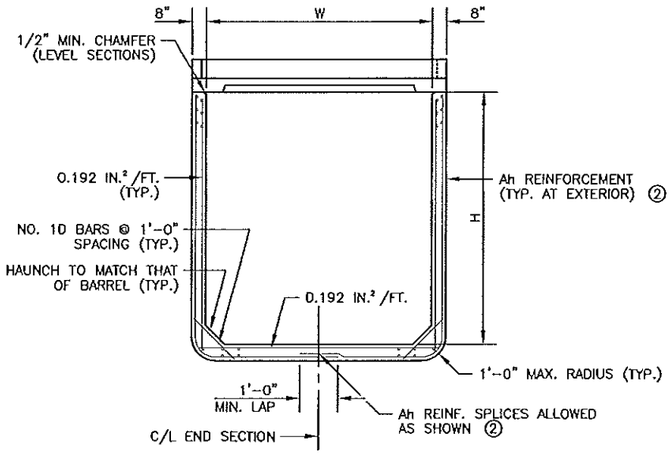
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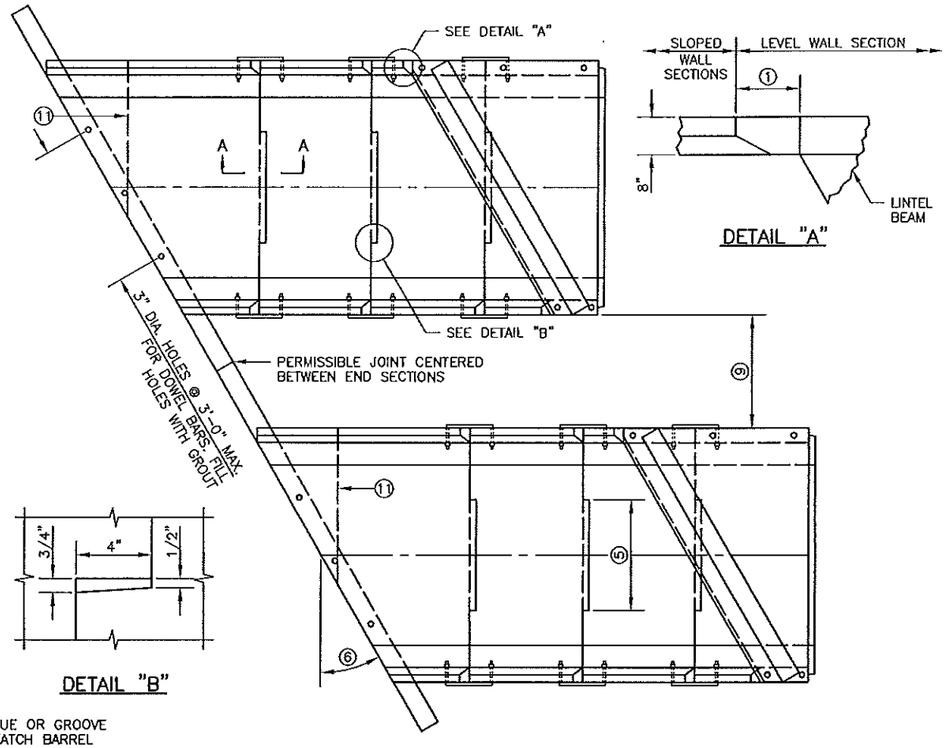
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6 x 5 BOX CULVERT

DATE: 03-05-10
FILE NAME: P326-8818.DWG

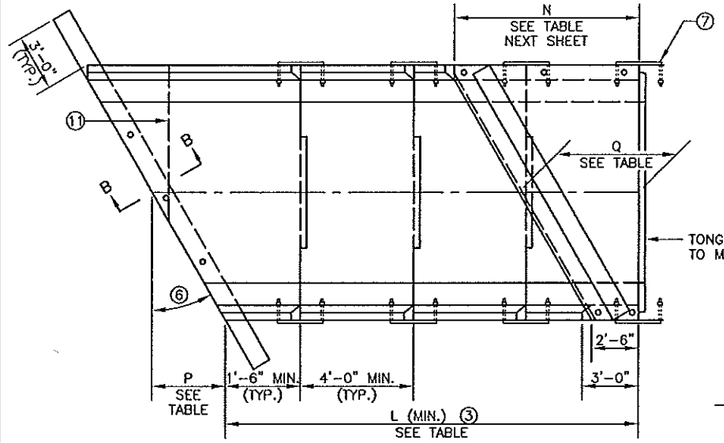


END VIEW



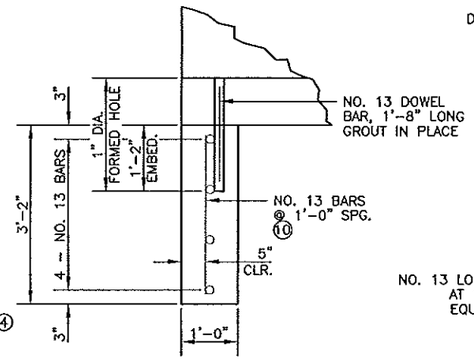
PLAN VIEW
DOUBLE BARREL OPTION

DETAIL "A"

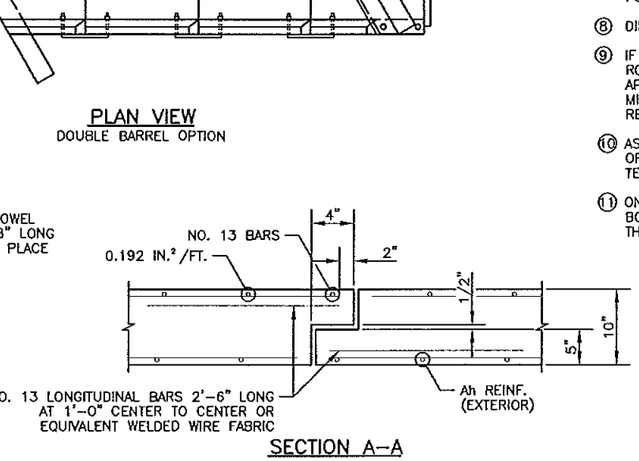


PLAN VIEW
SINGLE BARREL OPTION

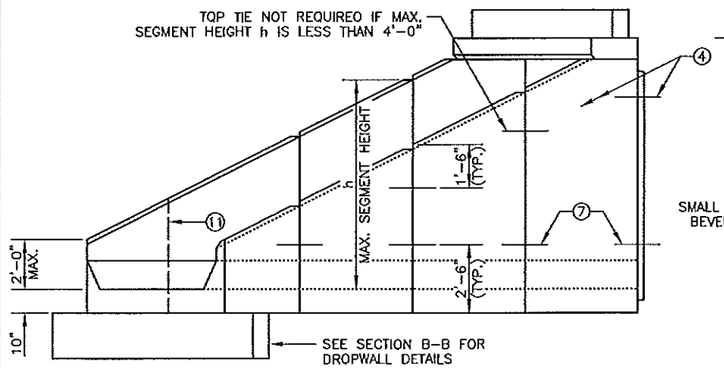
DETAIL "B"



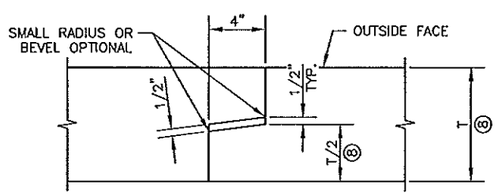
SECTION B–B



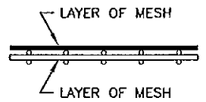
SECTION A–A



ELEVATION



TONGUE AND GROOVE JOINT
MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 8 1/8" @ 15"; 10 5/8" @ 30"; 1'-2" @ 45'

② SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA. RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS.
5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE.
CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW ENO SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN. REQUIREO ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE FIG. 5-395.110(B) FOR DETAILS.

⑧ DIMENSION "T" IS EQUAL TO Tt, Tb OR Ts.

⑨ IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS.) MINIMUM DISTANCE REQUIRED BETWEEN DOUBLE BARRELS IS 6".

⑩ AS AN ALTERNATE TO THE ONE LAYER MESH, CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.

⑪ ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.

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ENGINEERING

MIN. LENGTH L			
HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 3/4"	7'-7 3/8"	8'-7 7/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 5/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 1/8"	30'-8 1/2"	36'-11 1/4"

LENGTH P			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
8	1'-3"	2'-8 3/8"	4'-8"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/8"	7'-8"

LENGTH Q			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
8	3'-9"	5'-2 3/8"	7'-2"
10	4'-0"	5'-9 1/4"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"

DATE: 03-05-10

FILE NAME: P206-810A.DWG

REVISION: 09-17-2004

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 STA. 481+10.00

FIG. 5-395.110(A)

CERTIFIED BY Kaye M Brenneke
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7-1/2° TO 45°

DES: DR: APPROVED:
CHK: CHK:

Sheet No. 286 of 299 Sheets

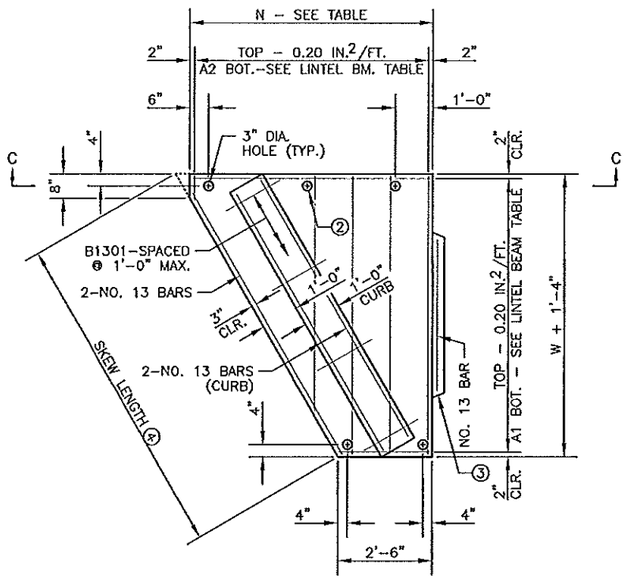
6 x 5 BOX CULVERT

Ah REINFORCEMENT		
HEIGHT h (FT.)	Ah ($IN.^2$/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

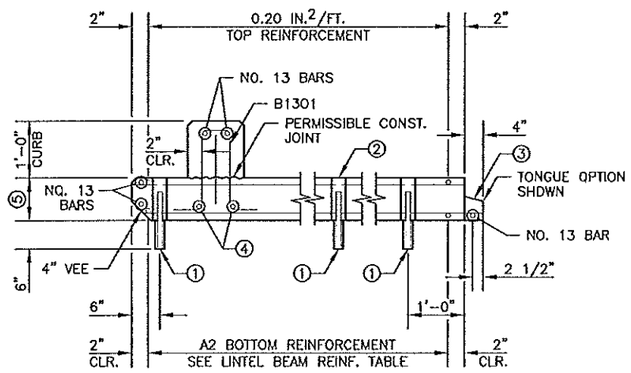
NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
8	NO. 13 @ 1'-1"	NO. 13 @ 9"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"

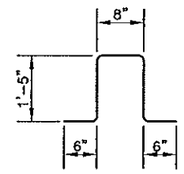
LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
8	4'-9 7/8"	7'-6"	11'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"



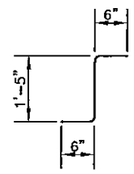
PLAN VIEW
LINTEL BEAM WITH INTEGRAL CURB



SECTION C–C



B1301



B1301 ALTERNATE

⑥ 2 REQUIRED

CONSTRUCTION NOTES

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

WELDING PER Mn/DOT SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.

① NO. 25 DOWEL, 1'–0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.

② PROVIDE ADDITIONAL 3" HOLES AT 4'–0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

④ FOR SKEW LENGTH UNDER 10', USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14', USE NO. 29 BARS. FOR SKEW LENGTH OF 14' TO 18', USE NO. 32 BARS. FOR SKEW LENGTH OF 18' TO 22', USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.

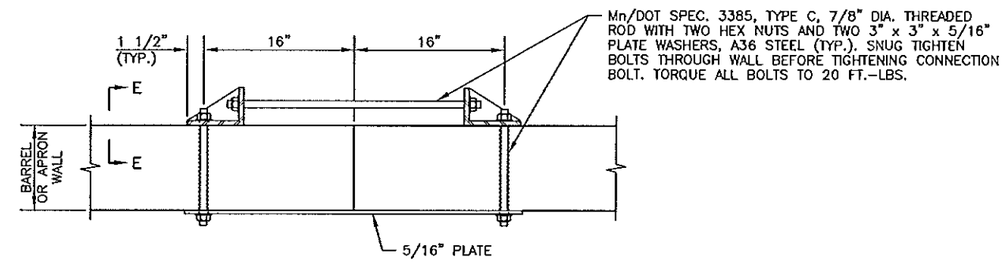
⑤ FOR CULVERTS LESS THAN 14' WIDE, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 15' SKEW, USE 9" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE. FOR 14' WIDE CULVERTS WITH A 30' OR 45' SKEW, USE 10" LINTEL BEAM THICKNESS WITH 5000 P.S.I. CONCRETE (OR USE 9" LINTEL BEAM THICKNESS WITH 6500 P.S.I. CONCRETE).

⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.

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SECTION E–E

PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

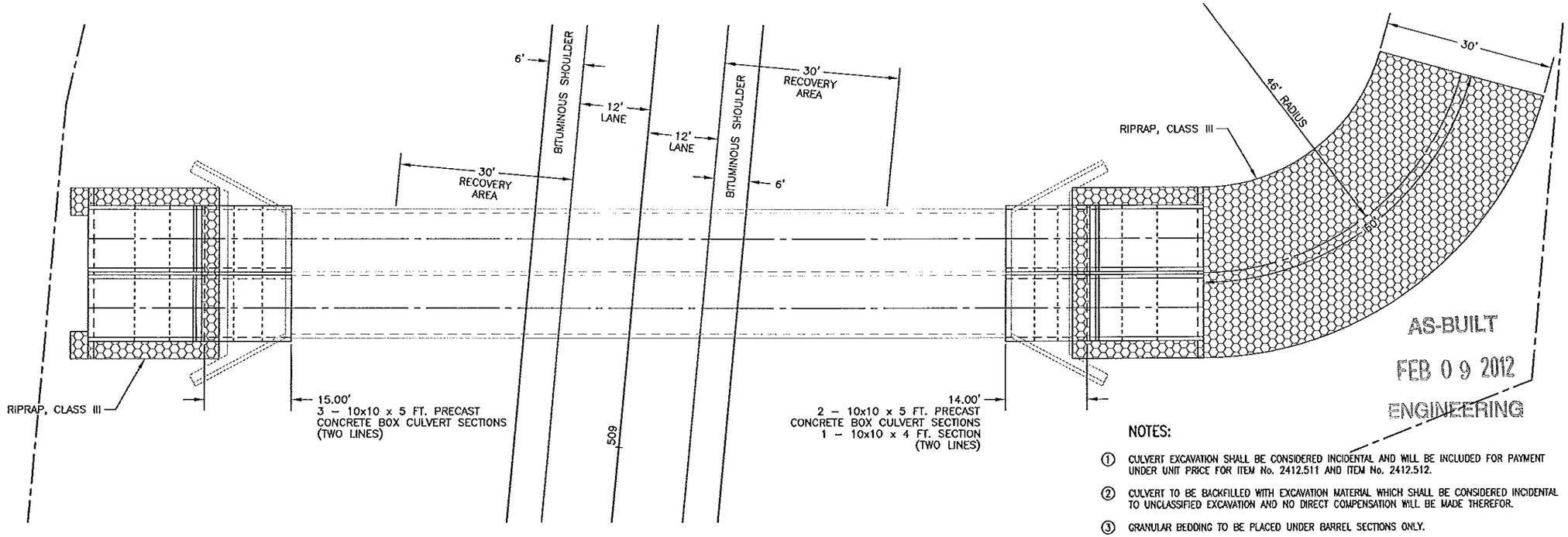
REVISION: 09–17–2004

APPROVED: DECEMBER 11, 2000

Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 481+10.00		FIG. 5-395.110(B)
CERTIFIED BY Kayce M Bremick LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS 7–1/2° TO 45°	DES: DR: APPROVED: CHK: CHK: Sheet No. 287 of 299 Sheets	6 x 5 BOX CULVERT

FILE NAME: P306-810B.DWG DATE: 03-05-10



AS-BUILT

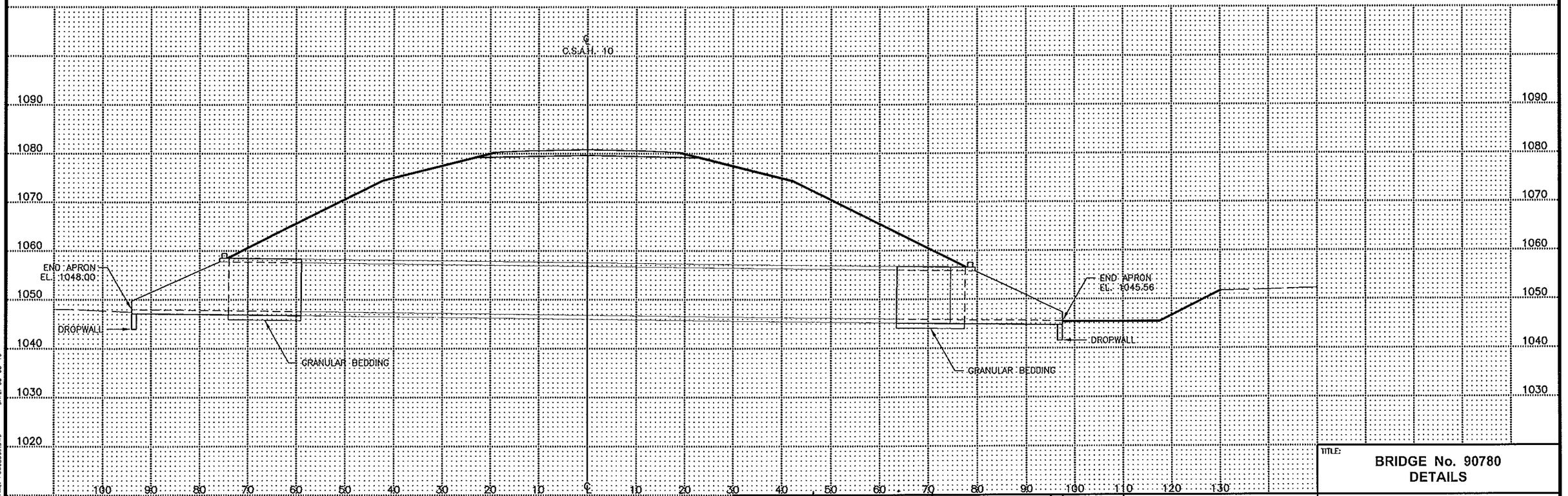
FEB 0 9 2012

ENGINEERING

NOTES:

1. CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.
4. 0.50 FEET BETWEEN BOX CULVERTS SHALL BE GROUTED WITH LEAN MIX BACKFILL FROM INLET END OF APRON TO OUTLET END OF APRON. SEE ITEM No. 2520.501.

0 5 10 20
SCALE IN FEET



CERTIFIED BY Paul M Bourne REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

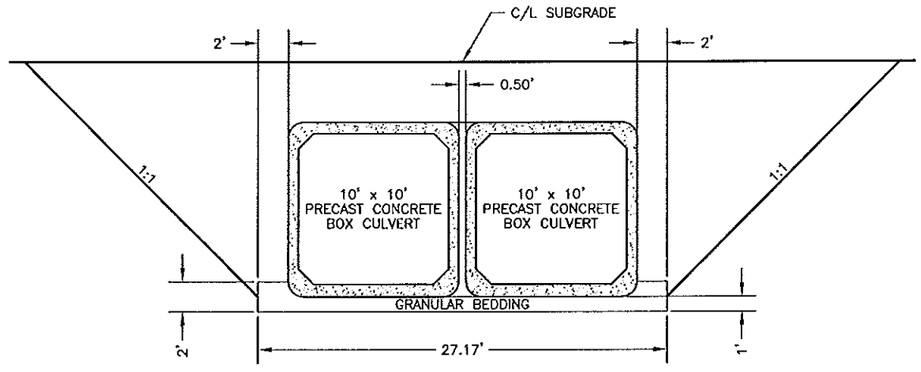
TITLE:
BRIDGE No. 90780
DETAILS

S.A.P. 55-610-22

Sheet No. 288 of 299 Sheets

DATE: 03-05-10

FILE NAME: P3058D09.DWG



BRIDGE No. 90780
STA. 508+97.32

AS-BUILT
FEB 0 9 2012
ENGINEERING

NOTES:

1. CULVERT EXCAVATION SHALL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM No. 2412.511 AND ITEM No. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.
3. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTIONS ONLY.
4. 0.50 FEET BETWEEN BOX CULVERTS SHALL BE GROUTED WITH LEAN MIX BACKFILL FROM INLET END OF APRON TO OUTLET END OF APRON. SEE ITEM No. 2520.501.

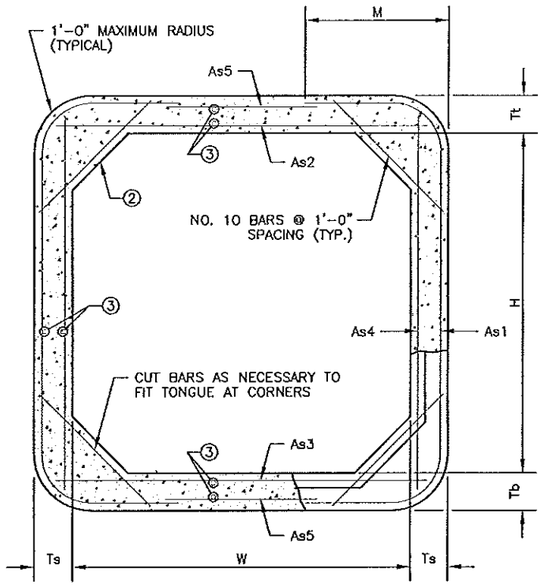
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CERTIFIED BY Lloyd M Bennett REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

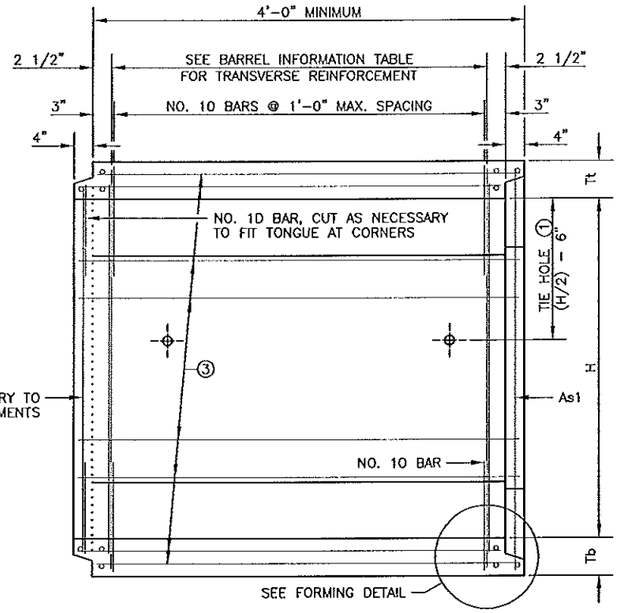
S.A.P. 55-610-22

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DETAILS

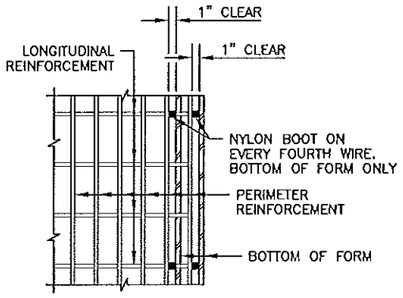
Sheet No. 289 of 299 Sheets



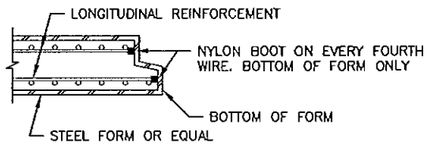
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN

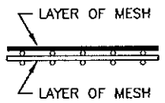


PLAN

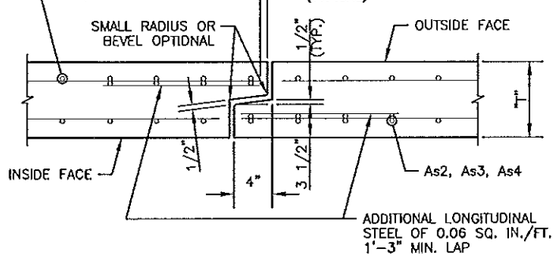


SECTION

FORMING DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

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BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)	WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT As1 AREA (IN.²/FT.)	As1 LENGTH (FT.)	As1 M (FT.)	As2 AREA (IN.²/FT.)	As2 LENGTH (FT.)	As3 AREA (IN.²/FT.)	As3 LENGTH (FT.)	As4 AREA (IN.²/FT.)	As4 LENGTH (FT.)	As5 AREA (IN.²/FT.)	As5 LENGTH (FT.)
509+23.90	10' x 10'	2	5000	2--8	10	10	9	10	8	4910	0.57	16'--9"	3'--3"	1.03	10'--6"	0.83	10'--6"	0.20	10'--6"	0.06	6'--9"
509+35.78	10' x 10'	2	5000	2--8	10	10	9	10	8	4910	0.57	16'--9"	3'--3"	1.03	10'--6"	0.83	10'--6"	0.20	10'--6"	0.06	6'--9"

REVISION:
APPROVED: DECEMBER 11, 2000
Donald L. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 509+23.90 & STA. 509+35.78 | FIG. 5-395.101(A)

CERTIFIED BY Kay M Poirier
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

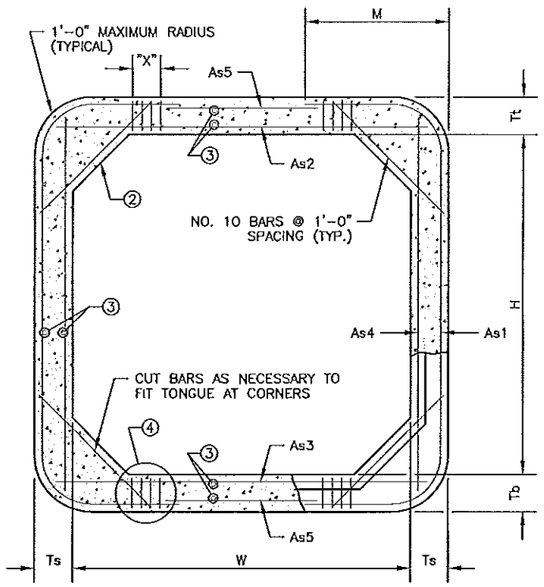
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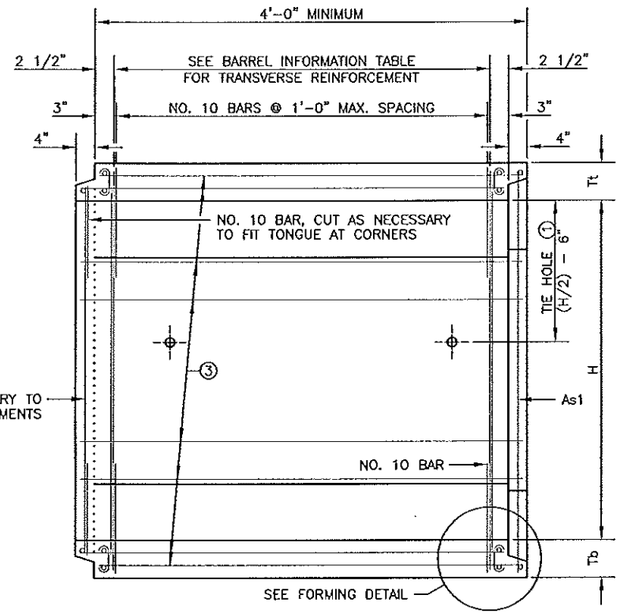
Sheet No. 290 of 299 Sheets

BRIDGE NO. 90780

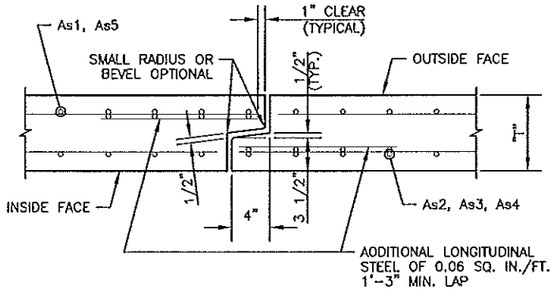
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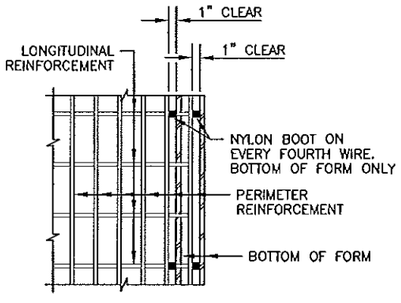
TRANSVERSE BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



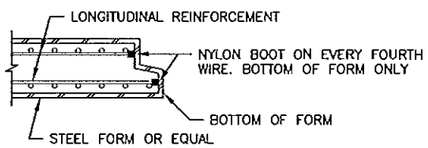
LONGITUDINAL BARREL SECTION
BAR REINFORCEMENT OPTION SHOWN



TONGUE AND GROOVE JOINT DETAIL

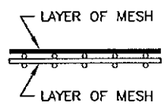


PLAN



SECTION

FORMING DETAIL



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. SEE FIG. 5-395.100(A) AND FIG. 5-395.100(B) FOR ADDITIONAL INFORMATION.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0", USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. (ALSO, PROVIDE APPROVED GROUT SEEPAGE CORE, MINIMUM 12" THICK, BETWEEN THE CULVERTS TWO ENDS.) MINIMUM DISTANCE REQUIRED IS 6".

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
(a) 1 OR 2 LAYERS OF MESH OR
(b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS OR
(c) 1 LAYER OF REINFORCEMENT BARS.
THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 1/2" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A IS REQUIRED.

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6'-0" AND 8'-0" WIDTHS – 6" TO 12"
10'-0" WIDTH – 10" TO 12"
12'-0" AND 14'-0" WIDTHS – 12"

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

④ SEE STANDARD PLATE NO. 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6".

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BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT										④ SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
										As1			As2		As3		As4		As5				
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	MAX. SPG. (IN.)	X (IN.)

REVISION:
APPROVED: DECEMBER 11, 2000
Donald J. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 509+23.90 & STA. 509+35.78 | FIG. 5-395.101(B)

CERTIFIED BY: Kay M Przemik
LICENSED PROFESSIONAL ENGINEER
REG. NO. 19917 4/5 2010

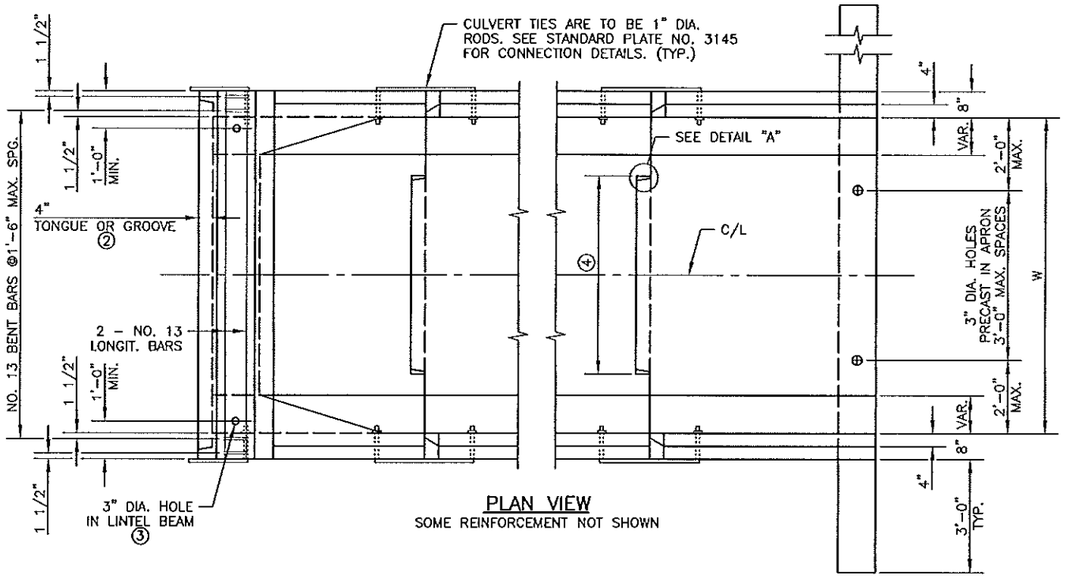
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DES: | DR: | APPROVED:
CHK: | CHK:

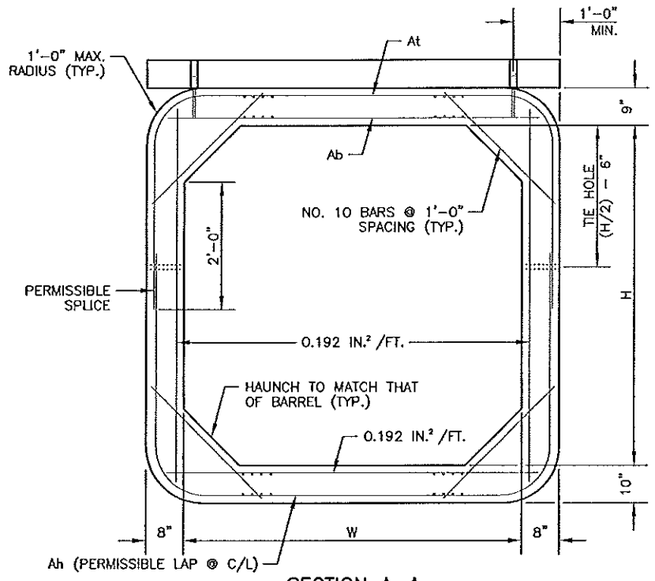
Sheet No. 291 of 299 Sheets

BRIDGE NO. 90780

DATE: 03-05-10
FILE NAME: P306-901B.DWG



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A–A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

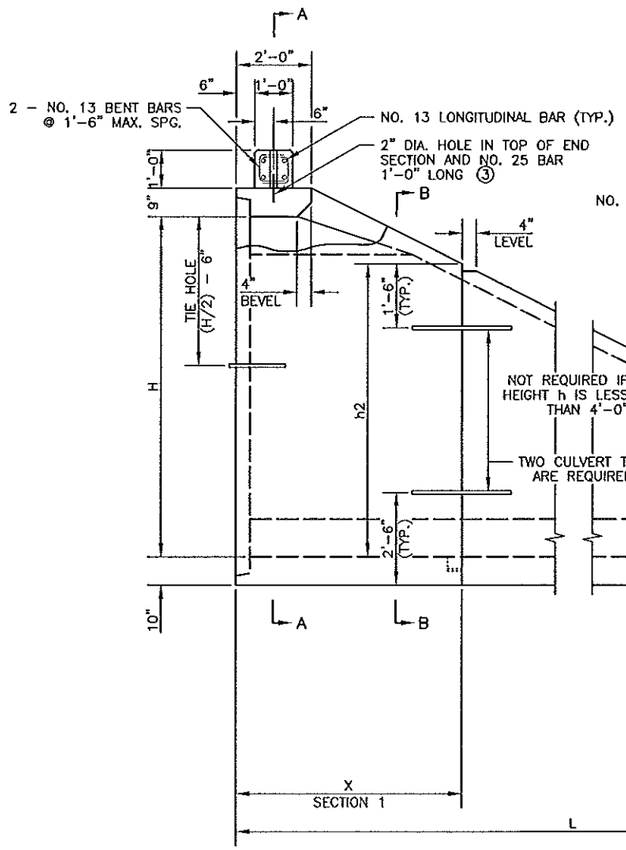
① WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

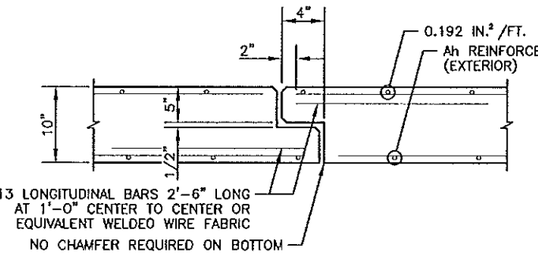
③ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

④ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

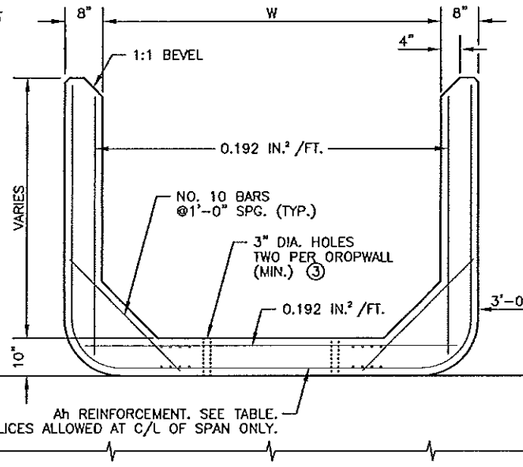
⑤ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.



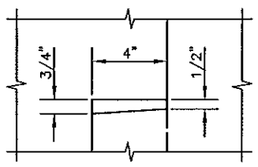
SIDE ELEVATION



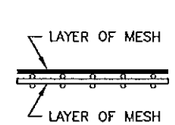
TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



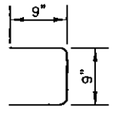
SECTION B–B



DETAIL "A"



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN



NO. 13 BENT BAR

At, Ab REINFORCEMENT		
WIDTH (FT.)	At (IN.²/FT.)	Ab (IN.²/FT.)
6	0.27	0.44
8	0.47	0.60
10	0.62	0.74
12	0.88	1.06
14	1.20	1.58

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APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	Ah	
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN.²/FT.)

DATE: 03-06-10
FILE NAME: P306-902.DWG

REVISION: 06-30-2003
APPROVED: DECEMBER 11, 2000
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S.A.P. 55-610-22 | STA. 509+23.90 & STA. 509+35.78 | FIG. 5-395.102

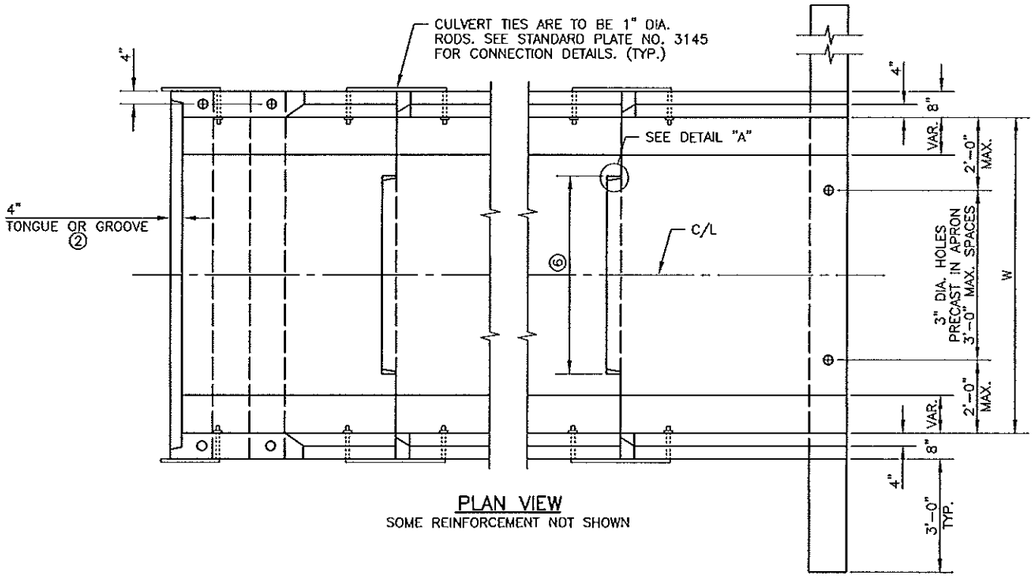
CERTIFIED BY Kay M Bierwirth REG. NO. 19917 CERTIFIED PROFESSIONAL ENGINEER 4/5 2010

TITLE: PRECAST CONCRETE END SECTION TYPE I - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2'

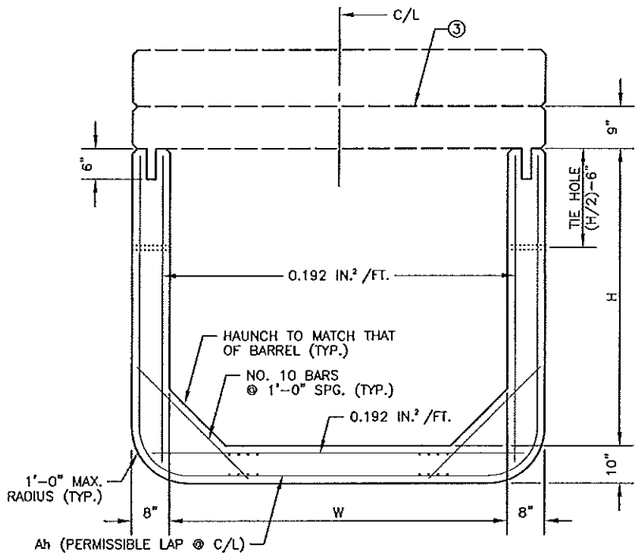
DES: | DR: | APPROVED:
CHK: | CHK:

Sheet No. 292 of 299 Sheets

BRIDGE NO. 90780



PLAN VIEW
SOME REINFORCEMENT NOT SHOWN



SECTION A–A

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 0.06 SQUARE INCHES PER PERIPHERAL FOOT ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

① WITH DOUBLE BOXES, LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111 FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR MIX NO. 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

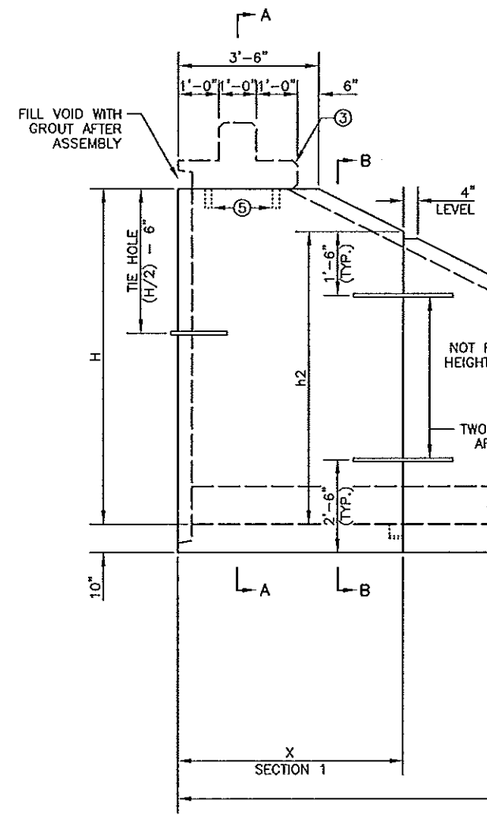
③ SEE FIG. 5-395.104(B) FOR LINTEL BEAM DETAILS.

④ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

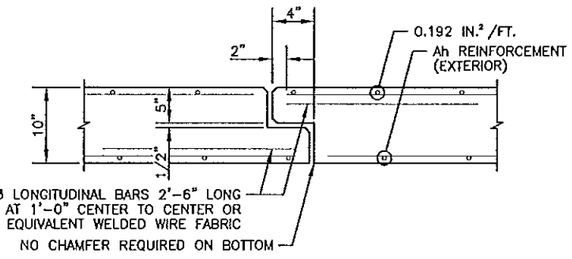
⑤ 2" DIAMETER HOLE, 6" DEEP IN TOP OF THE SECTION WALL.

⑥ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON C/L OF EACH APRON JOINT.

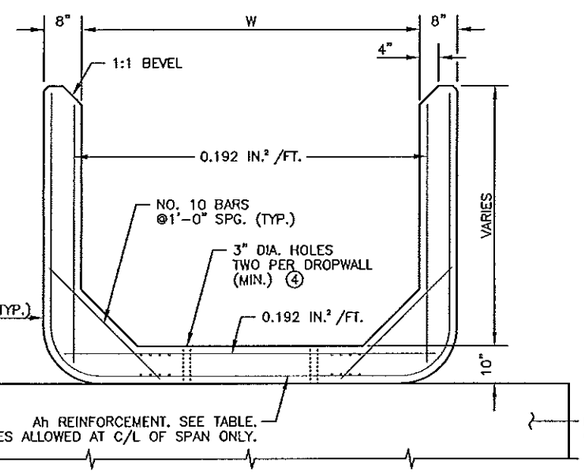
⑦ AS AN ALTERNATE TO THE ONE LAYER MESH, PROVIDE TWO LAYERS OF REBAR OR WIRE MESH WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.



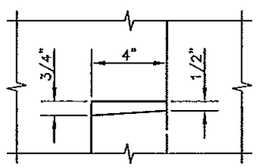
SIDE ELEVATION



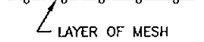
TONGUE AND GROOVE JOINT DETAIL
BETWEEN END SECTIONS



SECTION B–B



DETAIL "A"



FABRIC LAYER DETAIL
WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN

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APRON DIMENSIONS & Ah REINFORCEMENT

H	L	SECTION 1		h2	SECTION 2		h3	SECTION 3		h4	SECTION 4		h5	SECTION 5		h6
FT.	FT.	X	Ah		Y	Ah		Z	Ah		ZZ	Ah		ZZZ	Ah	
4	8	8'	0.192	1'-9"												
5	10	6'	0.192	3'-9"	4'	0.192	1'-9"									
6	12	6'	0.192	4'-9"	6'	0.192	1'-9"									
7	14	6'	0.192	5'-9"	8'	0.192	1'-9"									
8	16	6'	0.20	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"						
9	18	6'	0.29	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"						
10	20	6'	0.42	8'-9"	6'	0.29	5'-9"	8'	0.192	1'-9"						
11	22	6'	0.60	9'-9"	6'	0.42	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"			
12	24	6'	0.78	10'-9"	6'	0.60	7'-9"	6'	0.20	4'-9"	6'	0.192	1'-9"			
13	26	6'	1.03	11'-9"	6'	0.78	8'-9"	6'	0.28	5'-9"	8'	0.192	1'-9"			
14	28	6'	1.38	12'-9"	6'	1.03	9'-9"	6'	0.40	6'-9"	6'	0.192	3'-9"	4'	0.192	1'-9"

NOTE: Ah IS AREA OF REINFORCEMENT PER FOOT OF LENGTH (IN.² /FT.)

REVISION: 06-30-2003
APPROVED: DECEMBER 11, 2000
STATE BRIDGE ENGINEER

S.A.P. 55-610-22 | STA. 509+23.90 & STA. 509+35.78 | FIG. 5-395.104(A)

CERTIFIED BY Kayce M Brennick LICENSED PROFESSIONAL ENGINEER
REG. ND. 19917 4/5 20 10

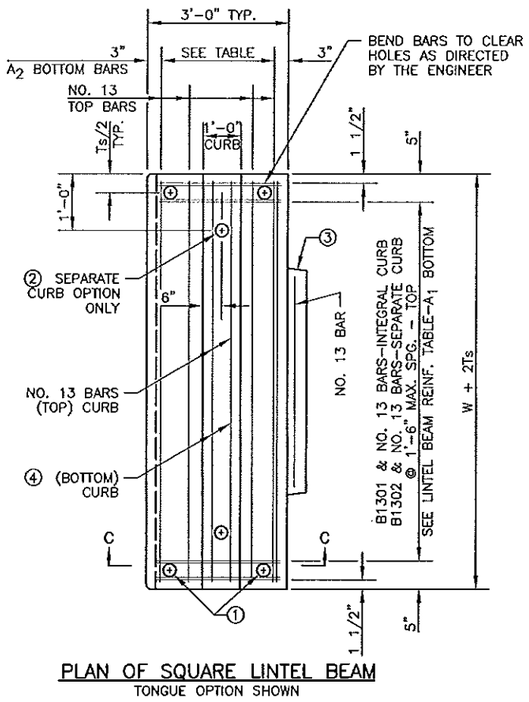
TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2°

DES: | DR: | APPROVED:
CHK: | CHK:

Sheet No. 293 of 299 Sheets

BRIDGE NO. 90780

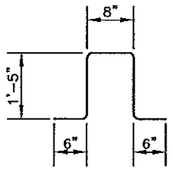
FILE NAME: P306-9044.DWG DATE: 03-05-10



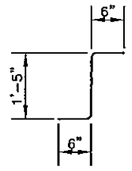
PLAN OF SQUARE LINTEL BEAM
TONGUE OPTION SHOWN

LINTEL BEAM BOTTOM REINFORCEMENT		
WIDTH W (FT.)	A_1	A_2
6	NO. 13 @ 1'-2"	NO. 13 @ 9 1/2"
8	NO. 13 @ 8"	NO. 16 @ 8"
10	NO. 16 @ 8"	NO. 19 @ 7 1/2"
12	NO. 16 @ 6"	NO. 19 @ 6"
14	NO. 19 @ 6"	NO. 22 @ 6"

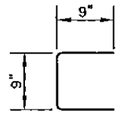
NOTE: MAXIMUM BAR SPACING GIVEN, REDUCE AS NECESSARY.



B1301



B1301
ALTERNATE
⑤
2 REQUIRED



B1302

CONSTRUCTION NOTES

SEE FIG. 5-395.101(A) AND FIG. 5-395.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.

ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.

GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

① 3" DIA. HOLE THROUGH LINTEL BEAM AND 2" DIA. HOLE IN TOP OF WALL SECTION. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

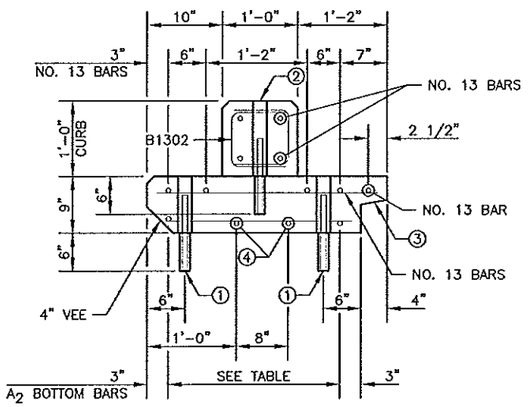
② 3" DIA. HOLE THROUGH CURB AND 2" DIA. HOLE IN LINTEL BEAM. PLACE NO. 25 DOWEL, 1'-0" LONG, IN HOLE AND FILL HOLE WITH GROUT.

③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT HAUNCH.

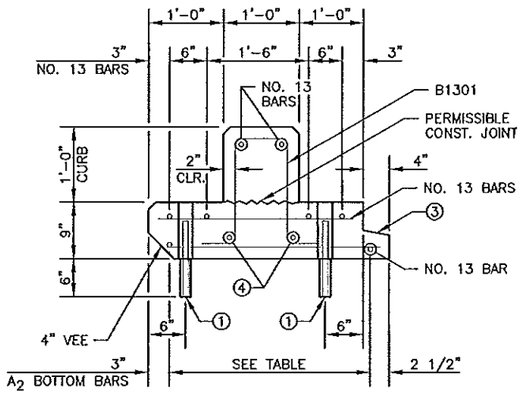
④ FOR SPANS UNDER 10'-0", USE NO. 25 BARS. FOR SPANS OF 10'-0" TO 12'-0", USE NO. 29 BARS. FOR 14'-0" SPAN, USE NO. 32 BARS.

⑤ ALTERNATE BAR BEND MAY BE USED FOR B1301.

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SECTION C-C
SEPARATE CURB OPTION WITH GROOVE
ADDITIONAL REINFORCEMENT IN GROOVE NOT SHOWN

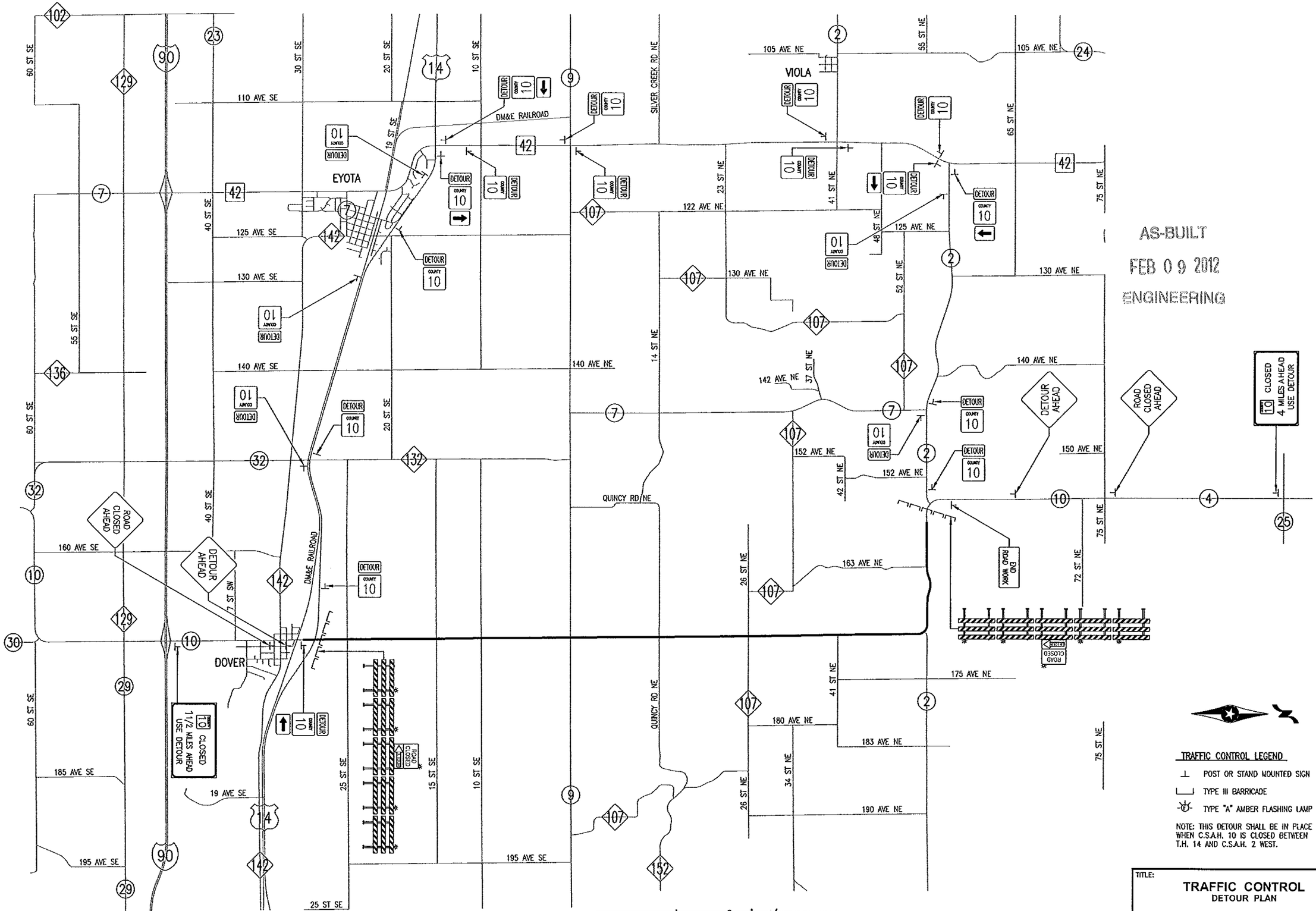


SECTION C-C
INTEGRAL CURB OPTION WITH TONGUE
ADDITIONAL REINFORCEMENT IN TONGUE NOT SHOWN

DATE: 03-05-10
FILE NAME: P206-0948.DWG

REVISION:
APPROVED: DECEMBER 11, 2000
Darrell L. Kemming STATE BRIDGE ENGINEER

S.A.P. 55-610-22	STA. 508+23.90 & STA. 509+35.78		FIG. 5-395.104(B)
CERTIFIED BY Kayc M Brennick LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010	TITLE: PRECAST CONCRETE END SECTION TYPE III - SINGLE OR DOUBLE BARREL FOR SKEWS UP TO 7-1/2'	DES: DR: APPROVED: CHK: CHK:	BRIDGE NO. 90780
		Sheet No. 294 of 299 Sheets	



CERTIFIED BY Doyle M Biesiada DEC. NO. 19917 4/5 2010
DOYLE M. BIESIADA PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
TRAFFIC CONTROL
DETOUR PLAN

Sheet No. 295 of 299 Sheets

FILE NAME: P3057001.DWG DATE: 03-31-10

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ENGINEERING

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

TYPE III BARRICADE

TYPE "A" AMBER FLASHING LAMP

NOTE: THIS DETOUR SHALL BE IN PLACE WHEN C.S.A.H. 10 IS CLOSED BETWEEN C.S.A.H. 2 EAST AND C.S.A.H. 2 WEST.

TITLE:
TRAFFIC CONTROL
DETOUR PLAN

CERTIFIED BY Lance M Brewer REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

Sheet No. 296 of 299 Sheets

DATE: 03-31-10
FILE NAME: P3061022.DWG

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

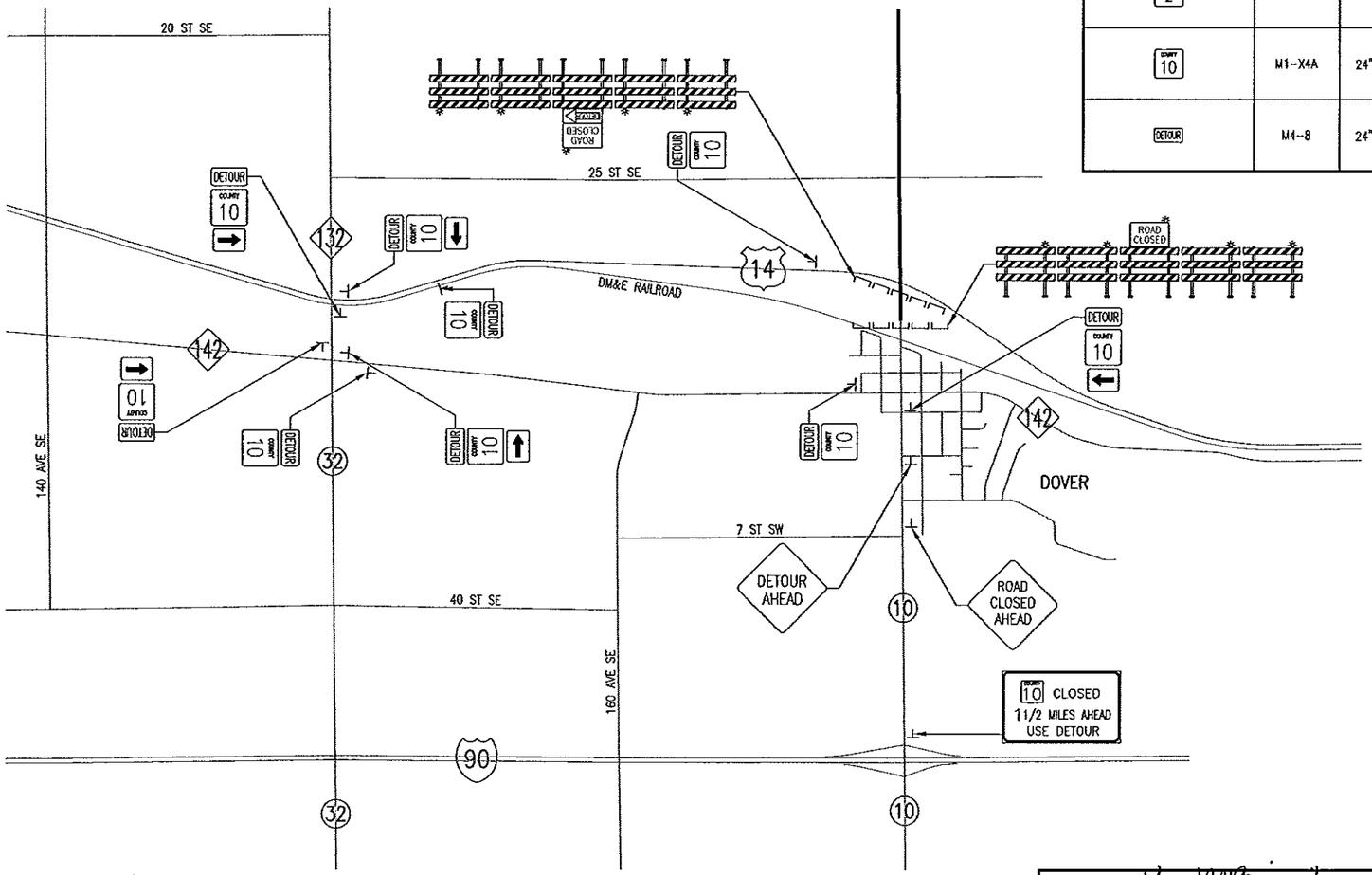
TYPE III BARRICADE

TYPE "A" AMBER FLASHING LAMP

NOTE: THIS DETOUR SHALL BE IN PLACE WHEN C.S.A.H. 10 IS CLOSED BETWEEN DOVER AND T.H. 14.

TRAFFIC CONTROL NOTES

1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.
4. CONSTRUCTION ZONE SIGNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO, SIGNS FOR LANE CLOSURE, MACHINERY AHEAD, BUMP, DIP, LOOSE GRAVEL, ETC.. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. ALL BARRICADES ON THIS PROJECT SHALL BE REFLECTORIZED ON BOTH SIDES.
6. THE CONTRACTOR SHALL COVER, REMOVE OR CHANGE INPLACE SIGNS THAT CONFLICT WITH THE TRAFFIC PATTERNS AS DIRECTED BY THE ENGINEER. ALL SIGNS ALTERED BY THE CONTRACTOR SHALL BE RETURNED TO THEIR ORIGINAL STATUS UPON COMPLETION OF THE PROJECT. ALL SIGNS COVERED WITH PANELS SHALL BE PROTECTED FROM DAMAGE BY USING NYLON WASHERS FOR SPACERS.



ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY
END ROAD WORK	G20-2A	48" x 24"	BLACK/ORANGE	1
1 MILE	W20-100P	24" x 18"	BLACK/ORANGE	3
1 1/2 MILES	W20-100P	24" x 18"	BLACK/ORANGE	1
1 3/4 MILES	W20-100P	24" x 18"	BLACK/ORANGE	2
2 MILES	W20-100P	24" x 18"	BLACK/ORANGE	4
2 1/2 MILES	W20-100P	24" x 18"	BLACK/ORANGE	4
COUNTY 2	M1-X4A	24" x 24"	BLACK/WHITE	19
COUNTY 10	M1-X4A	24" x 24"	BLACK/WHITE	39
DETOUR	M4-8	24" x 12"	BLACK/ORANGE	51

ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY
DETOUR	M4-10L	48" x 18"	BLACK/ORANGE	1
DETOUR	M4-10R	48" x 18"	BLACK/ORANGE	2
	M6-1	21" x 15"	BLACK/WHITE	16
	M6-3	21" x 15"	BLACK/WHITE	1
ROAD CLOSED	R11-2	48" x 30"	BLACK/WHITE	15
ROAD WORK AHEAD	W20-1	48" x 48"	BLACK/ORANGE	2
DETOUR AHEAD	W20-2	48" x 48"	BLACK/ORANGE	3
ROAD CLOSED AHEAD	W20-3	48" x 48"	BLACK/ORANGE	30
	TYPE III	MIN. 6'	ORANGE/WHITE	67
	TYPE A	FLASHING LAMP	AMBER	67
2 & 10 CLOSED 4 MILES AHEAD USE DETOUR	SPECIAL	SEE DETAIL	SEE DETAIL	1
2 & 10 CLOSED 5 MILES AHEAD USE DETOUR	SPECIAL	SEE DETAIL	SEE DETAIL	1
10 CLOSED 11/2 MILES AHEAD USE DETOUR	SPECIAL	SEE DETAIL	SEE DETAIL	1
10 CLOSED 4 MILES AHEAD USE DETOUR	SPECIAL	SEE DETAIL	SEE DETAIL	1

AS-BUILT

FEB 09 2012

ENGINEERING

DATE: 03-31-10

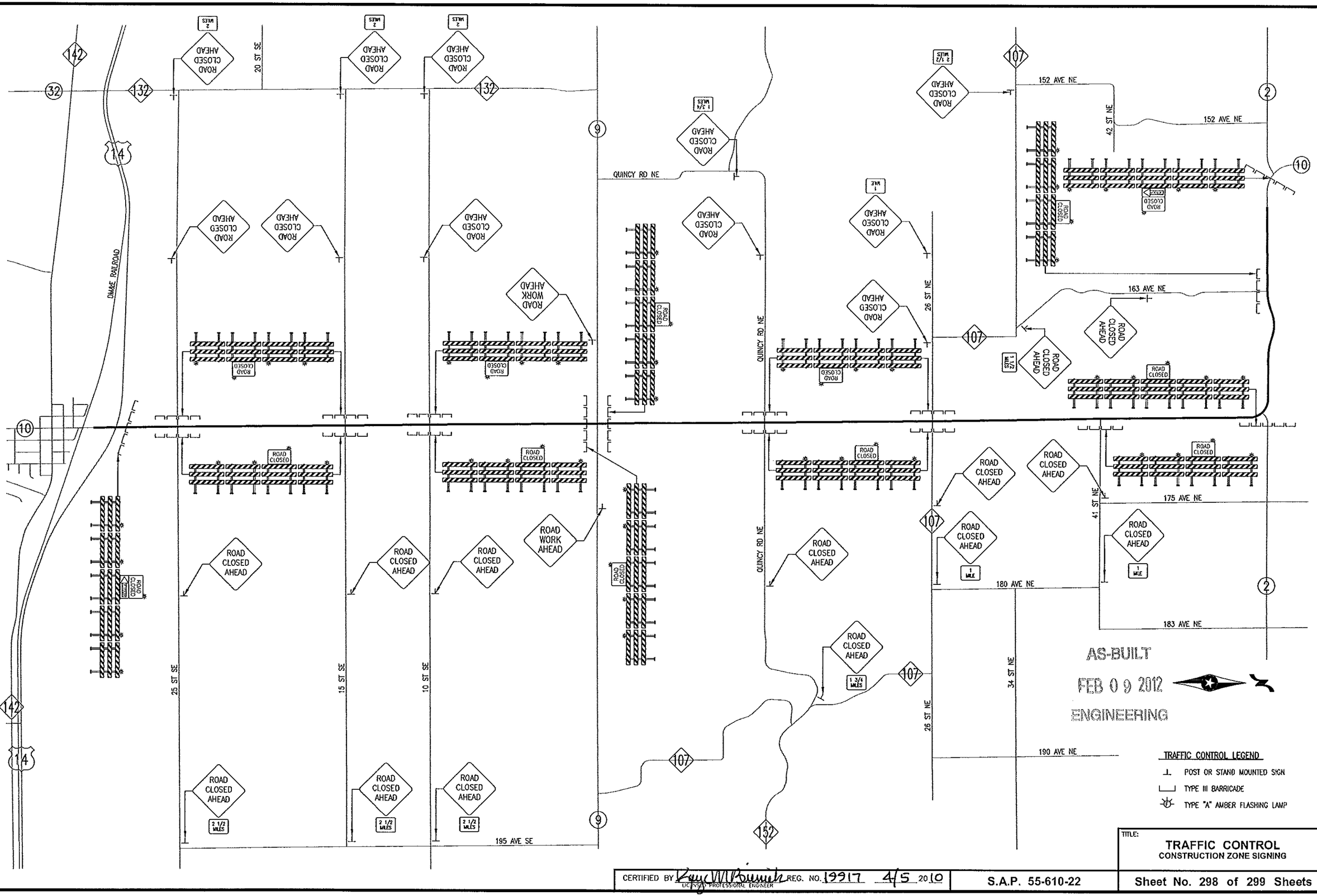
FILE NAME: P3057C03.DWG

CERTIFIED BY Gary W Brinkman LICENSED PROFESSIONAL ENGINEER REG. NO. 19917 4/5 2010

S.A.P. 55-610-22

TITLE: TRAFFIC CONTROL DETOUR PLAN AND ESTIMATE

Sheet No. 297 of 299 Sheets



DATE: 03-31-10

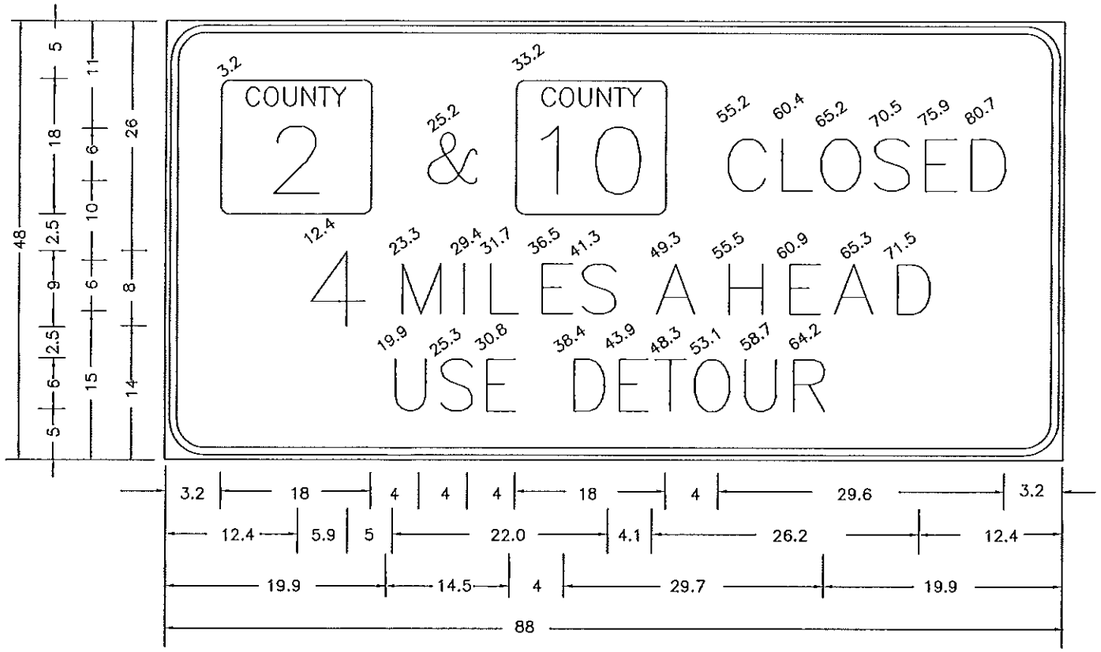
FILE NAME: P2667C04.DWG

CERTIFIED BY Kay M Bunnich REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

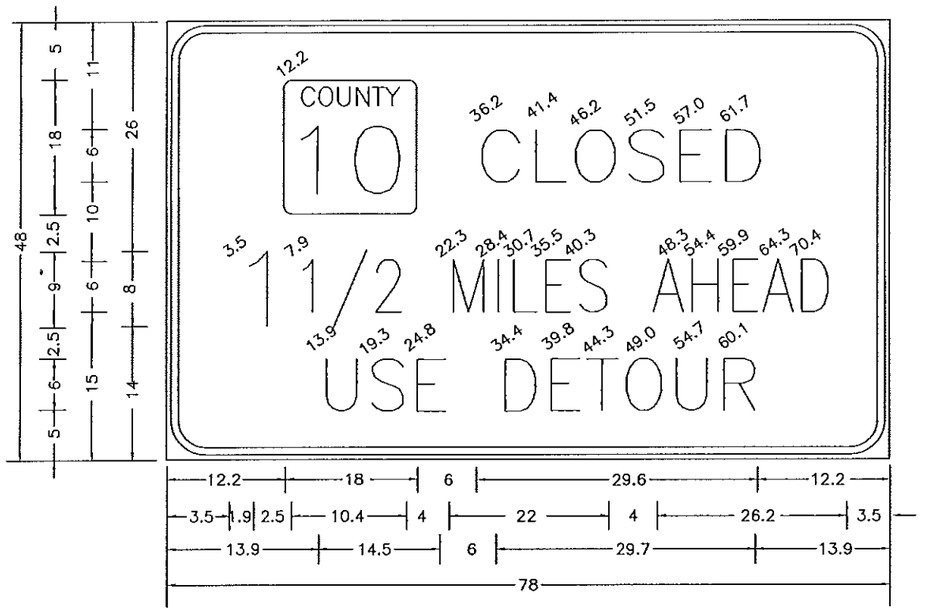
S.A.P. 55-610-22

TITLE:
TRAFFIC CONTROL
CONSTRUCTION ZONE SIGNING

Sheet No. 298 of 299 Sheets



3.0" RADIUS, 1.2" BORDER, 0.8" INDENT, BLACK ON ORANGE
"CLOSED" D; "5" MILES AHEAD" D; "USE DETOUR" D

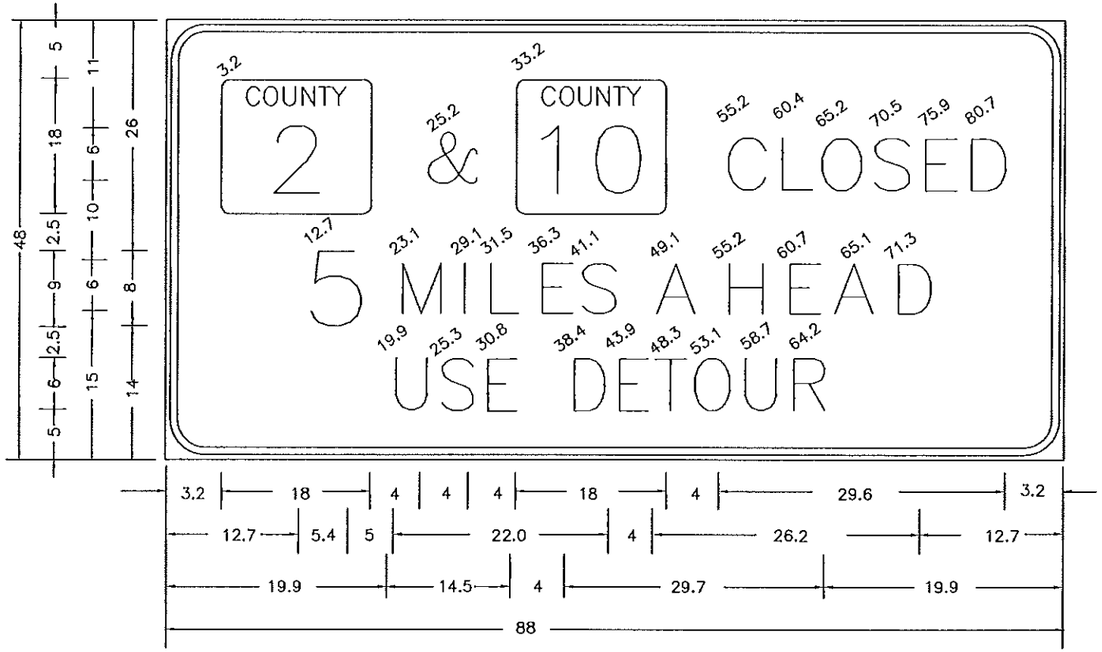


3.0" RADIUS, 1.3" BORDER, 0.8" INDENT, BLACK ON ORANGE
"CLOSED" D; "1 1/2" MILES AHEAD" D; "USE DETOUR" D

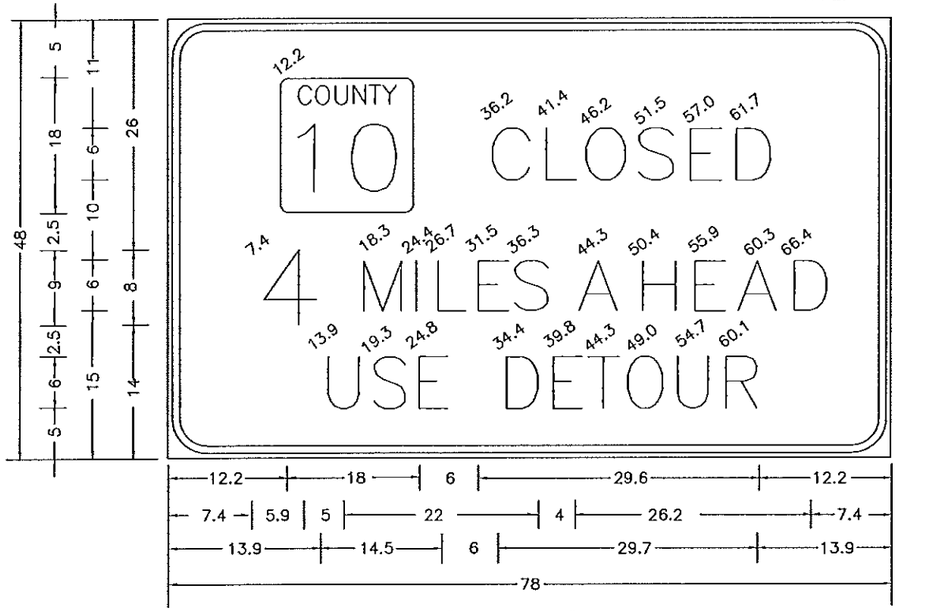
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ENGINEERING



3.0" RADIUS, 1.2" BORDER, 0.8" INDENT, BLACK ON ORANGE
"CLOSED" D; "5 MILES AHEAD" D; "USE DETOUR" D



3.0" RADIUS, 1.3" BORDER, 0.8" INDENT, BLACK ON ORANGE
"CLOSED" D; "4" MILES AHEAD" D; "USE DETOUR" D

FILE NAME: R30ST05.DWG DATE: 03-05-10

CERTIFIED BY Kay M Bierwirth REG. NO. 19917 4/5 2010
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-610-22

TITLE:
TRAFFIC CONTROL
SIGN DETAILS

Sheet No. 299 of 299 Sheets