A d d e n d u m

Iowa Department of Transportation
Office of Contracts

Date of Letting: May 21, 2013
Date of Addendum: May 14, 2013

B.O.	Proposal ID	Proposal Work Type	County	Project Number	Addendum
111	77-1945-409	PCC PAVEMENT - GRADE AND NEW	POLK	NHS-U-1945(409)--8G-77	21MAY111.A02

Notice: Only the bid proposal holders receive this addendum and responsibility for notifying any potential subcontractors or suppliers remains with the proposal holder.

Make the following changes to the PROPOSAL SCHEDULE OF PRICES:

Change Proposal Line No. 0020 2102-0425070 SPECIAL BACKFILL:
From: 11,024.000 TON
To: 11,048.000 TON

Change Proposal Line No. 0030 2102-2710070 EXCAVATION, CLASS 10, ROADWAY AND BORROW:
From: 498,899.000 CY
To: 502,276.000 CY

Change Proposal Line No. 0070 2105-8425005 TOPSOIL, FURNISH AND SPREAD:
From: 23,046.000 CY
To: 23,121.000 CY

Change Proposal Line No. 0100 2107-0875000 COMPACTION WITH MOISTURE AND DENSITY CONTROL:
From: 457,141.000 CY
To: 464,332.000 CY

Change Proposal Line No. 0330 2403-0100020 STRUCTURAL CONCRETE (RCB CULVERT):
From: 224.000 CY
To: 232.400 CY

Change Proposal Line No. 0340 2404-7775000 REINFORCING STEEL:
From: 39,133.000 LB
To: 40,679.000 LB

Change Proposal Line No. 0760 2503-0114218 STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 18 IN.:
From: 8,864.870 LF
To: 8,897.270 LF

Change Proposal Line No. 0770 2503-0114224 STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN.:
From: 3,942.940 LF
To: 3,902.050 LF

Change Proposal Line No. 0970 2507-3250005 ENGINEERING FABRIC:
From: 17,678.000 SY
To: 16,678.000 SY

Change Proposal Line No. 0980 2507-6800061 REVETMENT, CLASS E:
From: 795.000 TON
To: 657.000 TON

Change Proposal Line No. 1110 2515-2475006 DRIVEWAY, P.C. CONCRETE, 6 IN.:
From: 1,205.000 SY
To: 1,179.500 SY

Change Proposal Line No. 2130 2599-9999018 ('SQUARE YARDS' ITEM) SLOPE PROTECTION, STRAW MAT:
From: 73,000.000 SY
To: 75,182.000 SY

Change Proposal Line No. 2150 2599-9999020 ('TONS' ITEM) MACADAM STONE:
From: 30,682.000 TON
To: 31,241.000 TON

Change Proposal Line No. 2260 2602-0000020 SILT FENCE:
From: 34,655.000 LF
To: 34,750.000 LF

Change Proposal Line No. 2310 2602-0000212 FLOATING SILT CURTAIN (HANGING):
From: 1,700.000 LF
To: 1,800.000 LF

If the above changes are not made, they will be made as shown here.

Make the following change to the Proposal:

Delete DS-12027, PCC PAVEMENT NON-DESTRUCTIVE THICKNESS DETERMINATION, from the Proposal Special Provisions Text and the Proposal Special Provisions List.

Make the following change to the Plan Sheets:

Replace the following Plan Sheets: C.01-C.05, C.26, CS.01-CS.05, D.11- D.13, K.10-K.12, M.01, M.02, M.14-M.17, M.33, M.40, T.05-T.10, U.11-U.19, and W.103-W.133 with the attached Plan Sheets C.01-C.05, C.26, CS.01-CS.05, D.11- D.13, K.10-K.12, M.01, M.02, M.14-M.17, M.33, M.40, T.05-T.10, U.11-U.19, and W.103-W.133.

The following information applies to the MSE wall portion of this project:

	501+00	601+00	701+00	801+00	
	UP West	UP East	NS West	NS East	Total
MSE Wall, sq ft	37,928	8,265	11,894	8,599	66,686
MSE Wall Backfill, cu ft	1,126,448	278,483	463,296	302,405	2,170,632
MSE Wall Backfill, tons	70,403	17,405	28,956	18,900	135,665

ESTIMATED PROJECT QUANTITIES

Division 1: SE 15TH ST TO SE 23RD ST
Division 2: SE 23RD ST TO SE 30TH ST
Division 3: DMWW

Item No.	Item Code	Item	Unit	Quantities						
				Estimated				As Built		
				Division 1	Division 2	Division 3	Total	Division 1	Division 2	Division 3
1	2101-0850001	CLEARING AND GRUBBING	ACRE	11.87	9.07		20.94			
2	2102-0425070	SPECIAL BACKFILL	TON		11048		11048			
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	394199	108077		502276			
4	2102-2710080	EXCAVATION, CLASS 10, UNSUITABLE OR UNSTABLE MATERIAL	CY	1000	1000		2000			
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	1200	1000		2200			
6	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY		350		350			
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD	CY	18063	5058		23121			
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	9207	6754		15961			
9	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES	CY		156		156			
10	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CY	356491	107841		464332			
11	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID	SY	2000	1000		3000			
12	2115-0100000	MODIFIED SUBBASE	CY	40672	30708		71380			
13	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	80	64		144			
14	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING	CY		1052		1052			
15	2213-6745500	REMOVAL OF CURB	STA	0.07	1.6		1.67			
16	2213-7100400	RELOCATION OF MAIL BOXES	EACH	4	4		8			
17	2213-8200000	BASE WIDENING, HOT MIX ASPHALT MIXTURE	TON		820		820			
18	2213-8202080	BASE WIDENING, 8 IN. PORTLAND CEMENT CONCRETE	SY		1885		1885			
19	2301-0690200	BRIDGE APPROACH, RK-20	SY	1192			1192			
20	2301-1033080	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 8 IN.	SY	232	2395		2627			
21	2301-1033100	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 10 IN.	SY	35568	28638		64206			
22	2301-4874106	MEDIAN, DOWELLED P.C. CONCRETE, 6 INCH	SY		162		162			
23	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES	LS	0.5	0.5		1			
24	2301-7000110	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR PCC PAVEMENT THICKNESS (BY SCHEDULE)	EACH	45000	39000		84000			
25	2303-0043500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, NO SPECIAL FRICTION REQUIREMENT	TON	364.2	497.4		861.6			
26	2303-0245828	ASPHALT BINDER, PG 58-28	TON	21.9	49.2		71.1			
27	2303-0246428	ASPHALT BINDER, PG 64-28	TON		29.84		29.84			
28	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE	TON	300	300		600			
29	2316-0000110	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR PCC PAVEMENT SMOOTHNESS (BY SCHEDULE)	EACH	25500	15000		40500			
30	2402-0425031	GRANULAR BACKFILL	TON	136731	1591		138322			
31	2402-2720000	EXCAVATION, CLASS 20	CY		1938		1938			
32	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	798.2			798.2			
33	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY		232.4		232.4			
34	2404-7775000	REINFORCING STEEL	LB	514	40165		40679			
35	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	183218			183218			
36	2405-2705000	EXCAVATE AND DEWATER	LS	0.4	0.6		1			
37	2407-0550000	BEAMS, PRETENSIONED PRESTRESSED, CONCRETE, SBTE 140	EACH	12	0		12			
38	2408-7800000	STRUCTURAL STEEL	LB	12077			12077			
39	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE	SY	1882			1882			
40	2414-6424038	CONCRETE BARRIER RAIL, 3FT. 8IN.	LF	630			630			
41	2414-6425420	CONCRETE BARRIER, PARAPET	LF	328			328			
42	2414-6444100	STEEL PIPE PEDESTRIAN HAND RAILING	LF	383.5			383.5			
43	2416-0100012	APRONS, CONCRETE, 12 IN. DIA.	EACH	1	0		1			
44	2416-0100018	APRONS, CONCRETE, 18 IN. DIA.	EACH	4	0		4			
45	2416-0100024	APRONS, CONCRETE, 24 IN. DIA.	EACH	2	0		2			
46	2416-0100030	APRONS, CONCRETE, 30 IN. DIA.	EACH	0	1		1			
47	2416-0100036	APRONS, CONCRETE, 36 IN. DIA.	EACH	1			1			
48	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.	EACH	2	0		2			
49	2431-0000100	SEGMENTAL BLOCK RETAINING WALL	SF	368	2339		2707			
50	2432-0000100	MECHANICALLY STABILIZED EARTH RETAINING WALL	SF	66686			66686			
51	2435-0130148	MANHOLE, SANITARY SEWER, SW-301, 48 IN.	EACH	2	6		8			
52	2435-0130384	MANHOLE, SANITARY SEWER, SW-303, 84 IN.	EACH	1	0		1			
53	2435-0130500	MANHOLE, SANITARY SEWER, SW-305	EACH	3	0		3			
54	2435-0140148	MANHOLE, STORM SEWER, SW-401, 48 IN.	EACH	3	6		9			
55	2435-0140160	MANHOLE, STORM SEWER, SW-401, 60 IN.	EACH	3	1		4			
56	2435-0140200	MANHOLE, STORM SEWER, SW-402	EACH	8	2		10			
57	2435-0140300	MANHOLE, STORM SEWER, SW-403	EACH	1	0		1			
58	2435-0140400	MANHOLE, STORM SEWER, SW-404	EACH	0	5		5			
59	2435-0140500	MANHOLE, STORM SEWER, SW-405	EACH	1	1		2			
60	2435-0250100	INTAKE, SW-501	EACH	0	1		1			
61	2435-0250500	INTAKE, SW-505	EACH	9	5		14			
62	2435-0250600	INTAKE, SW-506	EACH	7	3		10			
63	2435-0250700	INTAKE, SW-507	EACH	11	12		23			
64	2435-0250900	INTAKE, SW-509	EACH	28	22		50			
65	2435-0250910	INTAKE, SW-509 MODIFIED	EACH	4	5		9			
66	2435-0251224	INTAKE, SW-512, 24 IN.	EACH	9	3		12			
67	2435-0400000	DROP CONNECTION, SW-307	EACH	0	1		1			
68	2435-0600010	MANHOLE ADJUSTMENT, MINOR	EACH	2	6		8			
69	2435-0600020	MANHOLE ADJUSTMENT, MAJOR	EACH	2			2			
70	2435-0700010	CONNECTION TO EXISTING MANHOLE	EACH	1	3		4			
71	2501-0201517	PILES, STEEL, HP 14 X 117	LF	7645			7645			
72	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	9520.2	6842.7		16362.9			
73	2502-8220193	SUBDRAIN OUTLET (RF-19C)	EACH	108	62		170			
74	2502-8220196	SUBDRAIN OUTLET, RF-19E	EACH	4	0		4			
75	2503-0114212	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 12 IN.	LF	12.4			12.4			
76	2503-0114218	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 18 IN.	LF	5178.36	3718.91		8897.27			
77	2503-0114224	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 24 IN.	LF	2957.05	945		3902.05			
78	2503-0114230	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 30 IN.	LF	30.44	1071.87		1102.31			
79	2503-0114236	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 2000D (CLASS III), 36 IN.	LF	549.49			549.49			
80	2503-0114418	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 3000D (CLASS IV), 18 IN.	LF		255.43		255.43			

ESTIMATED PROJECT QUANTITIES

Division 1: SE 15TH ST TO SE 23RD ST
Division 2: SE 23RD ST TO SE 30TH ST
Division 3: DMWW

Item No.	Item Code	Item	Unit	Quantities						
				Estimated				As Built		
				Division 1	Division 2	Division 3	Total	Division 1	Division 2	Division 3
81	2503-0114424	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 3000D (CLASS IV), 24 IN.	LF		229.74		229.74			
82	2503-0114430	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 3000D (CLASS IV), 30 IN.	LF		152.6		152.6			
83	2503-0114436	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 3000D (CLASS IV), 36 IN.	LF		737.08		737.08			
84	2503-0114448	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE PIPE (RCP), 3000D (CLASS IV), 48 IN.	LF	229.05			229.05			
85	2503-0116437	STORM SEWER GRAVITY MAIN, TRENCHED, REINFORCED CONCRETE ARCH PIPE (RCAP), 3000D (CLASS A-IV), 37 IN. X 23 IN.	LF		115.54		115.54			
86	2503-0200036	REMOVE STORM SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	70	1041		1111			
87	2503-3775024	GATE, OUTLET CONTROL, FLAP, 24 IN.	EACH	1			1			
88	2503-3775036	GATE, OUTLET CONTROL, FLAP, 36 IN.	EACH		1		1			
89	2504-0116010	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 10 IN.	LF	214	719		933			
90	2504-0116018	SANITARY SEWER GRAVITY MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 18 IN.	LF		30		30			
91	2504-0220000	SANITARY SEWER SERVICE RELOCATION	EACH	6	1		7			
92	2504-0240036	REMOVE SANITARY SEWER PIPE LESS THAN OR EQUAL TO 36 IN.	LF	495	719		1214			
93	2504-0240136	REMOVE SANITARY SEWER PIPE GREATER THAN 36 IN.	LF	1331			1331			
94	2505-4008300	STEEL BEAM GUARDRAIL	LF		82		82			
95	2505-4021700	STEEL BEAM GUARDRAIL END TERMINAL	EACH		1		1			
96	2506-4984000	FLOWABLE MORTAR	CY	420			420			
97	2507-3250005	ENGINEERING FABRIC	SY	108	16570		16678			
98	2507-6800061	REVETMENT, CLASS E	TON	108	549		657			
99	2510-6745850	REMOVAL OF PAVEMENT	SY	22761.6	10488.1		33249.7			
100	2510-6750600	REMOVAL OF INTAKES AND UTILITY ACCESSES	EACH	5	10		15			
101	2511-0302500	RECREATIONAL TRAIL, PORTLAND CEMENT CONCRETE, 5 IN.	SY	4248.1	5067.7		9315.8			
102	2511-0302600	RECREATIONAL TRAIL, PORTLAND CEMENT CONCRETE, 6 IN.	SY	93.7	166.4		260.1			
103	2511-0310100	SPECIAL COMPACTION OF SUBGRADE FOR RECREATIONAL TRAIL	STA	52.2	48.3		100.5			
104	2511-6745900	REMOVAL OF SIDEWALK	SY	41	217		258			
105	2511-7526005	SIDEWALK, P.C. CONCRETE, 5 IN.	SY	1308.8	784.1		2092.9			
106	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	SY	129.4	103.6		233			
107	2511-7528101	DETECTABLE WARNINGS	SF	211	319		530			
108	2512-1725206	CURB AND GUTTER, P.C. CONCRETE, 2.0 FT.	LF	490			490			
109	2513-0001040	CONCRETE BARRIER, BA-104	LF	1392.7			1392.7			
110	2513-0001081	CONCRETE BARRIER, TAPERED END, BA-108	EACH	4			4			
111	2515-2475006	DRIVEWAY, P.C. CONCRETE, 6 IN.	SY	1017.5	162		1179.5			
112	2515-6745600	REMOVAL OF PAVED DRIVEWAY	SY	1080	881		1961			
113	2518-6891820	PERMANENT ROAD CLOSURE, URBAN, SI-182	EACH	0	4		4			
114	2518-6910000	SAFETY CLOSURE	EACH	2	5		7			
115	2519-1001000	FENCE, CHAINLINK, VINYL COATED, 48 IN. HEIGHT	LF	147.2	503.1		650.3			
116	2519-1001000	FENCE, CHAINLINK, VINYL COATED, 72 IN. HEIGHT	LF	2850	270		3120			
117	2519-1001000	FENCE, CHAINLINK, VINYL COATED, 72 IN. HEIGHT, ON WALL	LF		506		506			
118	2519-1001000	FENCE, CHAINLINK, VINYL COATED, 96 IN. HEIGHT	LF	336.5			336.5			
119	2519-3300700	FENCE, TEMPORARY	LF	1000	0		1000			
120	2519-4200120	REMOVAL OF FENCE, CHAIN LINK	LF	2820	335		3155			
121	2519-4200140	REMOVAL OF FENCE, FIELD	LF	0	1295		1295			
122	2520-3350015	FIELD OFFICE	EACH	0.7	0.29	0.01	1			
123	2525-0000100	TRAFFIC SIGNALIZATION	LS	0.6	0.4		1			
124	2527-9263109	PAINTED PAVEMENT MARKING, WATERBORNE OR SOLVENT-BASED	STA	139.39	326.79		466.18			
125	2527-9263126	PERMANENT TAPE MARKINGS, PROFILED PAVEMENT MARKING TAPE	STA	139.39	326.79		466.18			
126	2527-9263158	PRE-CUT SYMBOLS AND LEGENDS, INTERSECTION MARKING TAPE	EACH	20	34		54			
127	2527-9270111	GROOVES CUT FOR PAVEMENT MARKINGS	STA	139.39	326.79		466.18			
128	2527-9270120	GROOVES CUT FOR SYMBOLS AND LEGENDS	EACH	20	34		54			
129	2528-8445110	TRAFFIC CONTROL	LS	0.5	0.5		1			
130	2528-8445113	FLAGGERS	EACH	20	30		50			
131	2529-5070110	PATCHES, FULL-DEPTH FINISH, BY AREA	SY	290			290			
132	2529-5070120	PATCHES, FULL-DEPTH FINISH, BY COUNT	EACH	4			4			
133	2533-4980005	MOBILIZATION	LS	0.71	0.28	0.01	1			
134	2537-8900500	AMENDED SOIL	CY	296	250		546			
135	2538-6970010	SALVAGE, REMOVAL, AND DISPOSAL OF OBSTRUCTIONS	LS	1			1			
136	2546-1000100	GABIONS OR MATTRESSES	CY	70			70			
137	2549-0006310	RUBBER CHIMNEY SEAL	EACH	3	6		9			
138	2552-0000210	TRENCH FOUNDATION	TON	265			265			
139	2552-0000220	REPLACEMENT OF UNSUITABLE BACKFILL MATERIAL	CY	5000			5000			
140	2554-0112008	WATER MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 8 IN.	LF			645	645			
141	2554-0112016	WATER MAIN, TRENCHED, DUCTILE IRON PIPE (DIP), 16 IN.	LF	2750			2750			
142	2554-0114008	WATER MAIN, TRENCHED, POLYVINYL CHLORIDE PIPE (PVC), 8 IN.	LF			1140	1140			
143	2554-0114016	WATER MAIN, TRENCHED, POLYVINYL CHLORIDE PIPE (PVC), 16 IN.	LF	8			8			
144	2554-0142016	WATER MAIN WITH CASING PIPE, TRENCHLESS, DUCTILE IRON PIPE (DIP), 16 IN.	LF	165			165			
145	2554-0203000	FITTINGS BY WEIGHT, DUCTILE IRON	LB	3590		1281	4871			
146	2554-0207006	VALVE, GATE, DIP, 6 IN.	EACH	2			2			
147	2554-0207008	VALVE, GATE, DIP, 8 IN.	EACH			1	1			
148	2554-0210201	FIRE HYDRANT ASSEMBLY, WM-201	EACH	10		7	17			
149	2554-0212020	VALVE BOX EXTENSION	EACH	1	1		2			
150	2555-0000010	DELIVER AND STOCKPILE SALVAGED MATERIALS	LS	0.5		0.5	1			
151	2595-0000010	RAILROAD INSURANCE PROVISIONS	LS	1			1			
152	2595-0000100	UPRR INSURANCE PROVISIONS	LS	1			1			
153	2595-7400200	REMOVAL OF RAILROAD TRACK	TLF	400	970		1370			
154	2599-9999003	SUBSURFACE RUBBLE REMOVAL	CY	1000	1000		2000			
155	2599-9999005	ADJUST STOP BOX TO NEW GRADE	EACH	1	1		2			
156	2599-9999005	CATHODIC PROTECTION TEST STATION	EACH	0	1	1	2			
157	2599-9999005	CHECK DEPTH OF WATER SERVICE	EACH	0	3		3			
158	2599-9999005	CONCRETE BARRIER WITH TAPERED END, 44 IN.	EACH	4			4			
159	2599-9999005	CONCRETE COLLAR	EACH	1			1			
160	2599-9999005	CONCRETE PLUG	EACH	0	7		7			

ESTIMATED PROJECT QUANTITIES

Division 1: SE 15TH ST TO SE 23RD ST
Division 2: SE 23RD ST TO SE 30TH ST
Division 3: DMWW

Item No.	Item Code	Item	Unit	Quantities						
				Estimated				As Built		
				Division 1	Division 2	Division 3	Total	Division 1	Division 2	Division 3
161	2599-9999005	FIRE HYDRANT ON EXISTING WATER MAIN	EACH			1	1			
162	2599-9999005	FLOWERS, AS PER PLAN	EACH	2739	3131		5870			
163	2599-9999005	HEADWALL, 24 IN.	EACH	1			1			
164	2599-9999005	HEADWALL, 36 IN.	EACH		1		1			
165	2599-9999005	ISOLATION COUPLING, 16 IN.	EACH	1			1			
166	2599-9999005	ISOLATION COUPLING, 8 IN.	EACH			1	1			
167	2599-9999005	LOWER WATER SERVICE	EACH	0	2		2			
168	2599-9999005	MAGNESIUM ANODE, 32 LB	EACH	63		8	71			
169	2599-9999005	MASONRY BENCH	EACH		3		3			
170	2599-9999005	MASONRY PIER	EACH		17		17			
171	2599-9999005	PLANT BULBS	EACH	248	263		511			
172	2599-9999005	PREPARE EXCAVATION FOR TAPPING SLEEVE	EACH			4	4			
173	2599-9999005	RELOCATE CHAIN LINK GATE	EACH	3			3			
174	2599-9999005	REMOVAL OF FIRE HYDRANT ON ABANDONED MAIN	EACH	3		5	8			
175	2599-9999005	REMOVAL OF FIRE HYDRANT ON EXISTING MAIN	EACH			2	2			
176	2599-9999005	SANITARY SEWER, CLASS 4 LINED REINFORCED CONCRETE, 54 IN. x 42 IN. REDUCER	EACH	1			1			
177	2599-9999005	SANITARY SEWER, CLASS 4 LINED REINFORCED CONCRETE, 66 IN. x 54 IN. REDUCER	EACH	1			1			
178	2599-9999005	TAPPING SLEEVE AND VALVE, 48 IN. X 16 IN.	EACH	1			1			
179	2599-9999005	TREE DRAINAGE WELL	EACH	40	39		79			
180	2599-9999005	VALVE GATE, DIP, 16 IN.	EACH	3			3			
181	2599-9999005	WATER SERVICE TRANSFER, 1 IN.	EACH			3	3			
182	2599-9999005	WATER SERVICE TRANSFER, 2 IN.	EACH		2		2			
183	2599-9999005	WATER SERVICE TRANSFER, 4 IN.	EACH		1	1	2			
184	2599-9999005	WATER SERVICE TRANSFER, 6 IN.	EACH			1	1			
185	2599-9999005	WATER SERVICE, 12 IN.	EACH		1		1			
186	2599-9999009	CLASS R-4 NON-REINFORCED CONCRETE ARCH	LF	390			390			
187	2599-9999009	ELECTRICAL CONDUIT, TRENCHED, 4 IN.	LF	280	205		485			
188	2599-9999009	ELECTRICAL CONDUIT, TRENCHED, 6 IN.	LF	340	840		1180			
189	2599-9999009	LIMESTONE EDGER	LF	581	955		1536			
190	2599-9999009	PILE CASING, CMP, 24 IN.	LF	2812			2812			
191	2599-9999009	REMOVAL OF WATER MAIN	LF	230	1400		1630			
192	2599-9999009	REMOVE ABANDONED HP GAS MAIN	LF	0	700		700			
193	2599-9999009	SANITARY SEWER, CLASS 4 LINED REINFORCED CONCRETE, 42 IN.	LF	266			266			
194	2599-9999009	SANITARY SEWER, CLASS 4 LINED REINFORCED CONCRETE, 66 IN.	LF	762			762			
195	2599-9999009	SANITARY SEWER, CLASS 5 LINED REINFORCED CONCRETE, 42 IN.	LF	459			459			
196	2599-9999009	SANITARY SEWER, CLASS 5 LINED REINFORCED CONCRETE, 66 IN.	LF	220			220			
197	2599-9999009	TREE PROTECTION, FENCE	LF	755	1890		2645			
198	2599-9999010	FIRE HYDRANT RELOCATION	LS			1	1			
199	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENT	LS	1			1			
200	2599-9999010	INTERMEDIATE FOUNDATION IMPROVEMENT VERIFICATION TESTING	LS	1			1			
201	2599-9999010	REMOVE AND REPLACE PICKET FENCE	LS		1		1			
202	2599-9999010	REMOVE, SALVAGE, RESET MANHOLE RISER	LS	1			1			
203	2599-9999010	ROADWAY ELECTRICAL	LS	0.47	0.53		1			
204	2599-9999010	ROADWAY LIGHTING	LS	0.48	0.52		1			
205	2599-9999010	STORMWATER POLLUTION PREVENTION PLAN AND MAINTENANCE	LS	0.5	0.5		1			
206	2599-9999010	SURFACE RUBBLE REMOVAL	LS	0.75	0.25		1			
207	2599-9999010	TREE PROTECTION	LS	0.28	0.72		1			
208	2599-9999010	VIDEO INSPECTION OF STORM SEWER	LS	0.5	0.5		1			
209	2599-9999010	WASTEWATER PUMPING	LS	1			1			
210	2599-9999018	P.C. CONCRETE FENCE FOOTING	SY	23	67		90			
211	2599-9999018	P.C. CONCRETE FLUME	SY	104			104			
212	2599-9999018	SIDEWALK, P.C. CONCRETE, REINFORCED, 12 IN.	SY	1618.4			1618.4			
213	2599-9999018	SLOPE PROTECTION, STRAW MAT	SY	58024	17158		75182			
214	2599-9999020	FOUNDATION ROCK	TON	30		20	50			
215	2599-9999020	MACADAM STONE FILL	TON		31241		31241			
216	2599-9999020	SURFACING, ASPHALT MILLINGS	TON	300	0		300			
217	2601-2633100	MOWING	ACRE	144.1	75.4		219.5			
218	2601-2634100	MULCHING	ACRE	32	22		54			
219	2601-2634105	MULCHING, BONDED FIBER MATRIX	ACRE	21.3	11.1		32.4			
220	2601-2636015	NATIVE GRASS SEEDING	ACRE	6.2	3.8		10			
221	2601-2636044	SEEDING AND FERTILIZING (URBAN)	ACRE	21.24	14.5		35.74			
222	2601-2638620	MACADAM STONE SLOPE PROTECTION	SY	600			600			
223	2601-2639010	SODDING	SQ	1100	810		1910			
224	2601-2642120	STABILIZING CROP - SEEDING AND FERTILIZING (URBAN)	ACRE	32	22		54			
225	2601-2643110	WATERING FOR SOD, SPECIAL DITCH CONTROL, OR SLOPE PROTECTION	MGAL	660	486		1146			
226	2602-0000020	SILT FENCE	LF	25130	9620		34750			
227	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	1725	2475		4200			
228	2602-0000060	SILT BASINS	EACH	2			2			
229	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	13428	6000		19428			
230	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	2686	1200		3886			
231	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	1200	600		1800			
232	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	2628	3915		6543			
233	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	410	350		760			
234	2602-0000350	REMOVAL OF PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE	LF	1567	730		2297			
235	2602-0010010	MOBILIZATIONS, EROSION CONTROL	EACH	10	10		20			
236	2602-0010020	MOBILIZATIONS, EMERGENCY EROSION CONTROL	EACH	4	4		8			
237	2610-0000110	SHRUBS	EACH	258	211		469			
238	2610-0000120	TREES	EACH	162	154		316			
239	2610-0000400	WATERING FOR PLANTS	MGAL	210	187		397			
							0			

ESTIMATED PROJECT QUANTITIES

Division 1: SE 15TH ST TO SE 23RD ST
Division 2: SE 23RD ST TO SE 30TH ST
Division 3: DMWW

Item No.	Item Code	Item	Unit	Quantities						
				Estimated				As Built		
				Division 1	Division 2	Division 3	Total	Division 1	Division 2	Division 3

THIS SHEET RESERVED FOR CONSTRUCTION NOTES.

** SEE SHEET C.13 FOR STANDARD ROAD PLANS

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
1	2101-0850001	CLEARING AND GRUBBING CLEAR AND GRUB TREES NECESSARY TO CONSTRUCT THE PROJECT. SEE "I" SHEETS FOR SPECIFIC TREES TO BE SAVED IN THE THE CHESTERFIELD NEIGHBORHOOD. REFER TO GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.
2	2102-0425070	SPECIAL BACKFILL SHALL BE USED AS A BRIDGING LAYER OVER MACADAM STONE FILL IN THE DEANS LAKE AREA. ADDITIONAL QUANTITY MAY BE ADDED TO PROJECT WITH SUBGRADE STABILIZATION MATERIAL IF REQUIRED BY GEOTECHNICAL ENGINEER.
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY & BORROW ROADWAY CONSTRUCTION REQUIRES 320,745 C.Y. OF CUT AND 502,276 C.Y. OF FILL. 181,531 C.Y. TO BE FURNISHED AS BORROW. THE CONTRACTOR IS TO PROVIDE HIS OWN BORROW SITE. COMPACTION WITH MOISTURE AND DENSITY CONTROL WILL WILL BE REQUIRED ON AREAS INSIDE THE TYPICAL SECTION TEMPLATE. SEE CS SHEETS TABULATION 103-1 FOR DETAILS. REFER TO "Q" SHEETS FOR SOIL TYPES AND WATER TABLE ELEVATIONS FOR CUT AREAS. CONTRACTOR SHALL ALSO SPREAD UNSUITABLE PILE (ESTIMATED AT 16,670 CY) TO BE LEFT ON FORMER CARROLL PROPERTY BY SE 9TH - SE 15TH PROJECT. AREAS OUTSIDE THE TYPICAL SECTION TEMPLATE WILL RECEIVE TYPE "A" COMPACTION. THE ESTIMATED EARTHWORK QUANTITIES INCLUDE AN ADDITIONAL 30% TO COMPENSATE FOR SHRINKAGE. NO PAYMENT FOR OVERHAUL SHALL BE MADE ON THIS PROJECT. PAY QUANTITY WILL BE PLAN QUANTITY ADJUSTED FOR OBVIOUS ERRORS, PLAN REVISIONS OR CHANGE ORDERS. MOISTURE SHALL BE APPLIED, AS NECESSARY, TO THE CONSTRUCTION AREA TO PREVENT THE SPREAD OF DUST REFER TO ARTICLE 1107.07 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.
4	2102-2710080	EXCAVATION, CLASS 10, UNSUITABLE OR UNSTABLE MATERIAL UNSUITABLE OR UNSTABLE MATERIAL ENCOUNTERED ON THE PROJECT WILL BE SUBJECT TO MOISTURE AND DENSITY REQUIREMENTS, AND PLACEMENT SHALL FOLLOW STANDARD ROAD PLAN RL-1B, TYPE "A" PLACEMENT. ANY MATERIAL DEEMED UNSUITABLE FOR ROADWAY FILL MAY BE SPREAD OVER THE FORMER CARROLL PROPERTY. CONTRACTOR SHALL CONSULT RESIDENT ENGINEER FOR FINAL PLACEMENT LOCATION. NO ADDITIONAL PAYMENT SHALL BE MADE FOR OVERHAUL.
5	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS REFER TO SHEET Q.54 FOR LOCATION OF GRANULAR CORE-OUT. CORE OUT EXISTING SOILS MIXED WITH CONCRETE SLABS AND BRICK RUBBLE. CONTRACTOR MAY CRUSH CONCRETE AND BRICK RUBBLE AND RE-USE ELSEWHERE ON PROJECT WITH PERMISSION FROM GEOTECHNICAL ENGINEER. CONTRACTOR SHOULD EXPECT TO ENCOUNTER LARGE CONCRETE SLABS WITH THE POSSIBILITY OF STEEL REINFORCEMENT, BRICK, TILE, OR OTHER CEMENT PRODUCTS.
6	2104-2710020	EXCAVATION, CLASS 10, CHANNEL SEE SHEET U.12 FOR MORE INFORMATION
7	2105-8425005	TOPSOIL, FURNISH AND SPREAD QUANTITY OF TOPSOIL REQUIRED HAS BEEN CALCULATED BASED ON 4" THICKNESS OVER ALL FORESLOPES, BACKSLOPES AND DITCH BOTTOMS. 12" THICKNESS OVER AREAS UNDERLAIN BY MSE WALL GRANULAR BACKFILL. SUFFICIENT FIELD MEASUREMENTS WILL BE MADE TO INSURE REASONABLE CONFORMITY WITH SPECIFIED DEPTH OF COVERAGE. CROSS-SECTIONS SHOW FINISHED GROUNDLINE. PAY QUANTITY WILL BE BASED ON CALCULATIONS OF MEASURED AREA COVERED MULTIPLIED BY DEPTH OF COVERAGE. QUANTITY INCLUDES AN ADDITIONAL 40% TO COMPENSATE FOR SHRINKAGE. CONTRACTOR WILL BE PAID CONTRACT UNIT PRICE PER CUBIC YARD FOR MEASURED QUANTITY. THIS PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING AND PLACING TOPSOIL AS DESCRIBED ABOVE. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.
8	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD QUANTITY OF TOPSOIL AVAILABLE ON-SITE HAS BEEN BASED ON AN AVERAGE 4" THICKNESS. PAY QUANTITY WILL BE BASED CALCULATIONS OF MEASURED AREA COVERED MULTIPLIED BY AVERAGE DEPTH OF COVERAGE. CONTRACTOR WILL BE PAID CONTRACT UNIT PRICE PER CUBIC YEARD FOR MEASURED QUANTITY. THIS PAYMENT SHALL BE FULL COMPENSATION FOR STRIPPING, TRANSPORTING, AND PLACING TOPSOIL AS DESCRIBED ABOVE.
9	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS, AND STRUCTURES COMPACT BACKFILL TO ELEVATION OF TOP OF BOX CULVERT
10	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL TO BE PLACED UNDER PAVEMENT TO A THICKNESS OF 12". SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
11	2113-0001100	SUBGRADE STABILIZATION MATERIAL, POLYMER GRID TO BE PLACED IF POCKETS OF POOR SOIL ARE ENCOUNTERED THAT ARE TOO DEEP TO ECONOMICALLY OVER-EXCAVATE. GRID SHALL MEE THE REQUIREMENTS OF SECTION 4196.01, B.05 AND SHALL BE "TRIANGULAR". QUANTITY SHOWN IN ESTIMATED QUANTITIES DOES NOT ACCOUNT FOR OVERLAP. OVERLAP PER MANUFACTURERS RECOMMENDATION IS INCIDENTAL TO THIS ITEM. INSTALLATION OF GRID SHALL BE DETERMINED BY RESIDENT ENGINEER AND GEOTECHNICAL ENGINEER.
12	2115-0100000	MODIFIED SUBBASE TO BE PLACED UNDER ROADWAY PAVEMENT TO A THICKNESS OF 12". SEE TYPICAL SECTIONS FOR ADDITIONAL INFORMATION.
13	2123-7450000	SHOULDER CONTRUCTION, EARTH MEASUREMENT SHALL BE IN STATIONS ALONG THE BACK OF CURB. IT SHALL EXTEND 3 FEET OUT FROM THE CURB AS SHOWN ON THE TYPICAL SECTIONS. DEDUCTION WILL BE MADE FOR DRIVES, SIDEWALKS AND INTERSECTIONS. MATERIAL FOR SHOULDER CONSTRUCTION IS AVAILABLE FROM CLASS 10 EXCAVATION. OVERHAUL WILL NOT BE MEASURED FOR PAYMENT.
14	2213-2713300	EXCAVATION, CLASS 13, FOR WIDENING ROADWAY CONSTRUCITON REQUIRES 400 CY OF EXCAVATION FOR THE WIDENING OF SE 30TH STREET. MATERIALS BY BE USED ELSEWHERE IN PROJECT UPON APPROVAL OF GEOTECHNICAL ENGINEER
15	2213-6745500	REMOVAL OF CURB REFER TO "R", "D", AND "E" SHEETS FOR LOCATIONS OF CURB REMOVAL. REMOVAL MAY BE BY GRINDING OR HORIZONTAL CUT.
16	2213-7100400	RELOCATION OF MAIL BOXES ALL MAIL BOXES IN CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE REMOVED TO A LOCATION APPROVED BY THE LOCAL POSTMASTER AND SHALL BE REINSTALLED AT PROJECT COMPLETION. SEE TABULATION, SHEET C.25. CONTRACTOR WILL BE PAID CONTRACT UNIT PRICE FOR EACH MAILBOX RELOCATED. THIS PAYMENT SHALL BE FULL COMPENSATION FOR RELOCATING AND REINSTALLING MAILBOX, INCLUDING NECESSARY COORDINATION.

100-4A
10-29-02

ESTIMATE REFERENCE INFORMATION

Item No.	Item Code	Description
17	2213-8200000	BASE WIDENING, HOT MIX ASHPALT MIXTURE TO BE USED TO WIDEN SE 30TH ST. AS SHOWN IN PLANS. PLACE ON TOP OF PCC BASE WIDENING TO MATCH EXISTING PAVEMENT SECTION. SAWCUT CLEAN EDGE ON EXISTING ASPHALT PAVEMENT PRIOR TO CONSTRUCTION. SAWCUT & REMOVAL INCIDENTAL.
18	2213-8202080	BASE WIDENING, 8 IN. PORTLAND CEMENT CONCRETE TO BE USED TO WIDEN SE 30TH ST. AS SHOWN IN PLANS AND ON SHEET B.04. MATCH AND DOWEL TO PCC BASE ON EXISTING COMPOSITE PAVEMENT SECTION. MATCH EXISTING JOINTING PATTERN. ALL JOINTS SHOWN ARE INCIDENTAL TO THIS ITEM.
19	2301-0690200	BRIDGE APPROACH, RK-20 REFER TO "K" SHEETS FOR LOCATIONS, AND ROAD STD. RK-20 FOR ADDITIONAL DETAILS.
20	2301-1033080	PAVEMENT, STANDARD OR SLIP-FORM, PORTLAND CEMENT CONCRETE, 8IN, 10IN
21	2301-1033100	SEE TYPICAL SECTIONS, AND GEOMETRIC DETAILS, "K" SHEETS. THE SLUMP, MEASURED IN ACCORDANCE WITH MATERIALS I.M. 317, SHALL NOT BE LESS THAN 1/2 INCH OR MORE THAN 4 INCHES FOR HAND FINISHED PAVEMENT. SLUMP REQUIREMENTS WILL NOT APPLY TO SLIP FORM PAVING. INCLUDES INTEGRAL CURBS WITH MAINTENANCE BORDER. CERTIFIED PLANT INSPECTION IS REQUIRED. PAVEMENT SMOOTHNESS SHALL APPLY. ALL PAVEMENT JOINTS SHALL BE CLEANED AND SEALED. SAWCUT WIDTH SHALL BE AS SHOWN ON IDOT STD. ROAD PLAN PV-101. NOTE 11 ON PV-101 SHALL BE IGNORED. ALL JOINTS SHALL BE CUT AND SEALED.
22	2301-4874106	MEDIAN, DOWELLED PC.C. CONCRETE, 6 INCH REFER TO "D", AND "K" SHEETS FOR LOCATIONS, SHEET B.05 FOR STANDARD DETAIL.
23	2301-6911722	PORTLAND CEMENT CONCRETE PAVEMENT SAMPLES REFER TO STANDARD SPECIFICATION FOR REQUIREMENTS
24	2301-7000110	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR PCC PAVEMENT THICKNESS (BY SCHEDULE)
25	2303-0043500	HOT MIX ASPHALT MIXTURE (3,000,000 ESAL), SURFACE COURSE, 1/2 IN. MIX, NO SPECIAL FRICTION REQUIREMENT 2" OVERLAY TO BE PLACED ON SE 30TH STREET OVER BOTH THE EXISTING PAVEMENT AND THE BASE WIDENING. MILLING NECESSARY TO TIE INTO EXISTING PAVEMENTS SHALL BE INCIDENTAL TO THIS BID ITEM.
26	2303-0245828	ASPHALT BINDER, PG 58-28 FOR USE IN HMA BASE WIDENING OF SE 30TH STREET.
27	2303-0246428	ASPHALT BINDER, PG 64-28 FOR USE IN 2" HMA OVERLAY OF SE 30TH STREET.
27	2303-6911000	HMA PAVEMENT SAMPLES REFER TO STANDARD SPECIFICATION FOR REQUIREMENTS
28	2312-8260051	GRANULAR SURFACING ON ROAD, CLASS A CRUSHED STONE QUANTITY SHALL BE FOR PROVIDING TEMPORARY SURFACEING NECESSARY TO PROVIDE LOCAL ACCESS DURING CONSTRUCTION. SALVAGING, OR DISPOSAL OF MATERIAL AFTER USE IS INCIDENTAL TO THIS ITEM.
29	2316-0000110	PAYMENT ADJUSTMENT INCENTIVE/DISINCENTIVE FOR PCC PAVEMENT SMOOTHNESS (BY SCHEDULE)
30	2402-0425031	GRANULAR BACKFILL PROVIDE AND PLACE GRANULAR BACKFILL BEHIND MSE WALLS PER DETAIL ON SHEET U.21. SEE TABULATION ON SHEET M.01-M.04 AND Q SHEETS FOR STORM LOCATIONS AND QUANTITIES. PROVIDE GRANULAR BACKFILL AROUND STORM SEWER PIPES CROSSING SOUTHEAST CONNECTOR PER TABULATION.
31	2402-2720000	EXCAVATION, CLASS 20 SEE SHEET U.12 FOR MORE INFORMATION
32	2403-0100010	STRUCTURAL CONCRETE (BRIDGE) SEE "V" SHEETS FOR MORE INFORMATION, CERTIFIED PLANT INSPECTION IS REQUIRED
33	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT) SEE SHEET U.11 FOR MORE INFORMATION, CERTIFIED PLANT INSPECTION IS REQUIRED
34	2404-7775000	REINFORCING STEEL SEE "V" SHEETS AND SHEETS U.11 - U.18 FOR MORE INFORMATION
35	2404-7775005	REINFORCING STEEL, EPOXY COATED SEE "V" SHEETS FOR MORE INFORMATION.
36	2405-2705000	EXCAVATE AND DEWATER CONTRACTOR WILL LIKELY ENCOUNTER HIGH GROUND WATER ELEVATIONS THROUGHOUT THE PROJECT. REFER TO SOILS REPORT FOR MEASURED GROUND WATER ELEVATIONS. PAYMENT SHALL BE AT THE LUMP SUM PRICE FOR ALL MATERIALS, WORK, LABOR, AND SERVICES REQUIRED FOR DEWATERING OF THE PROJECT. INCLUDING PARTIALLY DEWATERING THE POND TO BE FILLED WEST OF SE 25TH CT.
37	2407-0550000	BEAMS, PRETENSIONED PRESTRESSED CONCRETE, SBTE140 SEE "V" SHEETS FOR MORE INFORMATION
38	2408-7800000	STRUCTURAL STEEL SEE "V" SHEETS FOR MORE INFORMATION
39	2412-0000100	LONGITUDINAL GROOVING IN CONCRETE LONGITUDINAL GROOVING TO BE COMPLETED ON BRIDGES AND BRIDGE APPROACHES.
40	2414-6424038	CONCRETE BARRIER RAIL, 3 FT. 8 IN. SEE "V" SHEETS FOR MORE INFORMATION

100-18
04-20-10

TABULATION OF SILT FENCES FOR DITCH CHECKS

Refer to EC-201

Location Station	Side	Length (LF)	Remarks
177+00.00	LT	50.0	
178+50.00	LT	50.0	
181+50.00	LT	50.0	
184+85.00	LT	50.0	
187+90.00	LT	50.0	
193+75.00	LT	50.0	
197+75.00	LT	50.0	
200+80.00	LT	50.0	
201+55.00	LT	50.0	
202+95.00	LT	50.0	
203+69.00	LT	50.0	
204+86.00	LT	50.0	
205+61.00	LT	50.0	
206+86.00	LT	50.0	
207+61.00	LT	50.0	
208+36.00	LT	50.0	
209+26.00	LT	50.0	
217+30.00	LT	50.0	
218+05.00	LT	50.0	
219+53.00	LT	50.0	
220+27.00	LT	50.0	
221+75.00	LT	50.0	
222+50.00	LT	50.0	
224+24.00	LT	50.0	
224+99.00	LT	50.0	
225+74.00	LT	50.0	
226+49.00	LT	50.0	
228+00.00	LT	50.0	
228+75.00	LT	50.0	
229+50.00	LT	50.0	
230+25.00	LT	50.0	
231+00.00	LT	50.0	
232+50.00	LT	50.0	
233+25.00	LT	50.0	
234+00.00	LT	50.0	
234+75.00	LT	50.0	
235+50.00	LT	50.0	
236+25.00	LT	50.0	
237+01.00	LT	50.0	
237+77.00	LT	50.0	
238+54.00	LT	50.0	
239+30.00	LT	50.0	
240+05.00	LT	50.0	
243+60.00	LT	50.0	
245+10.00	LT	50.0	
250+10.00	LT	50.0	
255+10.00	LT	50.0	
256+60.00	LT	50.0	
258+95.00	LT	50.0	
260+45.00	LT	50.0	
261+95.00	LT	50.0	
263+45.00	LT	50.0	
266+52.00	LT	50.0	
268+03.00	LT	50.0	
269+55.00	LT	50.0	
271+08.00	LT	50.0	

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location: Begin Station	Location: End Station	Location: Side	Length (LF)	Remarks
171+00.00	184+40.00	LT	1570.0	ELEVATION 15 CONTOUR
171+37.00	174+04.00	LT	600.0	ELEVATION 3 CONTOUR
171+40.00	188+00.00	RT	1660.0	
181+95.00	185+07.00	LT	940.0	ELEVATION 8 CONTOUR
184+57.00	189+64.00	LT	700.0	NORTH PERIMETER
190+90.00	202+47.00	RT	1400.0	SOUTH PERIMETER
190+90.00	202+90.00	LT	1440.0	NORTH PERIMETER
210+66.00	214+18.00	LT	370.0	ELEVATION 21 CONTOUR
210+72.00	214+30.00	LT	380.0	ELEVATION 27 CONTOUR
210+75.00	213+81.00	LT	400.0	NORTH PERIMETER
210+84.00	214+61.00	LT	395.0	ELEVATION 38 CONTOUR
210+91.00	214+73.00	LT	390.0	ELEVATION 50 CONTOUR
211+28.00	214+87.00	RT	355.0	ELEVATION 50 CONTOUR
211+35.00	214+88.00	RT	345.0	ELEVATION 38 CONTOUR
211+48.00	214+90.00	RT	330.0	ELEVATION 26 CONTOUR
211+56.00	215+00.00	RT	400.0	SOUTH PERIMETER
216+01.00	224+92.00	LT	930.0	ELEVATION 20 CONTOUR
216+08.00	221+86.00	LT	600.0	ELEVATION 30 CONTOUR
216+12.00	219+81.00	LT	440.0	NORTH PERIMETER
216+13.00	219+02.00	LT	300.0	ELEVATION 39 CONTOUR
216+29.00	218+87.00	RT	250.0	ELEVATION 40 CONTOUR
216+31.00	221+71.00	RT	525.0	ELEVATION 30 CONTOUR
216+36.00	221+41.00	RT	485.0	ELEVATION 20 CONTOUR
217+12.00	221+53.00	RT	975.0	ELEVATION 9 CONTOUR
223+64.00	240+33.00	RT	4415.0	DEANS LAKE PERIMETER
227+65.00	230+95.00	LT	245.0	ELEVATION 10 CONTOUR
228+17.00	232+90.00	LT	475.0	ELEVATION 16 CONTOUR
235+43.00	238+02.00	LT	380.0	ELEVATION 16 CONTOUR
236+39.00	237+02.00	LT	60.0	ELEVATION 15 CONTOUR
242+09.00	246+92.00	LT	620.0	NORTH PERIMETER
247+70.00	253+70.00	LT	720.0	NORTH PERIMETER
254+65.00	257+52.00	LT	380.0	NORTH PERIMETER
1808+75.00	1810+30.00	RT	170.0	EAST PERIMETER
1809+41.00	1810+84.00	LT	855.0	WEST PERIMETER
1810+73.00	1811+68.00	RT	100.0	EAST PERIMETER
1811+86.00	1813+51.00	LT	170.0	WEST PERIMETER
1811+93.00	1813+34.00	RT	160.0	EAST PERIMETER
2300+71.00	2306+03.00	LT	600.0	WEST PERIMETER
2306+50.00	2312+91.00	LT	750.0	WEST PERIMETER
2306+94.00	2311+97.00	RT	550.0	ELEVATION 14 CONTOUR
2309+10.00	2314+15.00	LT	570.0	ELEVATION 17 CONTOUR
2508+05.00	2511+39.00	LT	400.0	NORTH PERIMETER

100-11
08-01-08

TABULATION OF EROSION CONTROL DETAILS

Location: Begin Station	Location: End Station	Over-Seeding and Fertilizing (ACRE)	Seeding and Fertilizing (ACRE)	Mulching (ACRE)	Special Ditch Control: Wood Excelsior Mat (SQ)	Special Ditch Control: Straw Mat (SY)	Sod (SQ)	Crown-Vetch Seeding (ACRE)	Seeding Special Areas (ACRE)	Ditch Reshaping (STA)	Mowing (ACRE)
173+75.00	174+50.00					545.3					
181+50.00	186+15.00					4488.1					
193+50.00	197+85.00					1149.7					
193+50.00	198+85.00					1266.7					
199+50.00	202+50.00					696.0					
210+60.00	214+80.00					6086.0					
211+20.00	214+85.00					5420.1					
216+10.00	223+50.00					7598.6					
216+20.00	221+75.00					16288.6					
222+75.00	230+43.00					14484.8					
223+50.00	226+30.00					1072.4					
225+00.00	227+75.00					710.0					
227+50.00	228+00.00					142.0					
228+00.00	232+71.00					2228.3					
230+43.00	241+00.00					13004.9					

100-14
04-20-10

TABULATION OF SILT BASINS

Refer to RL-9

Location Station	Side	Remarks
172+50	LT	CONSTRUCT SILT BASIN IN BOTTOM OF DETENTION

100-10
10-18-11

FLOATING SILT CURTAINS

Refer to EC-202

Station	Hanging (LF)	Containment (LF)	Clean-out (Containment) (LF)	Remarks
232+00.00	1800.0			Deans Lake

100-23
10-19-10

ROCK DITCH CHECKS/DITCHES/FLUMES/SPLASH BASINS/SLOPE PROTECTION

Refer to Typicals 4401, 4402, 4403, 4404, and 4405

* Design shown for mandatory locations is the minimum allowed.

Location: Road Identification	Location: Station	Location: Side (Lt./Rt.)	Location: Mandatory* Location (yes or no)	Type: Rock Ditch Check	Type: Rock Ditch	Type: Rock Flume	Type: Rock Splash Basin	Type: Rock Slope Protection		L (FT)	W (FT)	Material: Erosion Stone (TON)	Material: Class E Revetment (TON)	Material: Eng. Fabric (SY)	Remarks
SEC	171+70.00	Lt.	Yes	1						4.0	44.2		20.2	20.0	
SEC	173+97.00	Lt.	Yes				1			12.0	11.9		7.8	7.9	
SEC	182+00.00	Lt.	Yes				1			25.4	14.0		32.3	32.7	
SEC	182+66.00	Lt.	Yes				1			12.0	11.9		7.8	7.9	
SEC	185+00.00	Lt.	Yes				1			20.0	21.0		19.4	19.6	
SEC	227+60.00	Lt.	Yes					1					230.1	274.0	See Sheet T.06
SEC	236+19.00	Rt.	Yes				1			22.5	23.9		30.8	31.1	
SE 23RD ST.	2305+20.00	Rt.	Yes				1			20.0	18.9		20.1	20.3	
SE 25TH CT.	2503+03.00	Lt.	Yes				1			14.7	17.7		14.7	14.9	

102-3
04-16-13

ACCESS POINTS AND SAFETY RAMPS

Refer to Cross-Sections

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.
(1) Refer to MI-210
(2) Refer to RL-8.
(3) Refer to RL-7 or RL-8.
*Predetermined for access point not constructed with this project.

Location		Type	Length of Opening (1)			W	PR (1)(2)	SR (2)	Pipe Culvert (3)					Aprons	Driveway Surface Area		Driveway Surfacing Material	Remarks
Station	Side	A, B, C, Safety Ramp, or Predetermined*	Case	1½" Dropped Curb	3" Dropped Curb				H	Size	Pipe Length	Lt.	Rt.		HMA	PCC		
			1 or 2	LF	LF	FT	FT	FT	FT	IN	LF	LF	LF	No.	SY	SY	TON	
1802+88.18	RT			54.7		31.0	15.0									68.5		
1803+89.32	LT			155.7		127.6	10&15									277.5		
1804+53.63	RT			53.0		29.0	15.0									61.5		
1804+97.68	LT			51.0		16.0	15&20									78.0		
1805+21.48	RT			54.0		31.0	15.0									60.5		
1806+51.88	LT			57.0		40.0	15&10									142.5		
1810+48.19	RT			59.7		38.0	12&15									111.5		
1810+92.51	LT			46.0		19.0	12&15									45.0		
1811+70.61	LT			53.0		25.0	15.0									66.0		
1811+79.82	RT			48.0		27.0	12.0									43.5		
2302+38.70	LT			54.0		24.0	15.0									63.0		
247+73.50	LT			16.6		12.0										18.0		
258+34.54	RT			16.0		10.0										14.0		
258+00.05	LT			15.0		10.0										15.0		
245+94.31	LT			16.1		9.5										41.5		26TH CT & SCOTT AVE
3010+96.34	LT			36.0		10.0	10.0									22.5		SE 30TH ST
8+06.83	RT			56.5		41.0										51.0		MAURY STREET

100-28
10-19-10

LONGITUDINAL GROOVING

Location	Total	Remarks
	SY	
210+43.90	521.0	WEST BRIDGE
27' RT.		
215+49.98	521.0	EAST BRIDGE
27' RT.		
210+43.90	207.0	WEST BRIDGE, WEST APPROACH PAVEMENT
27' RT.		(PAYMENT INCLUDED WITH APPROACH PAVE.)
210+43.90	207.0	WEST BRIDGE, EAST APPROACH PAVEMENT
27' RT.		(PAYMENT INCLUDED WITH APPROACH PAVE.)
215+49.98	214.0	EAST BRIDGE, WEST APPROACH PAVEMENT
27' RT.		(PAYMENT INCLUDED WITH APPROACH PAVE.)
215+49.98	212.0	EAST BRIDGE, EAST APPROACH PAVEMENT
27' RT.		(PAYMENT INCLUDED WITH APPROACH PAVE.)

100-7
10-16-12

FENCING

* Bid Item

Refer to MI-101, MI-102, MI-103, MI-104, 510-3, and 510-5

Location From Station	Location From Offset	Location To Station	Location To Offset	Side	Chain Link Fence Length*	Chain Link Fence Type	Chain Link Gate No.*	Chain Link Gate Type	Deer Fence Length*	Deer Brace Panels*	Deer Gate No.*	Deer Gate Type	Field Fence Length*	Field Brace Panels*	Field Gate No.*	Field Gate Type	Channel Crossing Length*	Channel Crossing Type	Remarks
					LF		EACH		LF	EACH	EACH		LF	EACH	EACH		LF		
1802+11.00	39.4	1804+74.04	39.9	RT	282.0	72 IN.													VINYL COATED
188+03.97	76.0	189+51.13	76.0	RT	147.2	48 IN.													VINYL COATED, ON SPREAD FOOTING
202+50.50		209+44.73		LT	694.2	72 IN.													VINYL COATED, ON MSE WALL
202+50.50		209+72.98		RT	722.5	72 IN.													VINYL COATED, ON MSE WALL
209+73.98		211+36.98		RT	163.0	96 IN.													VINYL COATED, ON UPRR BRIDGE
214+66.00		216+39.55		RT	173.5	96 IN.													VINYL COATED, ON NSRR BRIDGE
508+64.78		509+47.87		LT	86.1	72 IN.													VINYL COATED, ON MSE WALL
601+04.67		602+79.53		LT	177.9	72 IN.													VINYL COATED, ON MSE WALL
603+33.63		604+76.20		RT	145.6	72 IN.													VINYL COATED, ON MSE WALL
700+99.40		702+40.16		RT	143.8	72 IN.													VINYL COATED, ON MSE WALL
702+92.83		705+66.08		LT	276.3	72 IN.													VINYL COATED, ON MSE WALL
801+09.33		802+97.15		LT	190.8	72 IN.													VINYL COATED, ON MSE WALL
803+50.00		804+80.23		RT	133.2	72 IN.													VINYL COATED, ON MSE WALL
228+43.00				RT	53.0	72 IN.													VINYL COATED, ON WALL, RCB CULVERT
228+43.00				LT	53.0	72 IN.													VINYL COATED, ON WALL, RCB CULVERT
247+50.42	97.3	252+53.06	88.7	LT	503.1	48 IN.													VINYL COATED
259+85.61	56.0	260+30.93	59.0	RT	45.0	72 IN.													VINYL COATED
260+30.93	59.0	264+30.94	59.6	RT	400.0	72 IN.													VINYL COATED, ON SPREAD FOOTING
264+30.94	59.6	266+15.89	135.0	RT	225.0	72 IN.													VINYL COATED
250+83.59	63.0	251+09.57	62.0	RT	26.0	42 IN.													PICKET FENCE
251+20.62	90.2	251+22.62	111.3	RT	26.3	42 IN.													PICKET FENCE

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location Station to Station		Lane	Depth FT	Compact CY	Remarks
171+29.35	171+50.00	Both	1.0	98.9	
171+50.00	171+75.00	Both	1.0	105.6	
171+75.00	172+00.00	Both	1.0	81.8	
172+00.00	172+25.00	Both	1.0	108.4	
172+25.00	172+50.00	Both	1.0	136.3	
172+50.00	172+75.00	Both	1.0	152.2	
172+75.00	173+00.00	Both	1.0	158.4	
173+00.00	173+25.00	Both	1.0	163.3	
173+25.00	173+50.00	Both	1.0	163.0	
173+50.00	173+75.00	Both	1.0	184.2	
173+75.00	174+00.00	Both	1.0	159.8	
174+00.00	174+25.00	Both	1.0	147.0	
174+25.00	174+50.00	Both	1.0	128.0	
174+50.00	174+75.00	Both	1.0	116.0	
174+75.00	175+00.00	Both	1.0	98.4	
175+00.00	175+25.00	Both	1.0	88.4	
175+25.00	175+50.00	Both	1.0	143.1	
175+50.00	175+75.00	Both	1.0	213.9	
175+75.00	176+00.00	Both	1.3	244.2	
176+00.00	176+25.00	Both	1.7	262.5	
176+25.00	176+50.00	Both	1.6	266.4	
176+50.00	176+75.00	Both	1.4	258.5	
176+75.00	177+00.00	Both	1.7	237.6	
177+00.00	177+25.00	Both	1.9	222.9	
177+25.00	177+50.00	Both	2.0	229.3	
177+50.00	177+75.00	Both	1.9	220.5	
177+75.00	178+00.00	Both	1.7	198.2	
178+00.00	178+25.00	Both	1.5	181.5	
178+25.00	178+50.00	Both	1.1	166.8	
178+50.00	178+75.00	Both	1.1	160.8	
178+75.00	179+00.00	Both	1.2	168.0	
179+00.00	179+25.00	Both	1.0	160.9	
179+25.00	179+50.00	Both	1.0	141.3	
179+50.00	179+75.00	Both	1.0	127.2	
179+75.00	180+00.00	Both	1.0	119.2	
180+00.00	180+25.00	Both	1.0	136.0	
180+25.00	180+50.00	Both	1.2	156.6	
180+50.00	180+75.00	Both	2.0	164.9	
180+75.00	181+00.00	Both	1.2	172.5	
181+00.00	181+25.00	Both	1.0	163.9	
181+25.00	181+50.00	Both	1.0	112.2	
181+50.00	181+75.00	Both	1.0	53.0	
181+75.00	182+00.00	Both	1.0	41.4	
182+00.00	182+25.00	Both	1.0	38.4	
182+25.00	182+50.00	Both	1.0	38.0	
182+50.00	182+75.00	Both	1.0	38.1	
182+75.00	183+00.00	Both	1.0	40.5	
183+00.00	183+25.00	Both	3.3	131.3	
183+25.00	183+50.00	Both	5.6	357.5	
183+50.00	183+75.00	Both	5.4	437.5	
183+75.00	184+00.00	Both	3.1	303.8	
184+00.00	184+25.00	Both	1.3	172.0	
184+25.00	184+50.00	Both	1.0	99.0	
184+50.00	184+75.00	Both	1.0	71.3	
184+75.00	185+00.00	Both	1.0	60.3	
185+00.00	185+25.00	Both	1.0	64.5	
185+25.00	185+50.00	Both	1.0	61.2	
185+50.00	185+75.00	Both	1.1	67.9	
185+75.00	186+00.00	Both	1.0	63.0	
186+00.00	186+25.00	Both	1.0	40.6	
186+25.00	186+50.00	Both	1.0	38.0	
186+50.00	186+75.00	Both	1.0	38.0	
186+75.00	187+00.00	Both	1.0	38.6	
187+00.00	187+25.00	Both	1.0	50.8	
187+25.00	187+50.00	Both	1.0	65.2	
187+50.00	187+75.00	Both	1.0	73.6	
187+75.00	188+00.00	Both	1.0	97.4	
188+00.00	188+25.00	Both	1.3	146.7	
188+25.00	188+50.00	Both	2.2	193.1	
188+50.00	188+75.00	Both	2.8	217.1	
188+75.00	189+00.00	Both	3.3	251.5	
189+00.00	189+25.00	Both	3.8	287.7	
189+25.00	189+50.00	Both	4.2	321.7	
189+50.00	189+75.00	Both	2.5	214.6	
189+75.00	190+00.00	Both	1.0	120.0	
190+00.00	190+25.00	Both	1.1	120.0	
190+25.00	190+50.00	Both	2.8	7.2	
190+50.00	190+75.00	Both	2.8	93.5	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location Station to Station		Lane	Depth FT	Compact CY	Remarks
190+75.00	191+00.00	Both	2.7	178.2	
191+00.00	191+25.00	Both	2.5	176.9	
191+25.00	191+50.00	Both	2.2	186.1	
191+50.00	191+75.00	Both	1.8	175.2	
191+75.00	192+00.00	Both	1.7	159.8	
192+00.00	192+25.00	Both	1.6	154.1	
192+25.00	192+50.00	Both	1.5	156.8	
192+50.00	192+75.00	Both	1.7	167.9	
192+75.00	193+00.00	Both	2.0	172.9	
193+00.00	193+25.00	Both	2.5	187.5	
193+25.00	193+50.00	Both	3.0	235.7	
193+50.00	193+75.00	Both	3.5	304.6	
193+75.00	194+00.00	Both	3.9	369.8	
194+00.00	194+25.00	Both	4.4	441.8	
194+25.00	194+50.00	Both	5.0	515.2	
194+50.00	194+75.00	Both	5.5	586.7	
194+75.00	195+00.00	Both	6.0	659.0	
195+00.00	195+25.00	Both	6.3	722.1	
195+25.00	195+50.00	Both	6.5	762.4	
195+50.00	195+75.00	Both	6.6	789.5	
195+75.00	196+00.00	Both	6.5	842.6	
196+00.00	196+25.00	Both	6.2	866.0	
196+25.00	196+50.00	Both	6.5	846.5	
196+50.00	196+75.00	Both	6.4	847.9	
196+75.00	197+00.00	Both	6.0	818.2	
197+00.00	197+25.00	Both	5.7	753.5	
197+25.00	197+50.00	Both	5.4	697.0	
197+50.00	197+75.00	Both	5.0	637.1	
197+75.00	198+00.00	Both	4.4	560.8	
198+00.00	198+25.00	Both	3.7	481.3	
198+25.00	198+50.00	Both	3.2	424.5	
198+50.00	198+75.00	Both	2.8	381.3	
198+75.00	199+00.00	Both	3.0	344.9	
199+00.00	199+25.00	Both	2.7	329.3	
199+25.00	199+50.00	Both	2.8	321.1	
199+50.00	199+75.00	Both	2.9	320.0	
199+75.00	200+00.00	Both	3.1	329.6	
200+00.00	200+25.00	Both	3.4	351.8	
200+25.00	200+50.00	Both	3.7	368.6	
200+50.00	200+75.00	Both	4.0	385.6	
200+75.00	201+00.00	Both	4.5	421.5	
201+00.00	201+25.00	Both	4.8	457.9	
201+25.00	201+50.00	Both	5.5	508.1	
201+50.00	201+75.00	Both	6.0	593.5	
201+75.00	202+00.00	Both	7.1	690.7	
202+00.00	202+25.00	Both	5.2	693.7	
202+25.00	202+50.00	Both	5.8	595.4	
202+50.00	202+75.00	Both	6.9	626.4	
202+75.00	203+00.00	Both	7.4	705.3	
203+00.00	203+25.00	Both	8.1	728.5	
203+25.00	203+50.00	Both	8.8	801.4	
203+50.00	203+75.00	Both	9.7	911.2	
203+75.00	204+00.00	Both	10.8	1030.2	
204+00.00	204+25.00	Both	12.1	1157.6	
204+25.00	204+50.00	Both	13.6	1301.5	
204+50.00	204+75.00	Both	14.5	1447.5	
204+75.00	205+00.00	Both	15.7	1586.4	
205+00.00	205+25.00	Both	16.8	1719.1	
205+25.00	205+50.00	Both	17.8	1833.8	
205+50.00	205+75.00	Both	18.0	1924.0	
205+75.00	206+00.00	Both	18.2	1980.3	
206+00.00	206+25.00	Both	19.8	2085.4	
206+25.00	206+50.00	Both	20.6	2222.7	
206+50.00	206+75.00	Both	21.4	2312.4	
206+75.00	207+00.00	Both	22.6	2421.0	
207+00.00	207+25.00	Both	23.8	2554.4	
207+25.00	207+50.00	Both	24.8	2676.4	
207+50.00	207+75.00	Both	25.3	2766.0	
207+75.00	208+00.00	Both	26.3	2857.8	
208+00.00	208+25.00	Both	27.1	2954.7	
208+25.00	208+50.00	Both	27.8	3035.1	
208+50.00	208+75.00	Both	28.4	3113.1	
208+75.00	209+00.00	Both	29.0	3178.8	
209+00.00	209+25.00	Both	30.5	3302.4	
209+25.00	209+50.00	Both	32.8	3504.4	
209+50.00	209+75.00	Both	31.9	3607.2	
209+75.00	210+00.00	Both	35.5	1801.5	
210+00.00	210+25.00	Both	32.2	0.0	
210+25.00	210+50.00	Both	33.1	0.0	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
210+50.00	210+75.00	Both	37.0	0.0	
210+75.00	211+00.00	Both	31.6	2706.8	
211+00.00	211+25.00	Both	32.0	6503.0	
211+25.00	211+50.00	Both	32.4	7668.5	
211+50.00	211+75.00	Both	32.6	7770.4	
211+75.00	212+00.00	Both	32.9	7841.3	
212+00.00	212+25.00	Both	33.2	7927.3	
212+25.00	212+50.00	Both	33.6	8016.9	
212+50.00	212+75.00	Both	33.9	8109.5	
212+75.00	213+00.00	Both	33.9	8168.4	
213+00.00	213+25.00	Both	33.7	8190.8	
213+25.00	213+50.00	Both	33.5	8197.7	
213+50.00	213+75.00	Both	33.2	8182.4	
213+75.00	214+00.00	Both	33.2	8429.9	
214+00.00	214+25.00	Both	35.6	9055.2	
214+25.00	214+50.00	Both	39.0	9707.8	
214+50.00	214+75.00	Both	38.2	9877.4	
214+75.00	215+00.00	Both	38.1	4878.8	
215+00.00	215+25.00	Both	36.3	0.0	
215+25.00	215+50.00	Both	31.3	0.0	
215+50.00	215+75.00	Both	36.9	0.0	
215+75.00	216+00.00	Both	36.0	0.0	
216+00.00	216+25.00	Both	33.9	8626.3	
216+25.00	216+50.00	Both	32.8	8106.1	
216+50.00	216+75.00	Both	29.2	7334.8	
216+75.00	217+00.00	Both	26.8	6489.1	
217+00.00	217+25.00	Both	22.6	5820.9	
217+25.00	217+50.00	Both	22.7	5483.5	
217+50.00	217+75.00	Both	23.7	5347.1	
217+75.00	218+00.00	Both	23.9	5066.0	
218+00.00	218+25.00	Both	22.1	4669.3	
218+25.00	218+50.00	Both	20.7	4269.4	
218+50.00	218+75.00	Both	19.7	3966.6	
218+75.00	219+00.00	Both	19.0	3776.9	
219+00.00	219+25.00	Both	18.0	3586.0	
219+25.00	219+50.00	Both	17.1	3353.9	
219+50.00	219+75.00	Both	16.1	3137.3	
219+75.00	220+00.00	Both	15.3	2933.5	
220+00.00	220+25.00	Both	14.6	2733.4	
220+25.00	220+50.00	Both	14.9	2542.3	
220+50.00	220+75.00	Both	13.4	2378.3	
220+75.00	221+00.00	Both	12.7	2217.8	
221+00.00	221+25.00	Both	11.7	2081.8	
221+25.00	221+50.00	Both	10.8	1906.2	
221+50.00	221+75.00	Both	10.4	1662.0	
221+75.00	222+00.00	Both	9.3	1571.0	
222+00.00	222+25.00	Both	8.3	1331.7	
222+25.00	222+50.00	Both	7.6	1053.3	
222+50.00	222+75.00	Both	6.6	985.7	
222+75.00	223+00.00	Both	5.5	859.2	
223+00.00	223+25.00	Both	4.6	707.6	
223+25.00	223+50.00	Both	4.0	627.3	
223+50.00	223+75.00	Both	3.0	550.6	
223+75.00	224+00.00	Both	2.1	434.1	
224+00.00	224+25.00	Both	1.5	393.3	
224+25.00	224+50.00	Both	1.0	377.8	
224+50.00	224+75.00	Both	1.0	331.3	
224+75.00	225+00.00	Both	1.0	286.0	
225+00.00	225+25.00	Both	1.0	247.5	
225+25.00	225+50.00	Both	1.0	218.5	
225+50.00	225+75.00	Both	1.0	204.7	
225+75.00	226+00.00	Both	1.0	199.6	
226+00.00	226+25.00	Both	1.0	187.7	
226+25.00	226+50.00	Both	1.0	168.1	
226+50.00	226+75.00	Both	1.0	143.1	
226+75.00	227+00.00	Both	1.0	148.6	
227+00.00	227+25.00	Both	1.0	169.0	
227+25.00	227+50.00	Both	1.0	182.8	
227+50.00	227+75.00	Both	1.0	200.4	
227+75.00	228+00.00	Both	2.2	241.1	
228+00.00	228+25.00	Both	2.6	286.4	
228+25.00	228+50.00	Both	2.8	333.6	
228+50.00	228+75.00	Both	3.0	393.4	
228+75.00	229+00.00	Both	3.9	518.1	
229+00.00	229+25.00	Both	5.5	721.3	
229+25.00	229+50.00	Both	7.1	898.6	
229+50.00	229+75.00	Both	6.5	985.7	
229+75.00	230+00.00	Both	6.4	1020.1	
230+00.00	230+25.00	Both	7.2	1172.9	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
230+25.00	230+50.00	Both	12.3	1562.4	
230+50.00	230+75.00	Both	13.1	1811.6	
230+75.00	231+00.00	Both	13.9	1832.8	
231+00.00	231+25.00	Both	14.7	1836.5	
231+25.00	231+50.00	Both	14.9	1865.1	
231+50.00	231+75.00	Both	13.9	1825.8	
231+75.00	232+00.00	Both	11.3	1547.7	
232+00.00	232+25.00	Both	5.0	1195.8	
232+25.00	232+50.00	Both	4.5	1066.5	
232+50.00	232+75.00	Both	3.9	954.7	
232+75.00	233+00.00	Both	3.2	627.6	
233+00.00	233+25.00	Both	2.6	566.1	
233+25.00	233+50.00	Both	3.5	801.9	
233+50.00	233+75.00	Both	10.0	1113.5	
233+75.00	234+00.00	Both	9.6	1484.8	
234+00.00	234+25.00	Both	9.2	1684.5	
234+25.00	234+50.00	Both	8.7	1713.5	
234+50.00	234+75.00	Both	9.6	1783.2	
234+75.00	235+00.00	Both	9.9	1850.4	
235+00.00	235+25.00	Both	11.7	1988.6	
235+25.00	235+50.00	Both	14.6	2338.2	
235+50.00	235+75.00	Both	16.5	2681.5	
235+75.00	236+00.00	Both	16.6	2759.8	
236+00.00	236+25.00	Both	16.6	2707.5	
236+25.00	236+50.00	Both	16.1	2655.2	
236+50.00	236+75.00	Both	15.4	2676.4	
236+75.00	237+00.00	Both	15.7	2683.1	
237+00.00	237+25.00	Both	16.2	2694.2	
237+25.00	237+50.00	Both	16.7	2797.5	
237+50.00	237+75.00	Both	17.0	2873.7	
237+75.00	238+00.00	Both	17.1	2919.0	
238+00.00	238+25.00	Both	17.4	2957.5	
238+25.00	238+50.00	Both	17.5	2999.1	
238+50.00	238+75.00	Both	17.4	3022.6	
238+75.00	239+00.00	Both	17.4	3041.3	
239+00.00	239+25.00	Both	17.1	2984.8	
239+25.00	239+50.00	Both	16.6	2848.8	
239+50.00	239+75.00	Both	16.3	2733.1	
239+75.00	240+00.00	Both	14.9	2537.0	
240+00.00	240+25.00	Both	7.7	1850.7	
240+25.00	240+50.00	Both	1.0	787.0	
240+50.00	240+75.00	Both	1.0	192.0	
240+75.00	241+00.00	Both	1.0	120.0	
241+00.00	241+25.00	Both	1.0	120.0	
241+25.00	241+50.00	Both	1.0	120.0	
241+50.00	241+75.00	Both	1.0	120.0	
241+75.00	242+00.00	Both	1.0	60.0	
242+00.00	242+25.00	Both	1.0	60.0	
242+25.00	242+50.00	Both	1.0	60.0	
242+50.00	242+75.00	Both	1.0	66.1	
242+75.00	243+00.00	Both	1.0	91.7	
243+00.00	243+25.00	Both	1.0	125.4	
243+25.00	243+50.00	Both	1.0	145.1	
243+50.00	243+75.00	Both	1.0	162.3	
243+75.00	244+00.00	Both	1.0	171.7	
244+00.00	244+25.00	Both	1.1	151.3	
244+25.00	244+50.00	Both	1.2	125.2	
244+50.00	244+75.00	Both	1.3	128.5	
244+75.00	245+00.00	Both	1.1	129.0	
245+00.00	245+25.00	Both	1.2	125.3	
245+25.00	245+50.00	Both	1.0	107.5	
245+50.00	245+75.00	Both	1.0	94.9	
245+75.00	246+00.00	Both	1.0	85.7	
246+00.00	246+25.00	Both	1.0	72.5	
246+25.00	246+50.00	Both	1.0	56.6	
246+50.00	246+75.00	Both	1.0	51.9	
246+75.00	247+00.00	Both	1.0	44.1	
247+00.00	247+25.00	Both	1.0	38.6	
247+25.00	247+50.00	Both	1.0	38.2	
247+50.00	247+75.00	Both	1.0	38.1	
247+75.00	248+00.00	Both	1.0	38.0	
248+00.00	248+25.00	Both	1.0	38.0	
248+25.00	248+50.00	Both	1.0	38.0	
248+50.00	248+75.00	Both	1.0	38.0	
248+75.00	249+00.00	Both	1.0	38.0	
249+00.00	249+25.00	Both	1.0	38.0	
249+25.00	249+50.00	Both	1.0	38.0	
249+50.00	249+75.00	Both	1.0	38.0	
249+75.00	250+00.00	Both	1.0	38.0	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
250+00.00	250+25.00	Both	1.0	38.0	
250+25.00	250+50.00	Both	1.0	38.0	
250+50.00	250+75.00	Both	1.0	38.6	
250+75.00	251+00.00	Both	1.0	38.6	
251+00.00	251+25.00	Both	1.0	38.0	
251+25.00	251+50.00	Both	1.0	38.0	
251+50.00	251+75.00	Both	1.0	38.0	
251+75.00	252+00.00	Both	1.0	38.0	
252+00.00	252+25.00	Both	1.0	38.0	
252+25.00	252+50.00	Both	1.0	38.0	
252+50.00	252+75.00	Both	1.0	38.0	
252+75.00	253+00.00	Both	1.0	38.0	
253+00.00	253+25.00	Both	1.0	38.0	
253+25.00	253+50.00	Both	1.0	38.0	
253+50.00	253+75.00	Both	1.0	38.0	
253+75.00	254+00.00	Both	1.0	39.3	
254+00.00	254+25.00	Both	1.0	39.3	
254+25.00	254+50.00	Both	1.0	38.0	
254+50.00	254+75.00	Both	1.0	38.0	
254+75.00	255+00.00	Both	1.0	38.0	
255+00.00	255+25.00	Both	1.0	44.6	
255+25.00	255+50.00	Both	1.0	52.7	
255+50.00	255+75.00	Both	1.0	55.9	
255+75.00	256+00.00	Both	1.0	56.3	
256+00.00	256+25.00	Both	1.0	54.9	
256+25.00	256+50.00	Both	1.0	57.5	
256+50.00	256+75.00	Both	1.0	60.5	
256+75.00	257+00.00	Both	1.0	61.2	
257+00.00	257+25.00	Both	1.0	62.3	
257+25.00	257+50.00	Both	1.0	55.9	
257+50.00	257+75.00	Both	1.0	55.8	
257+75.00	258+00.00	Both	1.0	51.3	
258+00.00	258+25.00	Both	1.0	40.5	
258+25.00	258+50.00	Both	1.0	41.6	
258+50.00	258+75.00	Both	1.0	46.1	
258+75.00	259+00.00	Both	1.0	53.2	
259+00.00	259+25.00	Both	1.0	56.1	
259+25.00	259+50.00	Both	1.0	53.6	
259+50.00	259+75.00	Both	1.0	48.6	
259+75.00	260+00.00	Both	1.0	44.0	
260+00.00	260+25.00	Both	1.0	45.5	
260+25.00	260+50.00	Both	1.0	121.4	
260+50.00	260+75.00	Both	1.0	206.4	
260+75.00	261+00.00	Both	1.0	227.3	
261+00.00	261+25.00	Both	1.0	237.8	
261+25.00	261+50.00	Both	1.0	236.1	
261+50.00	261+75.00	Both	1.0	218.9	
261+75.00	262+00.00	Both	1.0	189.3	
262+00.00	262+25.00	Both	1.0	159.2	
262+25.00	262+50.00	Both	1.0	140.9	
262+50.00	262+75.00	Both	1.0	139.9	
262+75.00	263+00.00	Both	1.0	137.3	
263+00.00	263+25.00	Both	1.0	121.8	
263+25.00	263+50.00	Both	1.0	95.0	
263+50.00	263+75.00	Both	1.0	68.3	
263+75.00	264+00.00	Both	1.0	51.6	
264+00.00	264+25.00	Both	1.0	41.9	
264+25.00	264+50.00	Both	1.0	38.5	
264+50.00	264+75.00	Both	1.0	38.0	
264+75.00	265+00.00	Both	1.0	38.0	
265+00.00	265+25.00	Both	1.0	38.0	
265+25.00	265+50.00	Both	1.0	38.0	
265+50.00	265+75.00	Both	1.0	38.0	
265+75.00	266+00.00	Both	1.0	38.0	
266+00.00	266+25.00	Both	1.0	38.0	
266+25.00	266+50.00	Both	1.0	38.0	
266+50.00	266+75.00	Both	1.0	39.0	
266+75.00	267+00.00	Both	1.0	40.9	
267+00.00	267+25.00	Both	1.0	42.4	
267+25.00	267+50.00	Both	1.0	43.6	
267+50.00	267+75.00	Both	1.0	45.0	
267+75.00	268+00.00	Both	1.0	46.2	
268+00.00	268+25.00	Both	1.0	47.8	
268+25.00	268+50.00	Both	1.0	50.6	
268+50.00	268+75.00	Both	1.0	54.4	
268+75.00	269+00.00	Both	1.0	59.5	
269+00.00	269+25.00	Both	1.0	63.1	
269+25.00	269+50.00	Both	1.0	64.4	
269+50.00	269+75.00	Both	1.0	77.6	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
269+75.00	270+00.00	Both	1.0	79.6	
270+00.00	270+25.00	Both	1.0	80.1	
270+25.00	270+50.00	Both	1.0	80.4	
270+50.00	270+75.00	Both	1.0	83.5	
270+75.00	271+00.00	Both	1.0	99.8	
271+00.00	271+25.00	Both	1.0	121.2	
271+25.00	271+50.00	Both	1.0	128.6	
271+50.00	271+75.00	Both	1.0	132.0	
1801+86.00	1802+00.00	Both	1.0	78.0	
1802+00.00	1802+25.00	Both	1.0	46.1	
1802+25.00	1802+50.00	Both	1.0	48.5	
1802+50.00	1802+75.00	Both	1.0	50.0	
1802+75.00	1803+00.00	Both	1.0	47.5	
1803+00.00	1803+25.00	Both	1.0	47.1	
1803+25.00	1803+50.00	Both	1.0	50.8	
1803+50.00	1803+75.00	Both	1.0	47.7	
1803+75.00	1804+00.00	Both	1.0	44.2	
1804+00.00	1804+25.00	Both	1.0	44.7	
1804+25.00	1804+50.00	Both	1.0	48.2	
1804+50.00	1804+75.00	Both	1.0	49.8	
1804+75.00	1805+00.00	Both	1.0	46.6	
1805+00.00	1805+25.00	Both	1.0	44.5	
1805+25.00	1805+50.00	Both	1.0	44.0	
1805+50.00	1805+75.00	Both	1.0	53.0	
1805+75.00	1806+00.00	Both	1.0	53.0	
1806+00.00	1806+25.00	Both	1.0	53.0	
1806+25.00	1806+50.00	Both	1.0	60.0	
1806+50.00	1806+75.00	Both	1.0	60.0	
1806+75.00	1807+00.00	Both	1.0	85.0	
1807+00.00	1807+25.00	Both	1.0		
1807+25.00	1807+50.00	Both	1.0		
1807+50.00	1807+75.00	Both	1.0		
1807+75.00	1808+00.00	Both	1.0		
1808+00.00	1808+25.00	Both	1.0	62.0	
1808+25.00	1808+50.00	Both	1.0	126.3	
1808+50.00	1808+75.00	Both	1.0	164.5	
1808+75.00	1809+00.00	Both	1.0	111.5	
1809+00.00	1809+25.00	Both	1.0	80.0	
1809+25.00	1809+50.00	Both	1.0	72.6	
1809+50.00	1809+75.00	Both	1.0	68.6	
1809+75.00	1810+00.00	Both	1.0	67.0	
1810+00.00	1810+25.00	Both	1.0	72.0	
1810+25.00	1810+50.00	Both	1.0	76.5	
1810+50.00	1810+75.00	Both	1.0	70.6	
1810+75.00	1811+00.00	Both	1.0	60.5	
1811+00.00	1811+25.00	Both	1.0	60.7	
1811+25.00	1811+50.00	Both	1.0	59.2	
1811+50.00	1811+75.00	Both	1.0	60.5	
1811+75.00	1812+00.00	Both	1.0	64.1	
1812+00.00	1812+25.00	Both	1.0	78.6	
1812+25.00	1812+50.00	Both	1.0	93.2	
1812+50.00	1812+75.00	Both	1.0	97.6	
1812+75.00	1813+00.00	Both	1.0	92.7	
1813+00.00	1813+25.00	Both	1.0	84.0	
1813+25.00	1813+48.00	Both	1.0	108.0	
2300+75.00	2301+00.00	Both	1.0	52.0	
2301+00.00	2301+25.00	Both	1.0	50.0	
2301+25.00	2301+50.00	Both	1.0	52.8	
2301+50.00	2301+75.00	Both	1.0	61.9	
2301+75.00	2302+00.00	Both	1.0	70.3	
2302+00.00	2302+25.00	Both	1.1	74.6	
2302+25.00	2302+50.00	Both	1.2	78.8	
2302+50.00	2302+75.00	Both	1.4	80.7	
2302+75.00	2303+00.00	Both	2.3	87.1	
2303+00.00	2303+25.00	Both	2.6	111.8	
2303+25.00	2303+50.00	Both	2.7	125.5	
2303+50.00	2303+75.00	Both	3.0	138.4	
2303+75.00	2304+00.00	Both	3.3	164.4	
2304+00.00	2304+25.00	Both	3.6	206.3	
2304+25.00	2304+50.00	Both	3.5	229.3	
2304+50.00	2304+75.00	Both	2.3	211.5	
2304+75.00	2305+00.00	Both	2.6	161.8	
2305+00.00	2305+25.00	Both	2.1	155.4	
2305+25.00	2305+50.00	Both	1.7	131.6	
2305+50.00	2305+75.00	Both	1.6	115.4	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
2305+75.00	2306+00.00	Both	1.5	126.3	
2306+00.00	2306+25.00	Both	1.9	140.3	
2306+25.00	2306+50.00	Both	2.2	154.4	
2306+50.00	2306+75.00	Both	2.5	178.1	
2306+75.00	2307+00.00	Both	2.5	212.7	
2307+00.00	2307+25.00	Both	2.7	232.4	
2307+25.00	2307+50.00	Both	3.0	255.2	
2307+50.00	2307+75.00	Both	3.1	286.0	
2307+75.00	2308+00.00	Both	3.3	308.1	
2308+00.00	2308+25.00	Both	3.8	324.3	
2308+25.00	2308+50.00	Both	3.4	346.7	
2308+50.00	2308+75.00	Both	3.9	381.5	
2308+75.00	2309+00.00	Both	4.4	422.5	
2309+00.00	2309+25.00	Both	4.5	449.8	
2309+25.00	2309+50.00	Both	5.0	465.8	
2309+50.00	2309+75.00	Both	5.6	510.6	
2309+75.00	2310+00.00	Both	6.2	580.8	
2310+00.00	2310+25.00	Both	6.7	642.9	
2310+25.00	2310+50.00	Both	7.3	706.2	
2310+50.00	2310+75.00	Both	7.9	773.2	
2310+75.00	2311+00.00	Both	8.4	826.7	
2311+00.00	2311+25.00	Both	8.8	870.1	
2311+25.00	2311+50.00	Both	9.0	909.2	
2311+50.00	2311+75.00	Both	9.5	950.6	
2311+75.00	2312+00.00	Both	10.3	1011.6	
2312+00.00	2312+25.00	Both	11.3	1127.9	
2312+25.00	2312+50.00	Both	11.8	1250.6	
2312+50.00	2312+75.00	Both	11.4	1233.4	
2312+75.00	2313+00.00	Both	11.4	1184.5	
2313+00.00	2313+25.00	Both	9.8	1076.2	
2313+25.00	2313+50.00	Both	6.7	772.8	
2313+50.00	2313+75.00	Both	6.5	585.1	
2313+75.00	2314+00.00	Both	7.1	654.9	
2501+00.00	2501+25.00	Both	1.0	46.2	
2501+25.00	2501+50.00	Both	1.0	46.2	
2501+50.00	2501+75.00	Both	1.0	44.0	
2501+75.00	2502+00.00	Both	1.0	44.0	
2502+00.00	2502+25.00	Both	1.0	44.0	
2502+25.00	2502+50.00	Both	1.0	44.0	
2502+50.00	2502+75.00	Both	1.0	44.0	
2502+75.00	2503+00.00	Both	1.0	44.0	
2503+00.00	2503+25.00	Both	1.0	44.0	
2503+25.00	2503+50.00	Both	1.0	53.0	
2503+50.00	2503+75.00	Both	1.0	80.0	
2503+75.00	2504+00.00	Both	1.0		
2504+00.00	2504+25.00	Both	1.0		
2504+25.00	2504+50.00	Both	1.0		
2504+50.00	2504+75.00	Both	1.0		
2504+75.00	2505+00.00	Both	1.0		
2505+00.00	2505+25.00	Both	1.0	44.0	
2505+25.00	2505+50.00	Both	1.0	44.0	
2505+50.00	2505+75.00	Both	1.0	44.0	
2505+75.00	2506+00.00	Both	1.0	44.0	
2506+00.00	2506+25.00	Both	1.0	44.0	
2506+25.00	2506+50.00	Both	1.0	44.0	
2506+50.00	2506+75.00	Both	1.0	44.0	
2506+75.00	2507+00.00	Both	1.0	44.0	
2507+00.00	2507+25.00	Both	1.0	44.0	
2507+25.00	2507+50.00	Both	1.0	44.0	
2507+50.00	2507+75.00	Both	1.0	44.0	
2507+75.00	2508+00.00	Both	1.0	44.0	
2508+00.00	2508+25.00	Both	1.0	44.1	
2508+25.00	2508+50.00	Both	1.0	44.3	
2508+50.00	2508+75.00	Both	1.0	46.1	
2508+75.00	2509+00.00	Both	1.0	48.6	
2509+00.00	2509+25.00	Both	1.0	50.7	
2509+25.00	2509+50.00	Both	1.0	51.3	
2509+50.00	2509+75.00	Both	1.0	48.0	
2509+75.00	2510+00.00	Both	1.0	45.1	
2510+00.00	2510+25.00	Both	1.0	44.4	
2510+25.00	2510+50.00	Both	1.0	44.8	
2510+50.00	2510+75.00	Both	1.0	45.8	
2510+75.00	2511+00.00	Both	1.0	45.5	
2511+00.00	2511+25.00	Both	1.0	44.5	
3003+64.44	3003+75.00		1.0	4.7	

103-1
10-19-10

EMBANKMENT WITH MOISTURE AND DENSITY CONTROL

Moisture content shall be within the limits of minus 2 and plus 3 percentage points of optimum for maximum density within the area described and listed below.

Location		Lane	Depth	Compact	Remarks
Station to Station			FT	CY	
3003+75.00	3004+00.00		1.0	13.2	
3004+00.00	3004+25.00		1.0	15.4	
3004+25.00	3004+50.00		1.0	17.5	
3004+50.00	3004+75.00		1.0	19.6	
3004+75.00	3005+00.00		1.0	21.8	
3005+00.00	3005+25.00		1.0	24.1	
3005+25.00	3005+50.00		1.0	24.1	
3005+50.00	3005+75.00		1.0	24.1	
3005+75.00	3006+00.00		1.0	24.1	
3006+00.00	3006+25.00		1.0	24.1	
3006+25.00	3006+50.00		1.0	24.1	
3006+50.00	3006+75.00		1.0	24.1	
3006+75.00	3007+00.00		1.0	24.1	
3007+00.00	3007+25.00		1.0	24.1	
3007+25.00	3007+50.00		1.0	24.1	
3007+50.00	3007+75.00		1.0	24.1	
3007+75.00	3008+00.00		1.0	24.1	
3008+00.00	3008+25.00		1.0	24.1	
3008+25.00	3008+50.00		1.0	24.1	
3008+50.00	3008+75.00		1.0	24.1	
3008+75.00	3009+00.00		1.0	24.1	
3009+00.00	3009+25.00		1.0	24.1	
3009+25.00	3009+50.00		1.0	24.1	
3009+50.00	3009+75.00		1.0	24.1	
3009+75.00	3010+00.00		1.0	24.1	
3010+00.00	3010+25.00		1.0	24.1	
3010+25.00	3010+50.00		1.0	24.1	
3010+50.00	3010+75.00		1.0	24.1	
3010+75.00	3011+00.00		1.0	24.1	
3011+00.00	3011+25.00		1.0	24.1	
3011+25.00	3011+50.00		1.0	24.1	
3011+50.00	3011+75.00		1.0	24.1	
3011+75.00	3012+00.00		1.0	21.8	
3012+00.00	3012+25.00		1.0	19.6	
3012+25.00	3012+50.00		1.0	17.5	
3012+50.00	3012+75.00		1.0	15.4	
3012+75.00	3013+00.00		1.0	13.2	
3013+00.00	3013+10.75		1.0	4.8	
1+28.40	1+50.00		1.0	18.4	
1+50.00	1+75.00		1.0	7.9	
1+75.00	2+00.00		1.0	7.9	
2+00.00	2+25.00		1.0	7.9	
2+25.00	2+50.00		1.0	7.9	
2+50.00	2+75.00		1.0	7.9	
2+75.00	3+00.00		1.0	7.9	
3+00.00	3+25.00		1.0	7.9	
3+25.00	3+50.00		1.0	7.9	
3+50.00	3+75.00		1.0	7.9	
3+75.00	4+00.00		1.0	7.9	
4+00.00	4+25.00		1.0	7.9	
4+25.00	4+50.00		1.0	7.9	
4+50.00	4+75.00		1.0	7.9	
4+75.00	5+00.00		1.0	7.9	
5+00.00	5+25.00		1.0	7.9	
5+25.00	5+50.00		1.0	7.9	
5+50.00	5+75.00		1.0	7.9	
5+75.00	6+00.00		1.0	7.9	
6+00.00	6+25.00		1.0	7.9	
6+25.00	6+50.00		1.0	7.9	
6+50.00	6+75.00		1.0	7.9	
6+75.00	7+00.00		1.0	7.9	
7+00.00	7+25.00		1.0	7.9	
7+25.00	7+50.00		1.0	7.9	
7+50.00	7+75.00		1.0	7.9	
7+75.00	8+00.00		1.0	7.9	
8+00.00	8+25.00		1.0	7.9	
8+25.00	8+50.00		1.0	7.9	
8+50.00	8+75.00		1.0	7.9	
8+75.00	9+00.00		1.0	7.9	
9+00.00	9+25.00		1.0	7.9	
9+25.00	9+50.00		1.0	7.9	
9+50.00	9+75.00		1.0	7.9	
9+75.00	10+00.00		1.0	7.9	
10+00.00	10+25.00		1.0	32.4	
10+25.00	10+46.20		1.0	27.5	

104-9
04-17-12

LONGITUDINAL SUBDRAIN SHOULDER AND BACKSLOPE

(1) Refer to RL-13, EW-203, or EW-204. Refer to Soils Sheets * Not a bid item

Location						Longitudinal Subdrain (RF-19C)							Subdrain Outlet					
Line No.	Road or Lane Ident.	Station to Station		Side	Depth (D)	Shoulder		Backslope		Bridge Berm (1)			RF-19C, RF-19E, or RF-19F			Porous* Backfill	Class "A"* Crushed Stone	Remarks
						Size	Length	Size	Length	Size	Type	Length	Station	Size	Standard Road Plan and Type			
					IN	IN	FT	IN	FT	IN		FT		IN		CY	CY	
1	SEC	171+22.98	173+96.75	RT		4.0	273.8							4.0	RF-19C	18.3		OUTLET AT BOTH ENDS
2	SEC	171+22.70	173+96.75	LT		4.0	274.1							4.0	RF-19C	18.3		OUTLET AT BOTH ENDS
3	SEC	174+03.25	174+75.81	RT		4.0	72.6							4.0	RF-19C	4.9		OUTLET AT BOTH ENDS
4	SEC	174+03.25	174+75.81	LT		4.0	72.6							4.0	RF-19C	4.9		OUTLET AT BOTH ENDS
5	SEC	174+82.31	175+55.75	RT		4.0	73.4							4.0	RF-19C	4.9		OUTLET AT BOTH ENDS
6	SEC	175+62.25	179+16.72	RT		4.0	354.5							4.0	RF-19C	23.7		OUTLET AT BOTH ENDS
7	SEC	179+23.28	179+96.72	RT		4.0	69.0							4.0	RF-19C	4.6		OUTLET AT BOTH ENDS
8	SEC	180+03.25	181+16.72	RT		4.0	113.0							4.0	RF-19C	7.6		OUTLET AT BOTH ENDS
9	SEC	181+23.28	185+64.25	RT		4.0	441.0							4.0	RF-19C	29.5		OUTLET AT BOTH ENDS
10	SEC	185+70.75	186+34.25	RT		4.0	63.5							4.0	RF-19C	4.2		OUTLET AT BOTH ENDS
11	SEC	186+40.75	298+16.82	RT		4.0	76.1							4.0	RF-19C	5.1		OUTLET AT BOTH ENDS
12	SEC	187+23.28	189+92.57	RT		4.0	291.0							4.0	RF-19C	19.5		OUTLET AT BOTH ENDS
13	18TH	1801+84.94	1802+22.58	LT		4.0	38.0							4.0	RF-19C	2.5		OUTLET AT BOTH ENDS
14	18TH	1801+84.34	1802+22.45	RT		4.0	38.0							4.0	RF-19C	2.5		OUTLET AT BOTH ENDS
15	18TH	1802+29.12	1805+68.21	LT		4.0	339.0							4.0	RF-19C	22.7		OUTLET AT BOTH ENDS
16	18TH	1802+29.25	1805+72.52	RT		4.0	343.0							4.0	RF-19C	22.9		OUTLET AT BOTH ENDS
17	18TH	1805+73.37	1806+73.76	LT		4.0	100.0							4.0	RF-19C	6.7		OUTLET AT BOTH ENDS
18	18TH	1805+79.08	1807+18.23	RT		4.0	139.0							4.0	RF-19C	9.3		OUTLET AT BOTH ENDS
19	18TH	1807+95.17	1810+09.71	RT		4.0	215.0							4.0	RF-19C	14.4		OUTLET AT BOTH ENDS
20	18TH	1807+79.49	1810+09.77	LT		4.0	230.0							4.0	RF-19C	15.4		OUTLET AT BOTH ENDS
21	18TH	1810+16.43	1811+30.52	RT		4.0	114.0							4.0	RF-19C	7.6		OUTLET AT BOTH ENDS
22	18TH	1810+16.43	2922+30.52	LT		4.0	114.0							4.0	RF-19C	7.6		OUTLET AT BOTH ENDS
23	18TH	1811+37.19	1813+49.91	RT		4.0	213.0							4.0	RF-19C	14.2		OUTLET AT BOTH ENDS
24	18TH	1811+37.19	1814+27.70	LT		4.0	291.0							4.0	RF-19C	19.5		OUTLET AT BOTH ENDS
25	SEC	190+62.02	190+99.33	LT		4.0	37.3							4.0	RF-19C	2.5		OUTLET AT BOTH ENDS
26	SEC	190+70.78	191+64.75	RT		4.0	94.0							4.0	RF-19C	6.3		OUTLET AT BOTH ENDS
27	SEC	191+71.25	192+14.61	RT		4.0	43.0							4.0	RF-19C	2.9		OUTLET AT BOTH ENDS
28	SEC	192+21.11	192+88.75	RT		4.0	68.0							4.0	RF-19C	4.5		OUTLET AT BOTH ENDS
29	SEC	192+95.25	193+96.75	RT		4.0	102.0							4.0	RF-19C	6.8		OUTLET AT BOTH ENDS
30	SEC	194+03.25	198+45.75	RT		4.0	443.0							4.0	RF-19C	29.6		OUTLET AT BOTH ENDS
31	SEC	198+52.25	199+22.75	RT		4.0	71.0							4.0	RF-19C	4.7		OUTLET AT BOTH ENDS
32	SEC	199+29.25	199+96.75	RT		4.0	68.0							4.0	RF-19C	4.5		OUTLET AT BOTH ENDS
33	SEC	200+03.25	202+46.75	RT		4.0	244.0							4.0	RF-19C	16.3		OUTLET AT BOTH ENDS
34	SEC	202+53.25	204+46.75	RT		4.0	194.0							4.0	RF-19C	13.0		OUTLET AT BOTH ENDS
35	SEC	204+53.25	206+46.75	RT		4.0	194.0							4.0	RF-19C	13.0		OUTLET AT BOTH ENDS
36	SEC	206+53.25	209+18.48	RT		4.0	265.0							4.0	RF-19C	17.7		OUTLET AT BOTH ENDS
37	SEC	216+76.62	218+78.34	RT		4.0	202.0							4.0	RF-19C	13.5		OUTLET AT BOTH ENDS
38	SEC	218+84.94	220+96.69	RT		4.0	212.0							4.0	RF-19C	14.2		OUTLET AT BOTH ENDS
39	SEC	221+03.99	221+83.74	RT		4.0	80.0							4.0	RF-19C	5.3		OUTLET AT BOTH ENDS
40	23RD	2300+48.31	2300+86.34	LT		4.0	38.0							4.0	RF-19C	2.5		OUTLET AT BOTH ENDS
41	23RD	2300+40.04	2300+86.31	RT		4.0	46.0							4.0	RF-19C	3.1		OUTLET AT BOTH ENDS
42	23RD	2300+93.01	2305+73.19	LT		4.0	480.0							4.0	RF-19C	32.1		OUTLET AT BOTH ENDS
43	23RD	2300+92.98	2305+73.03	RT		4.0	480.0							4.0	RF-19C	32.1		OUTLET AT BOTH ENDS
44	23RD	2305+79.91	2307+95.81	LT		4.0	216.0							4.0	RF-19C	14.4		OUTLET AT BOTH ENDS
45	23RD	2305+79.86	2307+96.24	RT		4.0	216.0							4.0	RF-19C	14.4		OUTLET AT BOTH ENDS
46	23RD	2308+02.53	2311+25.28	LT		4.0	323.0							4.0	RF-19C	21.6		OUTLET AT BOTH ENDS
47	23RD	2308+03.07	2311+25.10	RT		4.0	322.0							4.0	RF-19C	21.5		OUTLET AT BOTH ENDS
48	23RD	2311+31.92	2314+53.79	LT		4.0	322.0							4.0	RF-19C	21.5		OUTLET AT BOTH ENDS
49	23RD	2311+31.96	2314+46.01	RT		4.0	314.0							4.0	RF-19C	21.0		OUTLET AT BOTH ENDS
50	SEC	222+46.43	223+22.08	RT		4.0	76.0							4.0	RF-19C	5.1		OUTLET AT BOTH ENDS
51	SEC	223+28.68	225+65.59	RT		4.0	237.0							4.0	RF-19C	15.8		OUTLET AT BOTH ENDS
52	SEC	225+72.08	226+90.82	RT		4.0	119.0							4.0	RF-19C	8.0		OUTLET AT BOTH ENDS
53	SEC	226+97.30	227+71.79	RT		4.0	75.0							4.0	RF-19C	5.0		OUTLET AT BOTH ENDS
54	SEC	227+78.26	235+41.83	RT		4.0	764.0							4.0	RF-19C	51.1		OUTLET AT BOTH ENDS
55	SEC	235+48.31	236+14.11	RT		4.0	66.0							4.0	RF-19C	4.4		OUTLET AT BOTH ENDS
56	SEC	236+20.59	236+79.19	RT		4.0	59.0							4.0	RF-19C	3.9		OUTLET AT BOTH ENDS
57	SEC	236+85.83	238+04.08	RT		4.0	118.0							4.0	RF-19C	7.9		OUTLET AT BOTH ENDS
58	SEC	238+10.42	240+16.75	RT		4.0	206.0							4.0	RF-19C	13.8		OUTLET AT BOTH ENDS
59	SEC	240+23.25	240+79.35	RT		4.0	56.0							4.0	RF-19C	3.7		OUTLET AT BOTH ENDS
60	25TH	2501+00.00	2503+45.57	LT		4.0	246.0							4.0	RF-19C	16.5		OUTLET AT BOTH ENDS
61	25TH	2501+00.00	2504+49.43	RT		4.0	149.0							4.0	RF-19C	10.0		OUTLET AT BOTH ENDS
62	25TH	2502+56.09	2503+65.06	RT		4.0	109.0							4.0	RF-19C	7.3		OUTLET AT BOTH ENDS
63	25TH	2503+51.81	2503+70.63	LT		4.0	19.0							4.0	RF-19C	1.3		OUTLET AT BOTH ENDS
64	25TH	2504+65.41	2505+57.72	LT		4.0	93.0							4.0	RF-19C	6.2		OUTLET AT BOTH ENDS
65	25TH	2505+65.11	2506+93.57	LT		4.0	128.0							4.0	RF-19C	8.6		OUTLET AT BOTH ENDS
66	25TH	2506+99.95	2511+34.64	LT		4.0	435.0							4.0	RF-19C	29.1		OUTLET AT BOTH ENDS
67	25TH	2504+50.74	2505+58.54	RT		4.0	108.0							4.0	RF-19C	7.2		OUTLET AT BOTH ENDS
68	25TH	2505+65.54	2506+93.28	RT		4.0	128.0							4.0	RF-19C	8.6		OUTLET AT BOTH ENDS
69	25TH	2507+00.24	2511+34.64	RT		4.0	434.0							4.0	RF-19C	29.0		OUTLET AT BOTH ENDS
70	SEC	241+40.62	241+93.81	RT		4.0	53.0							4.0	RF-19C	3.5		OUTLET AT BOTH ENDS
71	SEC	242+00.31	246+36.68	RT		4.0	436.0							4.0	RF-19C	29.2		OUTLET AT BOTH ENDS
72	SEC	246+43.32	248+96.00	RT		4.0	253.0							4.0	RF-19C	16.9		OUTLET AT BOTH ENDS
73	SEC	249+04.00	251+71.00	RT		4.0	267.0							4.0	RF-19C	17.9		OUTLET AT BOTH ENDS
74	SEC	251+78.25	252+54.32	RT		4.0	76.0							4.0	RF-19C	5.1		OUTLET AT BOTH ENDS
75	SEC	252+60.82	253+36.75	RT		4.0	76.0							4.0	RF-19C	5.1		OUTLET AT BOTH ENDS
76	SEC	253+43.25	255+54.32	RT		4.0	211.0							4.0	RF-19C	14.1		OUTLET AT BOTH ENDS
77	SEC	255+60.82	259+90.25	RT		4.0	429.0							4.0	RF-19C	28.7		OUTLET AT BOTH ENDS
78	SEC	259+96.75	261+90.25	RT		4.0	194.0							4.0	RF-19C	13.0		OUTLET AT BOTH ENDS
79	SEC	261+96.75	263+90.24	RT		4.0	193.0							4.0	RF-19C	12.9		OUTLET AT BOTH ENDS

103-5
08-01-08

SETTLEMENT PLATES

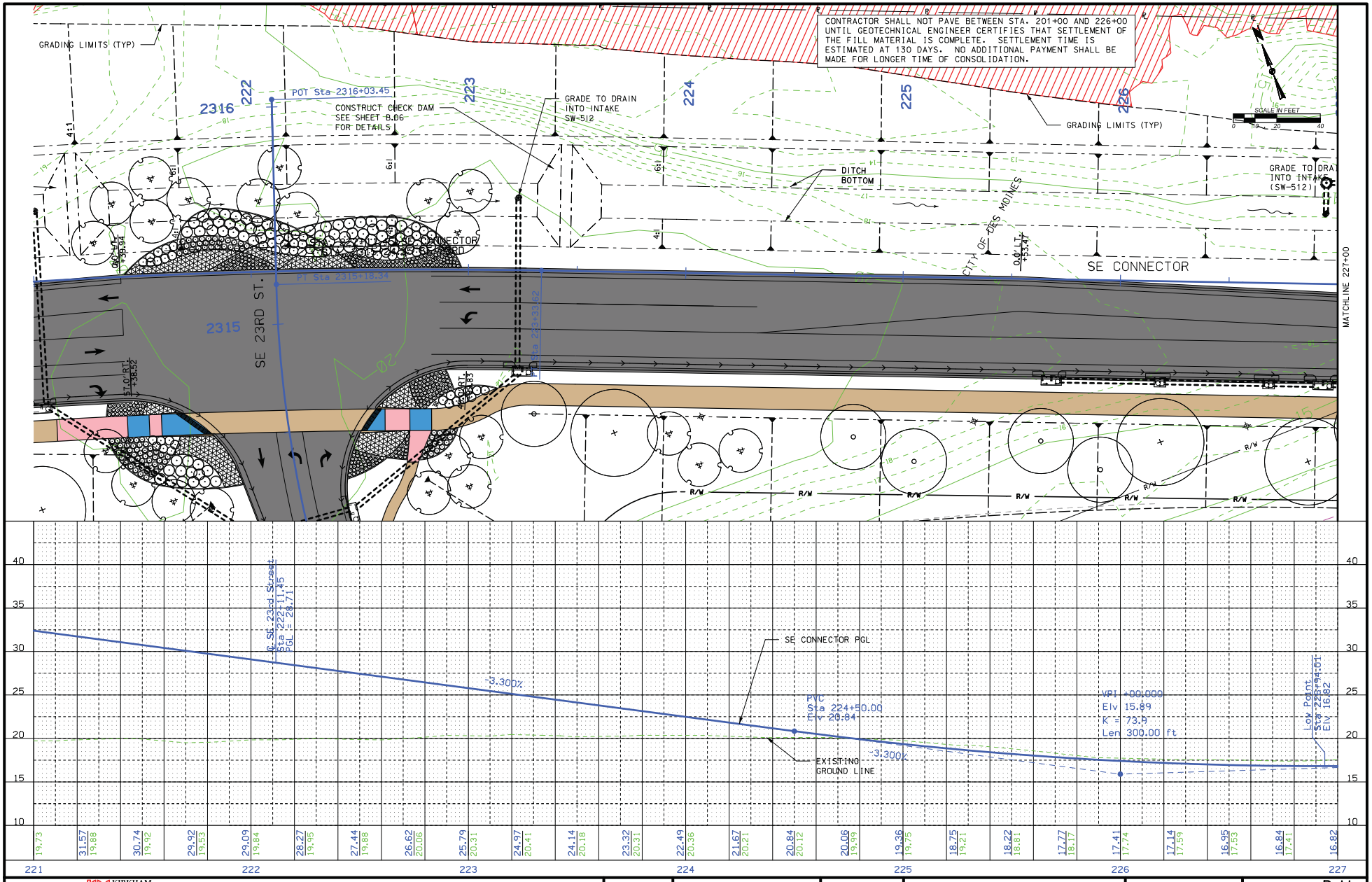
Refer to Standard Road Plan RL-6

No.	Location		Remarks
	Station	Offset	
SP1	209+40.00	55.0' RT	
SP2	211+08.56	0.68' RT	
SP3	214+76.91	0.6' RT	
SP4	216+06.92	0.91' RT	

103-7
08-01-08

SHRINKAGE DATA

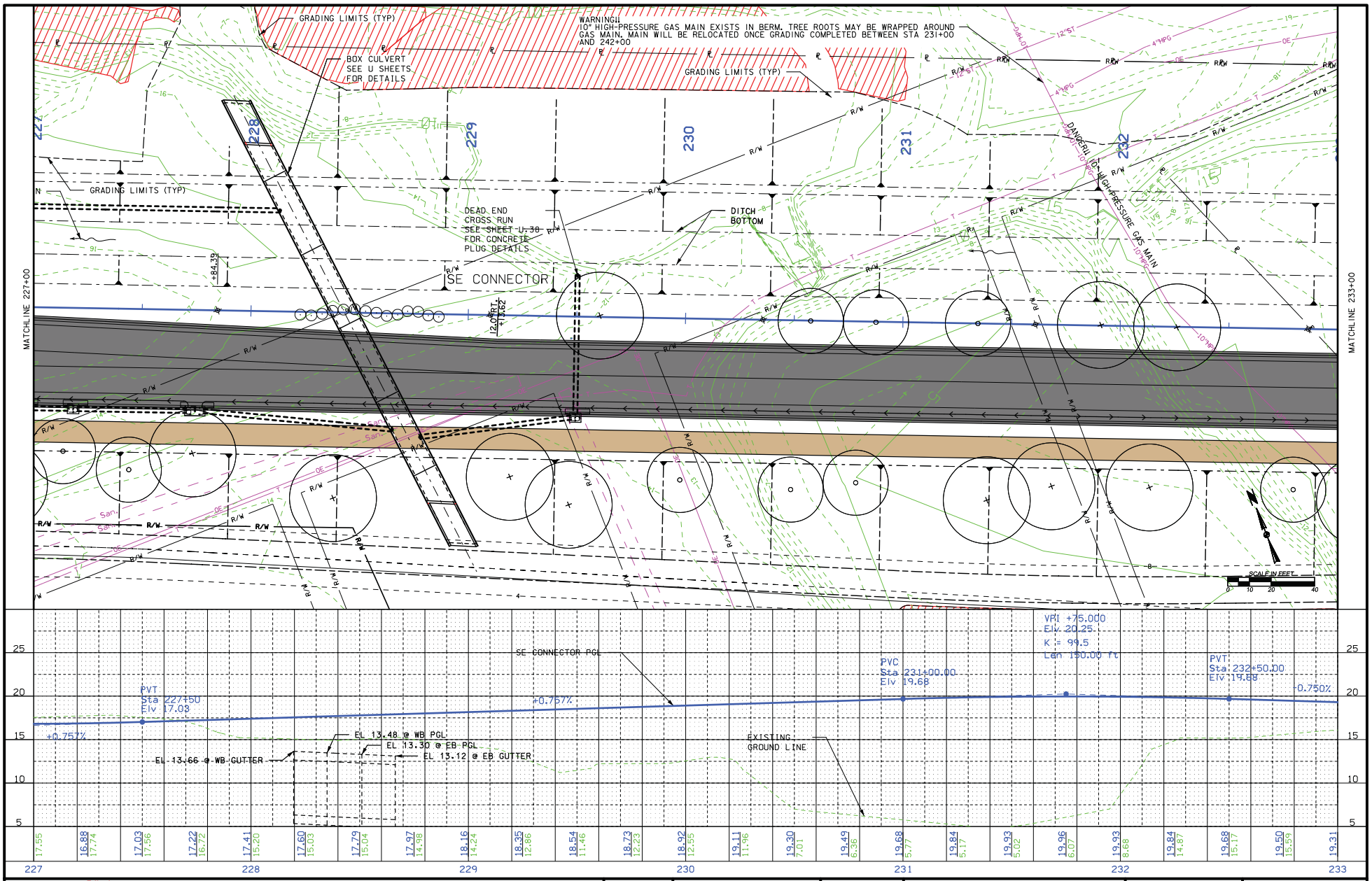
Material	%	Remarks
Topsoil	40%	
Borrow and Template	30%	



DESIGN TEAM	ENGLISH	ACTIVITY ID 01-2012-005	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-062	SHEET NUMBER D.11

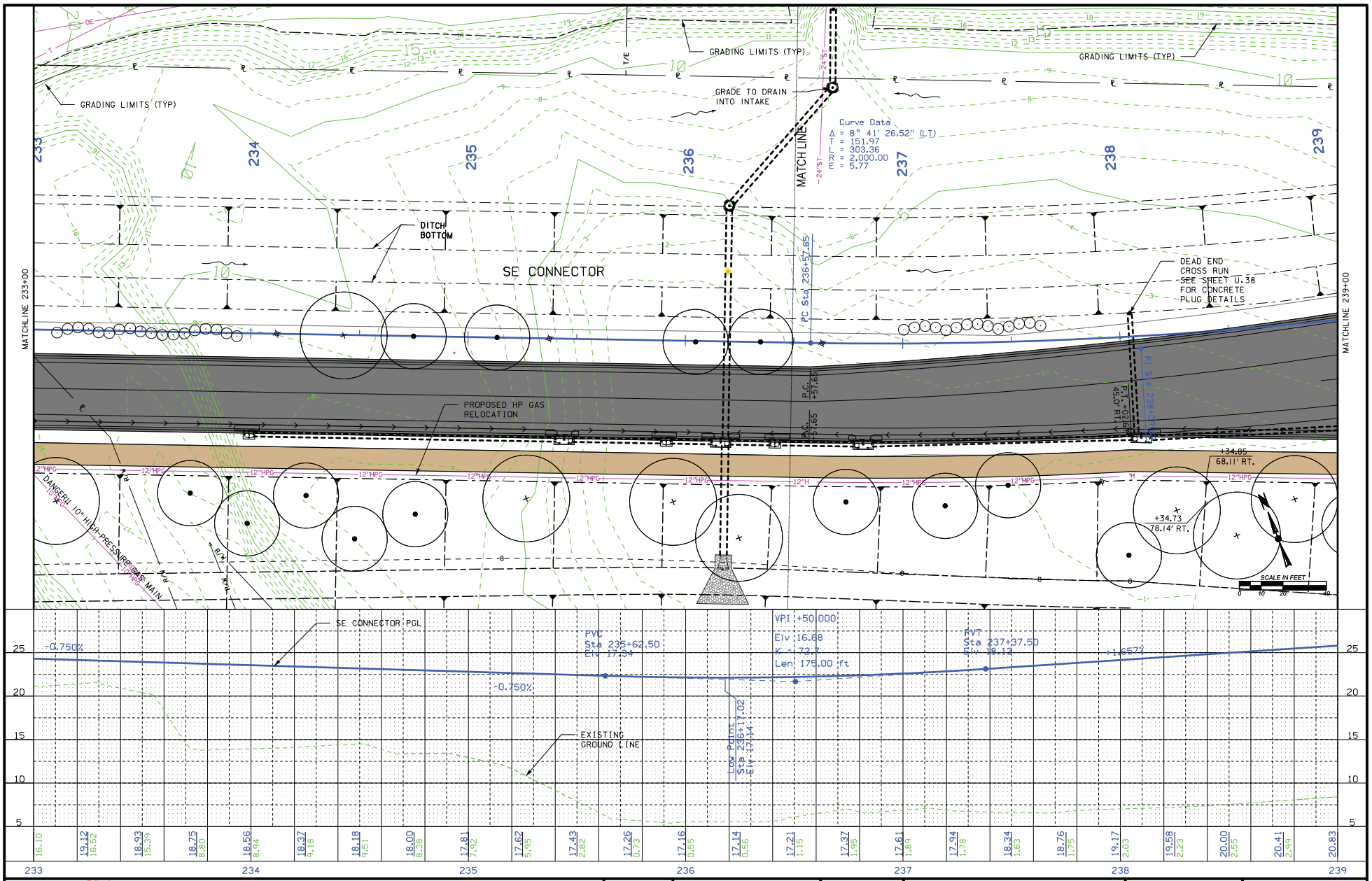
KIRKHAM MICHAEL

5/10/2013 nhardisty h:\0506650\cadd\plans\0506650_SEC15to30_D_Sheets.dgn



DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-063	SHEET NUMBER D.12

5/10/2013 nhardisty h:\0506650\cadd\plans\0506650_SEC15to30_D_Sheets.dgn



DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-064	SHEET NUMBER D.13

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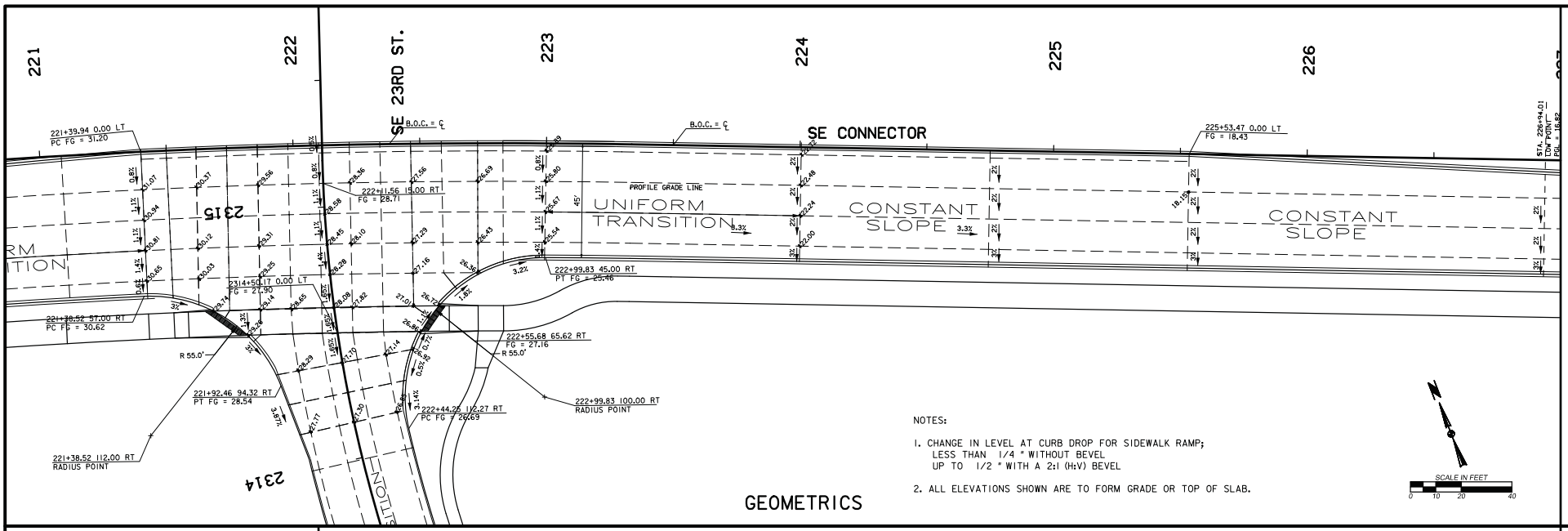


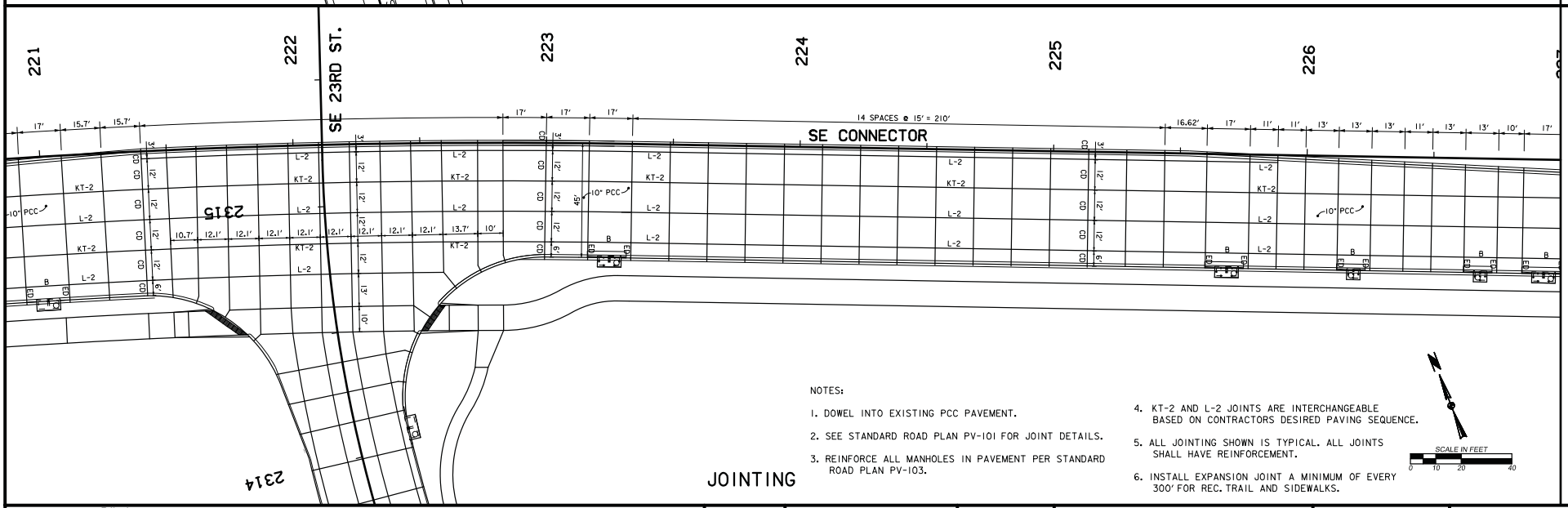
GEOMETRICS

NOTES:

1. CHANGE IN LEVEL AT CURB DROP FOR SIDEWALK RAMP;
   LESS THAN 1/4 " WITHOUT BEVEL
   UP TO 1/2 " WITH A 2:1 (H:V) BEVEL

2. ALL ELEVATIONS SHOWN ARE TO FORM GRADE OR TOP OF SLAB.

SCALE IN FEET 0 10 20 40



JOINTING

NOTES:

1. DOWEL INTO EXISTING PCC PAVEMENT.

2. SEE STANDARD ROAD PLAN PV-101 FOR JOINT DETAILS.

3. REINFORCE ALL MANHOLES IN PAVEMENT PER STANDARD ROAD PLAN PV-103.

4. KT-2 AND L-2 JOINTS ARE INTERCHANGEABLE BASED ON CONTRACTORS DESIRED PAVING SEQUENCE.

5. ALL JOINTING SHOWN IS TYPICAL. ALL JOINTS SHALL HAVE REINFORCEMENT.

6. INSTALL EXPANSION JOINT A MINIMUM OF EVERY 300' FOR REC. TRAIL AND SIDEWALKS.

SCALE IN FEET 0 10 20 40

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 01-2012-005	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-142	SHEET NUMBER K.10

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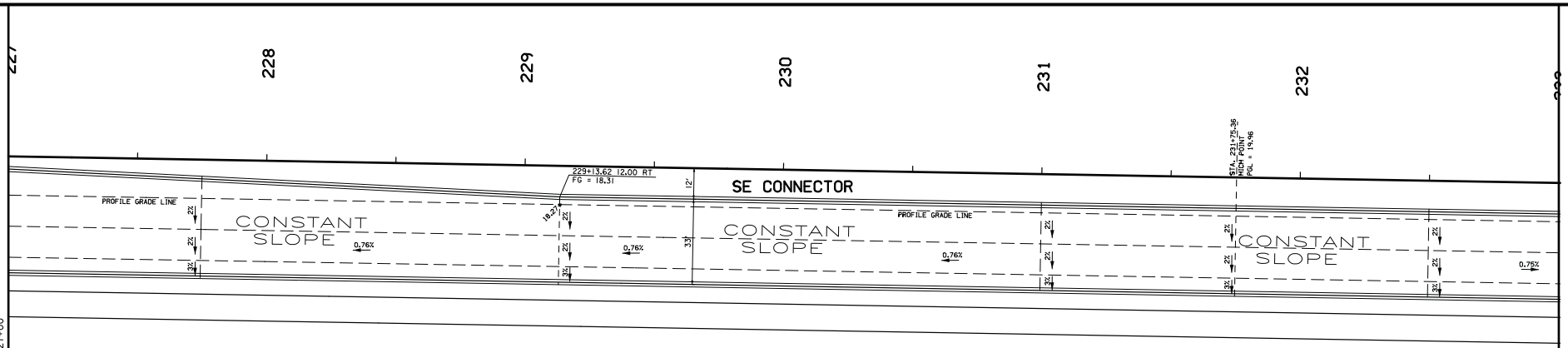

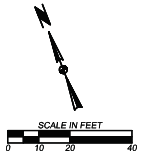

NOTES:

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   UP TO 1/2 " WITH A 2:1 (H:V) BEVEL

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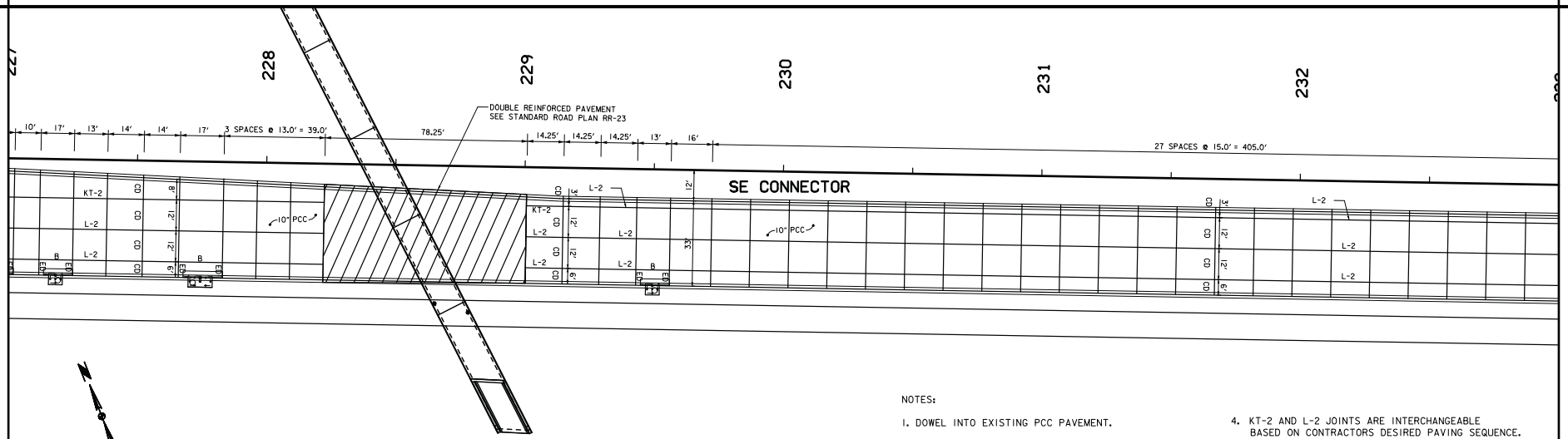
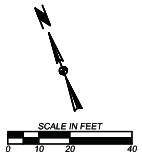
GEOMETRICS





JOINTING

NOTES:

1. DOWEL INTO EXISTING PCC PAVEMENT.

2. SEE STANDARD ROAD PLAN PV-101 FOR JOINT DETAILS.

3. REINFORCE ALL MANHOLES IN PAVEMENT PER STANDARD ROAD PLAN PV-103.

4. KT-2 AND L-2 JOINTS ARE INTERCHANGEABLE BASED ON CONTRACTORS DESIRED PAVING SEQUENCE.

5. ALL JOINTING SHOWN IS TYPICAL. ALL JOINTS SHALL HAVE REINFORCEMENT.

6. INSTALL EXPANSION JOINT A MINIMUM OF EVERY 300' FOR REC. TRAIL AND SIDEWALKS.

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 01-2012-005	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-143	SHEET NUMBER K.11

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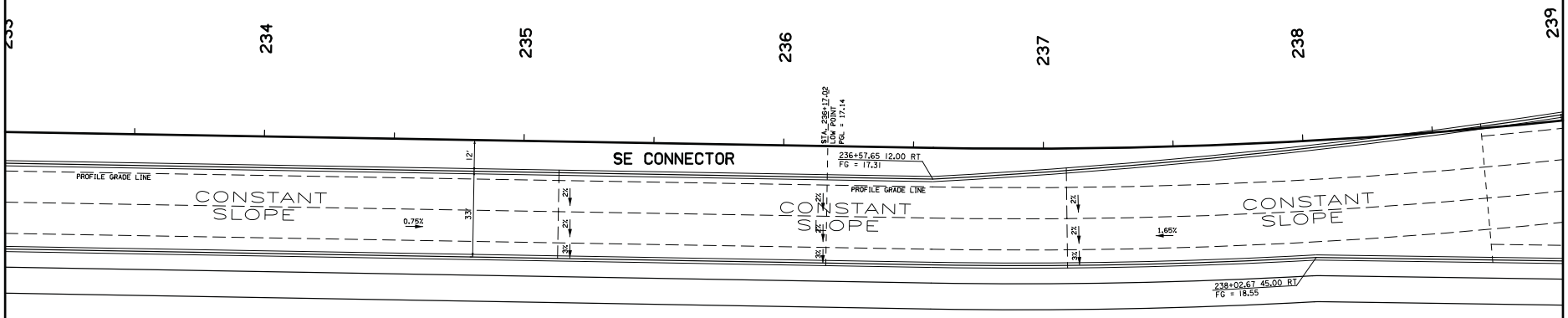

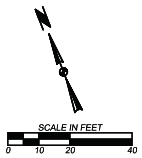

NOTES:

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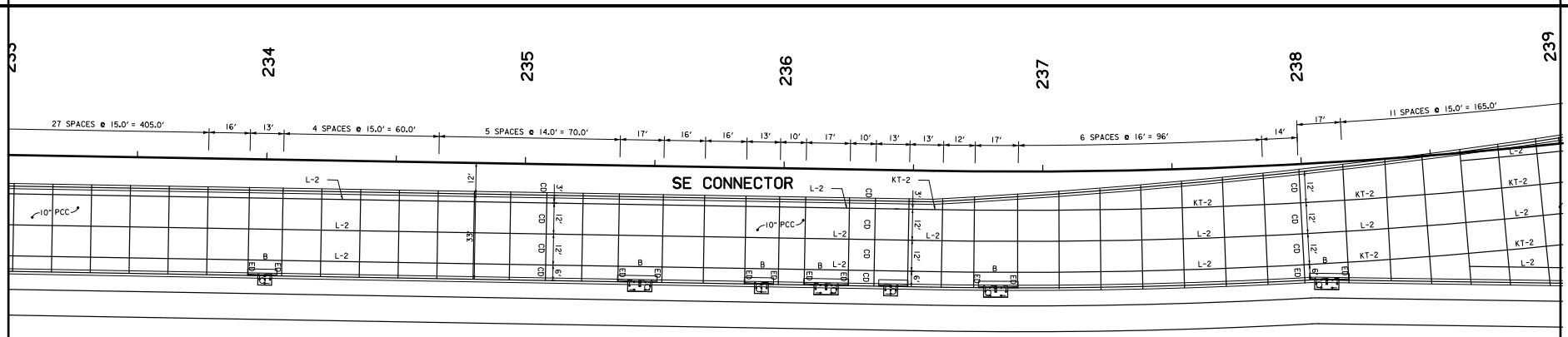
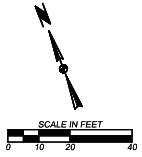
2. ALL ELEVATIONS SHOWN ARE TO FORM GRADE OR TOP OF SLAB.

GEOMETRICS





NOTES:

1. DOWEL INTO EXISTING PCC PAVEMENT.

2. SEE STANDARD ROAD PLAN PV-101 FOR JOINT DETAILS.

3. REINFORCE ALL MANHOLES IN PAVEMENT PER STANDARD ROAD PLAN PV-103.

4. KT-2 AND L-2 JOINTS ARE INTERCHANGEABLE BASED ON CONTRACTORS DESIRED PAVING SEQUENCE.

5. ALL JOINTING SHOWN IS TYPICAL. ALL JOINTS SHALL HAVE REINFORCEMENT.

6. INSTALL EXPANSION JOINT A MINIMUM OF EVERY 300' FOR REC. TRAIL AND SIDEWALKS.

JOINTING

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 01-2012-005	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-144	SHEET NUMBER K.12

5/10/2013 nhardisty H:\0506650\cadd\plans\0506650_SEC15to30_K_Sheets.dgn

STORM SEWER

* Bid Item
** For SW-545

INTAKES AND UTILITY ACCESSES

No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
S - 01	173+94.52, 144.23 LT	RF-3				
S - 02	174+80.00, 80 LT	SW-401	14.63	1.09		
S - 03	174+79.06, 53.95 LT	SW-509	13.43	3.71		
S - 03B	174+54.07, 54.33 LT	SW-507	13.47	7.42		
S - 04	174+79.06, 46.11 RT	SW-509	13.43	6.8		
S - 04B	174+54.06, 46.67 RT	SW-507	13.47	7.41		
S - 04C	175+04.05, 45.65 RT	SW-507	13.47	7.39		
S - 05	174+00.00, 47.89 RT	SW-509	13.85	8.19		
S - 06	175+59.00, 45.06 RT	SW-509	13.84	8.18		
S - 07	174+00.00, 54.86 LT	SW-509	13.85	8.2		
S - 08	175+50.63, 50.8 LT	RF-3				
S - 09	178+75.66, 71.5 LT	SW-401	15.6	2.33		
S - 10	181+86.23, 124.86 LT	SW-402	13.25	3.33		
S - 11	182+02.00, 132.39 LT	RF-3				
S - 13	182+62.57, 118.91 LT	RF-3				
S - 14	182+62.65, 102.91 LT	SW-402	9	3.93		
S - 15	179+98.16, 70.27 LT	SW-401	14.81	5.75		
S - 16	179+97.83, 37.93 LT	SW-512	11.55	6.35		
S - 17	180+00.00, 45 RT	SW-509	13.63	7.26		
S - 17B	179+74.77, 45 RT	SW-507	13.67	7.85		
S - 17C	180+25.23, 45 RT	SW-507	13.67	7.89		
S - 18	179+20.00, 45 RT	SW-509	14.05	8.39		
S - 19	181+20.00, 45 RT	SW-509	14.45	8.79		
S - 20	181+47.16, 94.29 RT	RF-3				
S - 21	185+06.50, 122.97 LT	RF-3				
S - 22	186+35.27, 74 LT	SW-403	16.6	4.84		
S - 23	186+35.27, 38.67 LT	SW-512	12.18	6.22		
S - 24	186+37.50, 45 RT	SW-509	14.25	7.14		
S - 24B	186+12.50, 45 RT	SW-507	14.3	8.23		
S - 24C	186+62.50, 45 RT	SW-507	14.29	7.83		
S - 25	185+67.50, 45 RT	SW-509	14.58	8.92		
S - 27	187+20.05, 48.31 RT	SW-509	14.61	8.65		
S - 30	190+52.35, 93.38 LT	SW-402	17.58	6.13		
S - 31	190+95.00, 75 LT	SW-401	17.24	7.69		
S - 32	192+20.04, 75 LT	SW-402	16.19	8.11		
S - 32A	192+80.50, 77.67 LT	SW-512	14.5	10		
S - 33	192+20.01, 43.27 LT	SW-512	13.27	8.3		
S - 34	192+17.86, 45 RT	SW-509	15.41	9.68		
S - 34B	191+95.00, 45 RT	SW-507	15.45	9.87		
S - 34C	192+42.00, 45 RT	SW-507	15.45	9.36		
S - 35	191+68.00, 45 RT	SW-509	15.67	10.01		
S - 36	192+92.00, 45 RT	SW-509	15.79	9.83		
S - 37	194+00.00, 45 RT	SW-509	17.5	11.84		
S - 38	192+20.02, 83.48 RT	RF-3				
S - 39	1810+13.10, 32.5 RT	SW-506	15.13	8.36		
S - 40	1810+13.10, 32.5 LT	SW-505	15.13	9.47		
S - 41	1811+33.86, 32.5 RT	SW-506	16.1	10.14		
S - 42	1811+33.86, 20.5 LT	SW-505	16.39	10.73		
S - 43	1805+75.65, 31.96 RT	SW-506	15.45	8		
S - 44	1805+70.79, 20.5 LT	SW-505	15.68	10.2		
S - 45	1804+87.53, 25 RT	SW-402	16.22	8.75		SEE SW-604, PROVIDE TYPE 3B CASTING
S - 46	1804+69.19, 41.93 LT	SW-401	15.12	9.07		
S - 47	1802+25.85, 20.5 RT	SW-506	15.35	9.58		SEE SW-604, PROVIDE TYPE 3B CASTING
S - 48	1802+25.85, 20.5 LT	SW-505	15.35	9.81		
S - 51	198+49.00, 45 RT	SW-509	17.13	11.15		
S - 53	199+26.00, 45 RT	SW-509	16.7	9.7		
S - 53B	199+01.00, 45 RT	SW-507	16.75	10.39		
S - 53C	199+51.00, 45 RT	SW-507	16.75	9.59		
S - 54	199+23.77, 32.27 LT	SW-512	14.57	10.95		
S - 55	200+00.00, 45 RT	SW-509	17.11	9.41		
S - 55D	202+24.88, 93.17 RT	SW-402	18.81	8.43		
S - 57	202+50.00, 45 RT	SW-509	24.05	15		

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 6 ft length is added to Design Length to account for estimated length to center of structures.

Line Number	Intake/ Utility Access No. From	Intake/ Utility Access No. To	Class 'D'	Pipe Diameter IN	Bid* Length FT	Design Length FT	Slope %	Flow Lines Inlet Elevation	Flow Lines Outlet Elevation	Flow Lines Other Elevation	Pipe Profile Sheet No.	Notes
P - 2	S - 02	S - 01	2000	24	101.29	98.29	0.3	2.09	1.8		M.06	46.65 TONS CLASS E REVETMENT
P - 3	S - 03	S - 02	2000	24	26.62	20.62	1	4.5	4.71		M.37	
P - 3B	S - 03B	S - 03	2000	18	25	19	1	8.42	8.23		M.37	
P - 4	S - 04	S - 03	2000	18	105.98	99.98	2	7.8	5.8		M.37	88.6 TONS GRANULAR BACKFILL
P - 4B	S - 04B	S - 04	2000	18	25	19	1	8.41	8.22		M.37	
P - 4C	S - 04C	S - 04	2000	18	24.99	18.99	1	8.39	8.2		M.37	
P - 5	S - 05	S - 04B	2000	18	54.08	48.08	1	9.19	8.71		M.37	
P - 6	S - 06	S - 04C	2000	18	54.93	48.93	1	9.18	8.69		M.37	
P - 7	S - 07	S - 03B	2000	18	54.08	48.08	1	9.2	8.72		M.37	
P - 9	S - 09	S - 02	2000	24	401.53	395.53	0.3	3.33	2.14		M.06/M.07	
P - 08	S - 08	S - 03	2000	18	64.44	61.44	5.31	11.68	8.42		M.37	
P - 10	S - 10	S - 09	2000	24	323.07	317.07	0.3	4.33	3.38		M.07	
P - 11	S - 11	S - 10	2000	12	12.4	9.4	0.3	4.43	4.4		M.07	44.10 TONS CLASS E REVETMENT
P - 14	S - 14	S - 13	2000	24	10.87	7.87	0.5	4.93	4.89		M.37	10.7 TONS CLASS E REVETMENT
P - 15	S - 15	S - 14	2000	24	271.02	265.02	0.58	6.75	5.22		M.37	
P - 16	S - 16	S - 15	2000	24	34.84	28.84	1	7.34	7.05		M.37	
P - 17	S - 17	S - 16	2000	24	87.93	81.93	1	8.26	7.44		M.37	25.8 TONS GRANULAR BACKFILL
P - 17B	S - 17B	S - 17	2000	18	24.99	18.99	0.5	8.85	8.76		M.38	
P - 17C	S - 17C	S - 17	2000	18	24.99	18.99	0.7	8.89	8.76		M.38	
P - 18	S - 18	S - 17B	2000	18	54.26	48.26	0.5	9.39	9.15		M.38	
P - 19	S - 19	S - 17C	2000	18	93.89	87.89	0.7	9.79	9.18		M.38	
P - 20	S - 20	S - 19	2000	18	49.34	46.34	1.96	11	10.09		M.38	
P - 22	S - 22	S - 21	2000	36	130.43	127.43	0.3	5.84	5.45		M.08	35.25 TONS CLASS E REVETMENT
P - 23	S - 23	S - 22	2000	24	37.33	31.33	1	7.22	6.9		M.38	
P - 24	S - 24	S - 23	2000	24	88.67	82.67	1	8.14	7.32		M.38	32.1 TONS GRANULAR BACKFILL
P - 24B	S - 24B	S - 24	2000	18	25	19	1	9.23	9.04		M.09	
P - 24C	S - 24C	S - 24	2000	18	25	19	1	8.83	8.64		M.09	
P - 25	S - 25	S - 24B	2000	18	45	39	1	9.92	9.53		M.09	
P - 27	S - 27	S - 24C	2000	18	57.5	51.5	1	9.65	9.13		M.09	
P - 30	S - 30	S - 22	2000	36	419.06	413.06	0.3	7.13	5.89		M.08	127.5 TONS GRANULAR BACKFILL
P - 31	S - 31	S - 30	2000	24	48.84	42.84	0.3	8.69	8.56		M.10	
P - 32	S - 32	S - 31	2000	24	127.04	121.04	0.3	9.11	8.74		M.10	
P - 32A	S - 32A	S - 32	2000	18	63.52	57.52	2.59	11	9.51		M.10	
P - 33	S - 33	S - 32	2000	24	34.73	28.73	0.5	9.3	9.16		M.38	
P - 34	S - 34	S - 33	2000	18	93.27	87.27	0.5	9.78	9.34		M.38	51.1 TONS GRANULAR BACKFILL
P - 34B	S - 34B	S - 34	2000	18	22.86	16.86	0.73	10.87	10.75		M.38	
P - 34C	S - 34C	S - 34	2000	18	24.14	18.14	0.4	10.36	10.29		M.38	
P - 35	S - 35	S - 34B	2000	18	35	29	0.3	11.01	10.92		M.38	
P - 36	S - 36	S - 34C	2000	18	50	44	0.4	10.83	10.66		M.38	
P - 37	S - 37	S - 36	2000	18	106	100	1.71	12.84	11.13		M.38	
P - 38	S - 38	S - 34	2000	18	32.4	29.4	10.07	13.25	10.29		M.26	
P - 39	S - 39	S - 30	2000	24	146.94	140.94	0.5	9.36	8.65		M.43	29.7 TONS GRANULAR BACKFILL
P - 40	S - 40	S - 39	2000	18	67	61	1	10.47	9.86		M.26	
P - 41	S - 41	S - 39	2000	18	122.64	116.64	0.57	11.14	10.47		M.43	21.5 TONS GRANULAR BACKFILL
P - 42	S - 42	S - 41	2000	18	55	49	1	11.73	11.24		M.26	194.3 TONS GRANULAR BACKFILL
P - 43	S - 43	S - 30	2000	24	294.48	288.48	0.3	9	8.13		M.43	21.4 TONS GRANULAR BACKFILL
P - 44	S - 44	S - 43	2000	18	54.26	48.26	1	11.02	10.54		M.25	
P - 45	S - 45	S - 43	2000	18	89.95	83.95	0.3	9.75	9.5		M.43	32.8 TONS GRANULAR BACKFILL
P - 46	S - 46	S - 45	2000	18	71.52	65.52	0.4	10.07	9.8		M.25	
P - 47	S - 47	S - 45	2000	18	266.31	260.31	0.3	10.58	9.8		M.43	16.6 TONS GRANULAR BACKFILL
P - 48	S - 48	S - 47	2000	18	43	37	0.5	10.81	10.63			
P - 51	S - 51	S - 53B	2000	18	52	46	1	12.15	11.69		M.11	
P - 53	S - 53	S - 53C	2000	24	25	19	0.3	10.7	10.64		M.11	
P - 53B	S - 53B	S - 53	2000	18	25	19	1	11.39	11.2		M.11	
P - 53C	S - 53C	S - 55	2000	24	49	43	0.3	10.59	10.46		M.11	
P - 54	S - 54	S - 53	2000	18	82.27	76.27	1	11.95	11.19		M.38	23.0 TONS GRANULAR BACKFILL
P - 55	S - 55	S - 55D	2000	24	229.76	223.76	0.3	10.41	9.74		M.11	
P - 55D	S - 55D	Exist	2000	30	30.44	24.44	0.3	9.43	9.36		M.38	
P - 57	S - 57	S - 55D	2000	18	54.74	48.74	5	16	15.06		M.11	
P - 58	S - 58	S - 57	2000	18	96	90	1	19.39	18.49		M.38	23.4 TONS GRANULAR BACKFILL

104-5B
MODIFIED

STORM SEWER

* Bid Item
** For SW-545

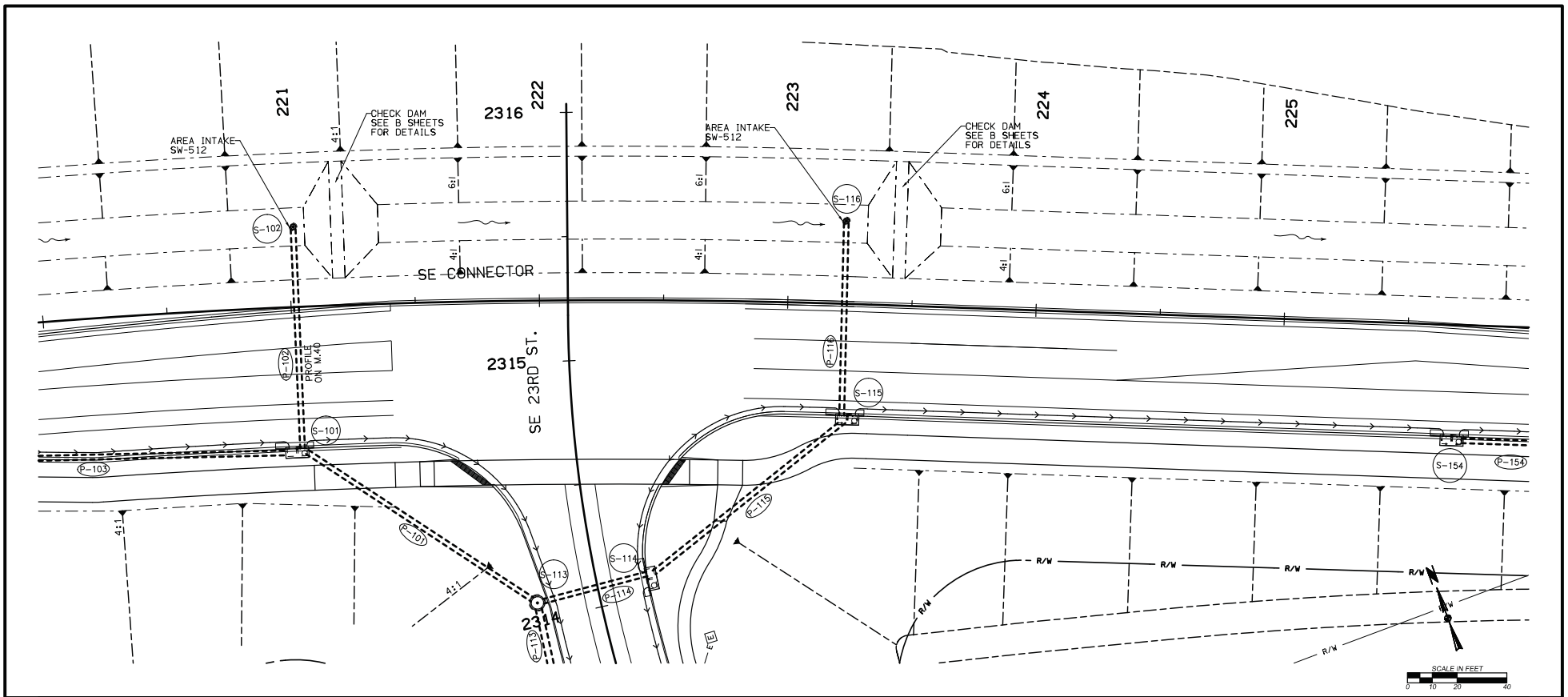
INTAKES AND UTILITY ACCESSES

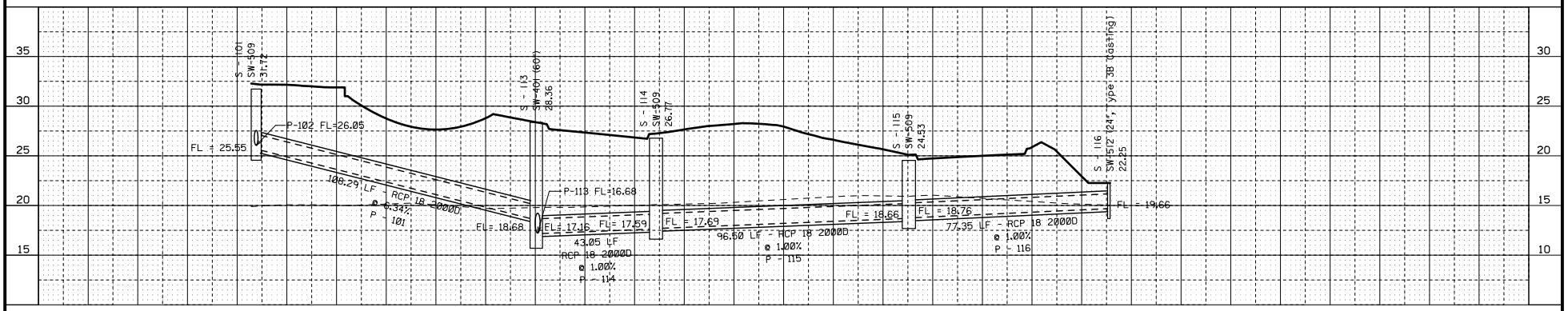
No.	Location Station and Offset	*Type or Standard Road Plan	Form Grade Elev.	Bottom Well Elev.	Extension Length** FT	Notes
S - 58	202+50.00, 45 LT		24.05	18.39		SW-509 MODIFIED
S - 59	204+50.00, 45 RT	SW-509	31.55	24.69		
S - 60	204+50.00, 45 LT		31.55	25.89		SW-509 MODIFIED
S - 61	206+50.00, 45 RT	SW-509	39.05	32.19		
S - 62	206+50.00, 45 LT		39.05	33.39		SW-509 MODIFIED
S - 63	209+21.65, 46.93 RT	SW-509	48.21	41.38		
S - 64	209+11.25, 47.2 LT		48.09	42.43		SW-509 MODIFIED
S - 101	221+00.00, 57 RT	SW-509	31.72	24.55		
S - 102	221+02.14, 32.27 LT	SW-512	29.52	26.07		
S - 103	218+81.64, 45 RT	SW-509	38.94	31.88		
S - 104	218+83.78, 32.39 LT	SW-512	36.73	33.28		
S - 105	216+73.37, 46.94 RT	SW-509	45.75	39		
S - 106	216+66.73, 46.94 LT	SW-509	46.09	40.43		
S - 110	223+68.59, 173.71 RT	RF-3				
S - 111	2313+22.57, 31.56 LT	SW-405	26.8	5		
S - 112	221+23.04, 226.17 RT	RF-3				
S - 113	2314+06.96, 25 LT	SW-401	28.36	15.68		
S - 114	2314+06.96, 20.5 RT	SW-509	26.77	16.59		
S - 115	223+25.38, 45 RT	SW-509	24.53	17.66		
S - 116	223+22.57, 33.35 LT	SW-512	22.25	18.66		
S - 117	223+38.67, 374.29 RT	SW-506	22.26	15.64		
S - 118	223+64.83, 357.66 RT	SW-505	22.26	16.21		
S - 120	232+94.83, 621.69 RT					24" HEADWALL W/FLAP GATE
S - 121	231+74.22, 600.01 RT	SW-402	13.73	6.36		
S - 122	228+00.64, 754.71 RT	SW-402	12.74	7.61		
S - 123	225+33.96, 837.87 RT	RF-3				
S - 126	225+40.98, 635.73 RT	SW-506	16.81	10.76		
S - 127	225+14.76, 652.28 RT	SW-505	16.8	11.13		
S - 128	2305+76.55, 15.5 RT	SW-506	13.83	8.16		
S - 129	2305+76.55, 15.5 LT	SW-505	13.83	8.44		
S - 130	2300+58.02, 25.73 LT					CONNECT TO EXISTING MANHOLE
S - 131	2300+89.65, 20.5 LT	SW-505	12.61	7.17		
S - 132	2300+89.65, 20.5 RT	SW-505	12.61	7.45		
S - 150	228+65.78, 53.46 RT	RF-2				CONNECT TO STUB FROM RCB CULVERT
S - 151	227+75.00, 45 RT	SW-509	16.56	8.05		
S - 152	226+94.00, 45 RT	SW-509	16.16	9.56		
S - 152B	226+69.00, 45 RT	SW-507	16.2	10.05		
S - 152C	227+19.00, 45 RT	SW-507	16.2	9		
S - 153	226+19.00, 45 RT	SW-509	16.54	10.81		
S - 154	225+69.00, 45 RT	SW-507	17.21	11.55		
S - 155	228+12.61, 46.5 LT	RF-2				CONNECT TO STUB FROM RCB CULVERT
S - 157	226+94.00, 46.50 LT	SW-401	15.11	9.56		
S - 158	226+94.00, 32.27 LT	SW-512	14.02	9.77		
S - 160	228+78.83, 56.7 RT	RF-2				CONNECT TO STUB FROM RCB CULVERT
S - 161	229+50.00, 45 RT	SW-507	17.88	9		
S - 162	229+50.00, 19 LT					DEAD END CROSS RUN
S - 170	236+19.17, 104.95 RT	RF-3				
S - 171	236+17.02, 45 RT	SW-509	16.48	6.58		
S - 171B	235+92.00, 45 RT	SW-507	16.52	9.84		
S - 171C	236+42.00, 45 RT	SW-507	16.52	9.61		
S - 172	236+19.17, 32.27 LT	SW-512	14.34	7.85		
S - 173	236+19.17, 62.50 LT	SW-401	16.88	8.42		
S - 174	236+66.26, 117.68 LT	SW-401	13.5	9.16		SEE SW-604, PROVIDE TYPE 3B CASTING
S - 175	236+66.08, 153.64 LT	RF-2				
S - 177	235+45.00, 45 RT	SW-509	16.81	10.55		
S - 178	234+00.00, 45 RT	SW-507	17.9	12.24		
S - 180	236+82.00, 45 RT	SW-509	16.77	10.26		
S - 181	238+07.25, 45.33 RT	SW-509	18.62	11.76		
S - 182	240+20.00, 57 RT	SW-509	22.22	15.15		

PIPES

Design Length, Slope, and Flowlines are calculated from inside wall to inside wall along CL of pipe. An additional 6 ft length is added to Design Length to account for estimated length to center of structures.

Line Number	Intake/ Utility Access No. From	Intake/ Utility Access No. To	Class 'D'	Pipe Diameter IN	Bid* Length FT	Design Length FT	Slope %	Flow Lines Inlet Elevation	Flow Lines Outlet Elevation	Flow Lines Other Elevation	Pipe Profile Sheet No.	Notes
P - 59	S - 59	S - 57	2000	18	198	192	3.28	25.69	19.38		M.11	
P - 60	S - 60	S - 59	2000	18	96	90	1	26.89	25.99		M.38	23.4 TONS GRANULAR BACKFILL
P - 61	S - 61	S - 59	2000	18	198	192	3.28	33.19	26.88		M.12	
P - 62	S - 62	S - 61	2000	18	96	90	1	34.39	33.49		M.39	23.4 TONS GRANULAR BACKFILL
P - 63	S - 63	S - 61	2000	18	269.52	263.52	3.03	42.38	34.38		M.12	
P - 64	S - 64	S - 63	2000	18	100.28	94.28	1.01	43.43	42.48		M.39	24.6 TONS GRANULAR BACKFILL
P - 101	S - 101	S - 113	2000	18	114.29	108.29	6.34	25.55	18.68		M.13/M.14	
P - 102	S - 102	S - 101	2000	18	94.27	88.27	1	27.07	26.05		M.40	42.1 TONS GRANULAR BACKFILL
P - 103	S - 103	S - 101	2000	18	212.84	206.84	3.3	32.88	26.05		M.13	
P - 104	S - 104	S - 103	2000	18	82.38	76.38	1	34.28	33.38		M.39	25.6 TONS GRANULAR BACKFILL
P - 105	S - 105	S - 103	2000	18	202.83	196.83	3.36	40	33.38		M.13	
P - 106	S - 106	S - 105	2000	18	99.68	93.68	1	41.43	40.49		M.39	23.2 TONS GRANULAR BACKFILL
P - 111	S - 111	S - 110	3000	48	143.97	137.97		6	6		M.30	
P - 112	S - 112	S - 111	3000	48	85.08	79.08		6	6		M.30	
P - 113	S - 113	S - 111	2000	24	90.39	84.39	3.33	16.68	14.15		M.29	
P - 114	S - 114	S - 113	2000	18	49.05	43.05	1	17.59	17.16		M.14	68.2 TONS GRANULAR BACKFILL
P - 115	S - 115	S - 114	2000	18	102.5	96.5	1	18.66	17.69		M.14	
P - 116	S - 116	S - 115	2000	18	83.35	77.35	1	19.66	18.76		M.14	34.4 TONS GRANULAR BACKFILL
P - 117	S - 117	S - 111	2000	18	199.57	193.57	1	16.64	14.65		M.29	
P - 118	S - 118	S - 117	2000	18	33.06	27.06	1	17.21	16.94		M.43	15.4 TONS GRANULAR BACKFILL
P - 121	S - 121	S - 120	2000	24	121.36	115.36	0.3	7.36	7		M.32	45.9 TONS CLASS E REVETMENT
P - 122	S - 122	S - 121	2000	24	406.34	400.34	0.3	8.61	7.41		M.32	
P - 123	S - 123	S - 129	2000	18	85.76	79.76	0.3	9.73	9.49		M.31	
P - 126	S - 126	S - 128	2000	18	228.05	222.05	0.95	11.76	9.66		M.28	
P - 127	S - 127	S - 126	2000	18	33.01	27.01	1	12.13	11.86		M.43	13.2 TONS GRANULAR BACKFILL
P - 128	S - 128	S - 122	2000	18	173.6	167.6	0.3	9.16	8.66		M.31	
P - 129	S - 129	S - 128	2000	18	33	27	0.3	9.44	8.36		M.31	10.9 TONS GRANULAR BACKFILL
P - 131	S - 131	S - 130	2000	18	34.97	28.97	0.5	8.17	8.03		M.27	
P - 132	S - 132	S - 131	2000	18	43	37	0.5	8.45	8.26		M.27	13.6 TONS GRANULAR BACKFILL
P - 151	S - 151	S - 150	2000	18	93.06	87.06	1.78	9.05	7.5		M.15	10' D.I.P. 77.06' RCP
P - 152	S - 152	S - 152C	2000	18	24.99	18.99	1.3	10.56	10.31		M.15	
P - 152B	S - 152B	S - 152	2000	18	25.01	19.01	1	11.05	10.86		M.15	
P - 152C	S - 152C	S - 151	2000	18	56	50	1.3	10	9.35		M.15	
P - 153	S - 153	S - 152B	2000	18	52	46	1	11.81	11.35		M.15	
P - 154	S - 154	S - 153	2000	18	50	44	1	12.55	12.11		M.15	
P - 157	S - 157	S - 155	2000	18	122.6	116.6	2.2	10.56	8		M.40	10' D.I.P. 106.60' RCP
P - 158	S - 158	S - 157	2000	18	17.23	11.23	1	10.77	10.66		M.40	
P - 161	S - 161	S - 160	2000	18	75.91	69.91	3.58	10	7.5		M.15	10' D.I.P. 59.91' RCP
P - 162	S - 162	S - 161	2000	18	67	64	2	11.58	10.3		M.15	28.9 TONS GRANULAR BACKFILL
P - 171	S - 171	S - 170	2000	30	53.8	50.8	0.56	7.58	7.3		M.33	30.15 TONS CLASS E REVETMENT
P - 171B	S - 171B	S - 171	2000	18	25.02	19.02	1	10.84	10.65		M.16	41.8 TONS GRANULAR BACKFILL
P - 171C	S - 171C	S - 171	2000	18	24.98	18.98	1	10.61	10.42		M.16	
P - 172	S - 172	S - 171	2000	24	82.27	76.27	1	8.85	8.08		M.33	
P - 173	S - 173	S - 172	2000	24	33.23	27.23	1	9.42	9.15		M.33	
P - 174	S - 174	S - 173	2000	24	74.23	68.23	0.64	10.16	9.72		M.33	
P - 175	S - 175	S - 174	2000	24	39.96	33.96	2.54	11.22	10.36		M.33	
P - 177	S - 177	S - 171B	2000	18	47	41	1	11.55	11.14		M.16	
P - 178	S - 178	S - 177	2000	18	145	139	1	13.24	11.85		M.16	
P - 180	S - 180	S - 171C	2000	18	40.57	34.57	1	11.26	10.91		M.16	
P - 181	S - 181	S - 180	2000	18	126.05	120.05	1	12.76	11.56		M.16/M.17	
P - 182	S - 182	S - 181	2000	18	215.05	209.05	1.05	16.15	13.96		M.17	





DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-191	SHEET NUMBER M.14

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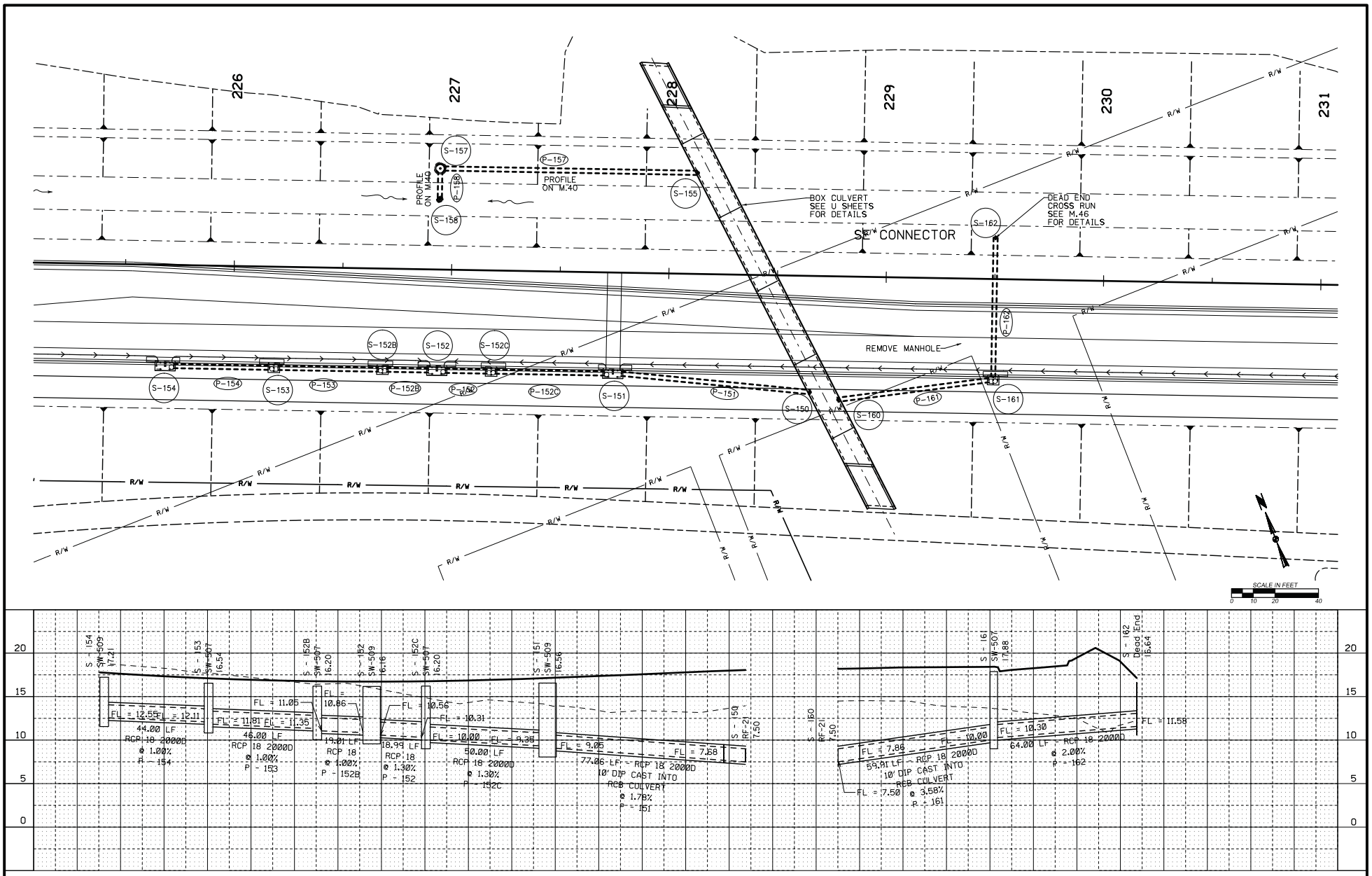

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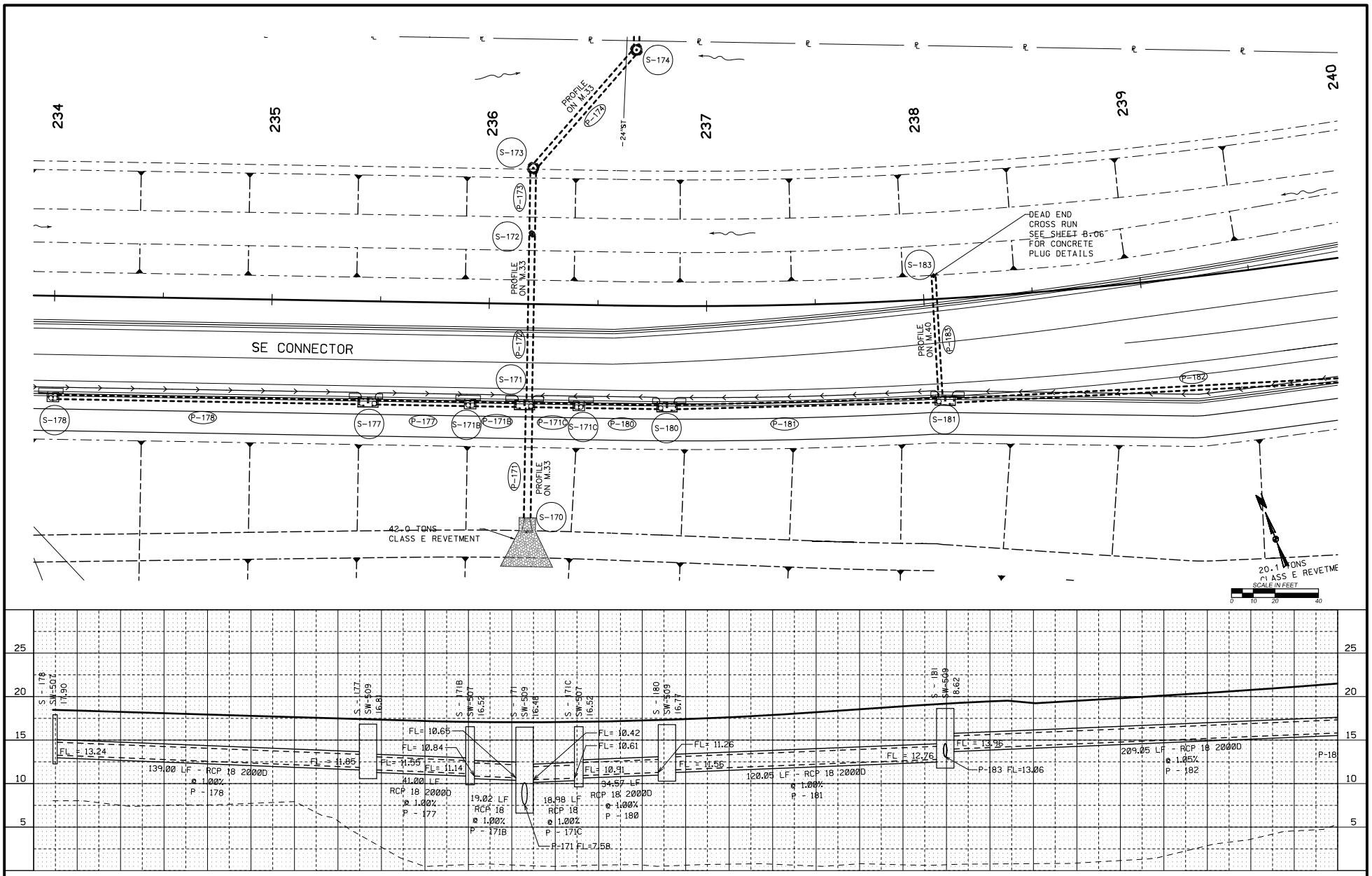

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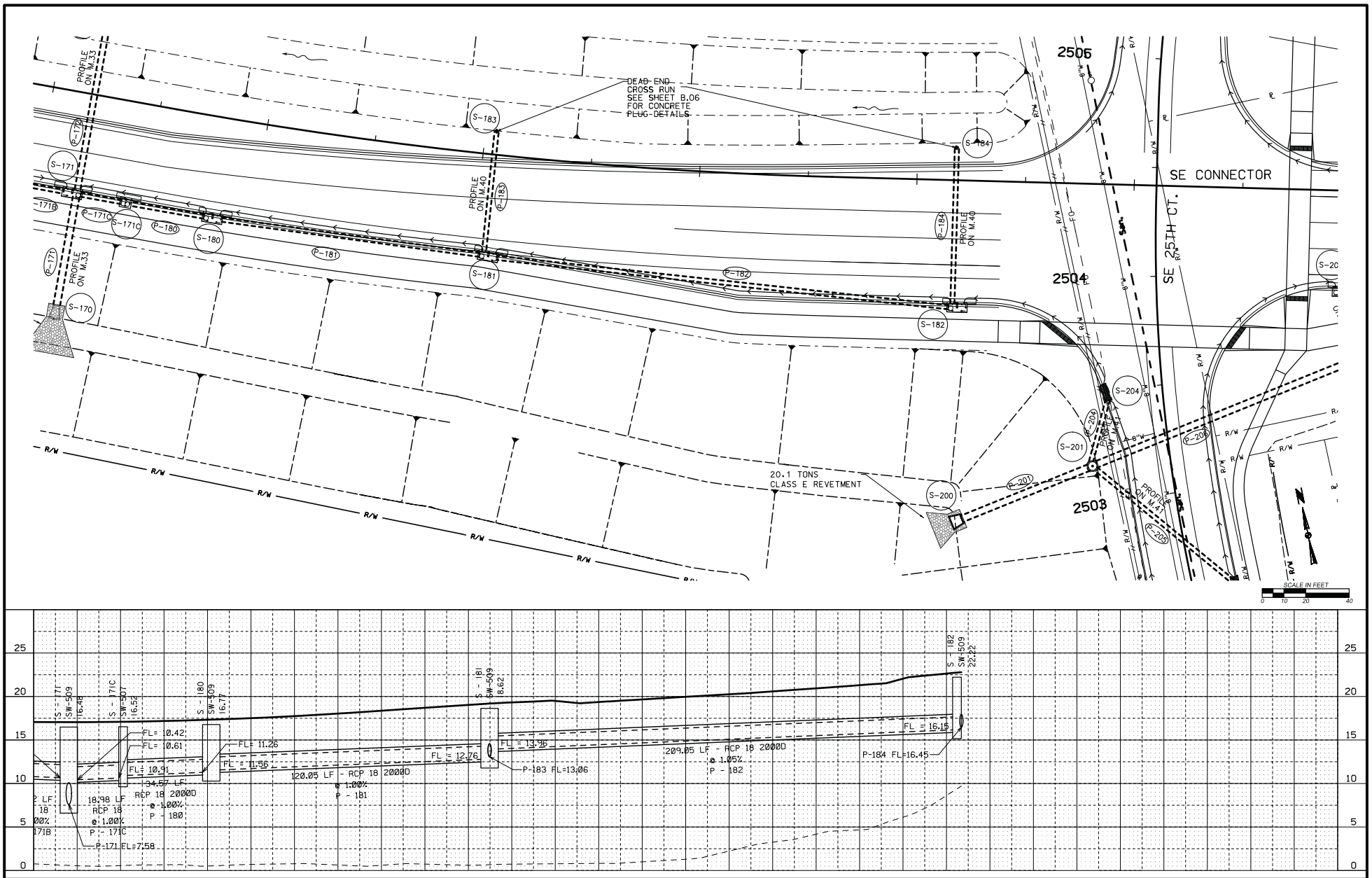

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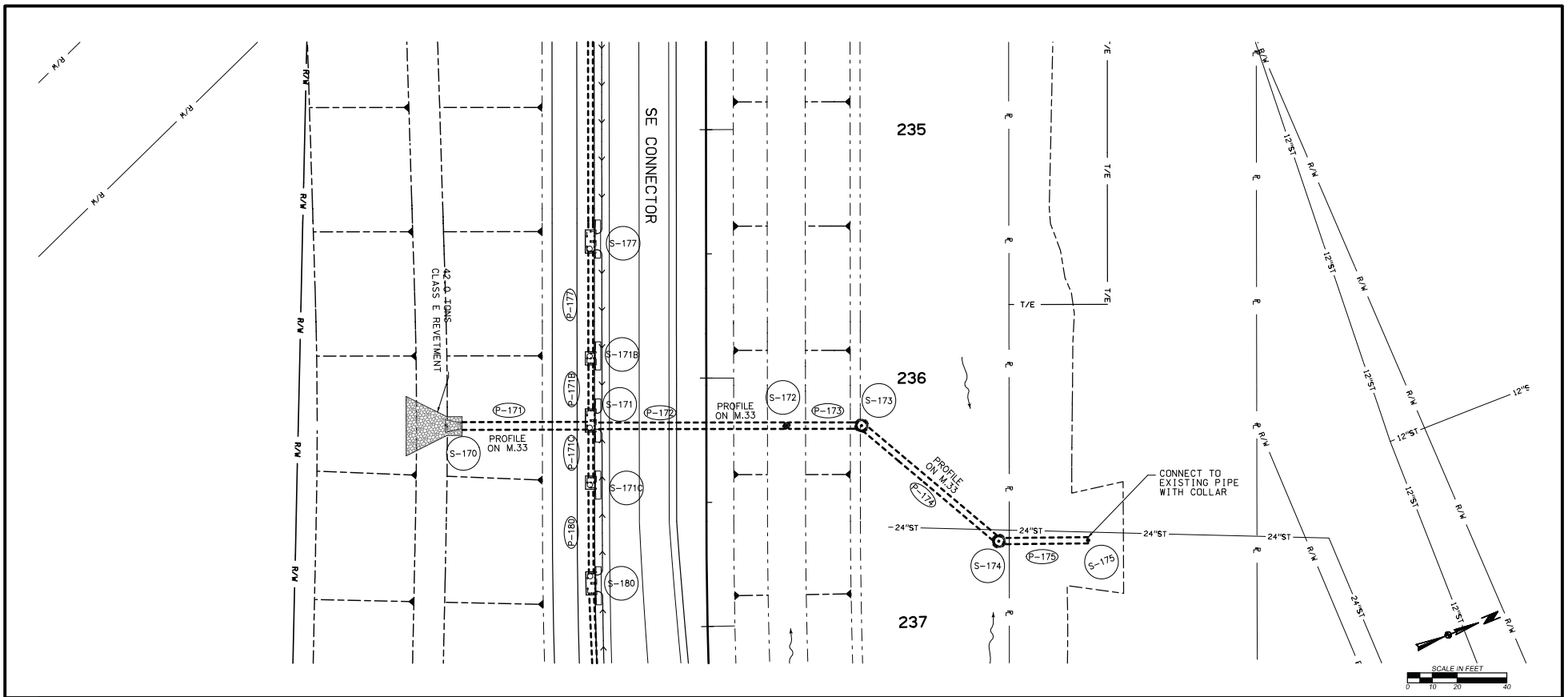

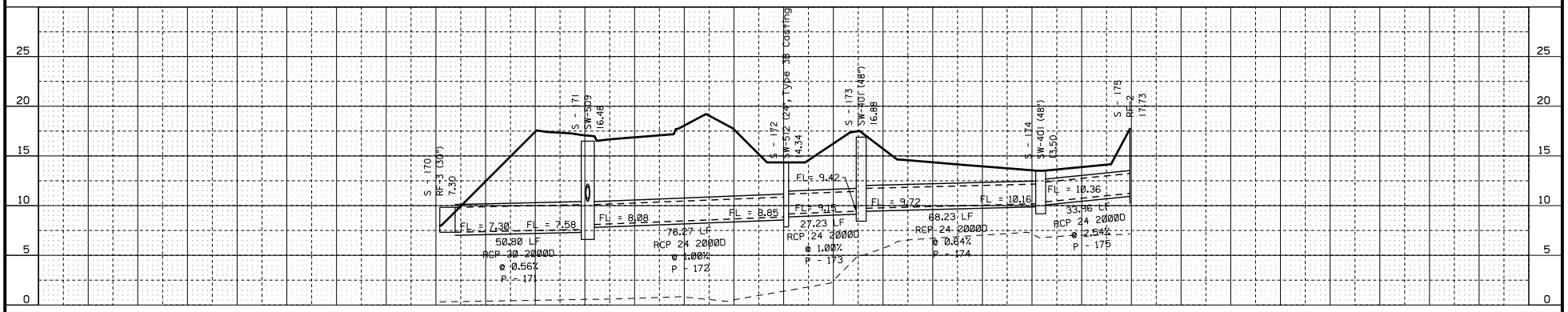

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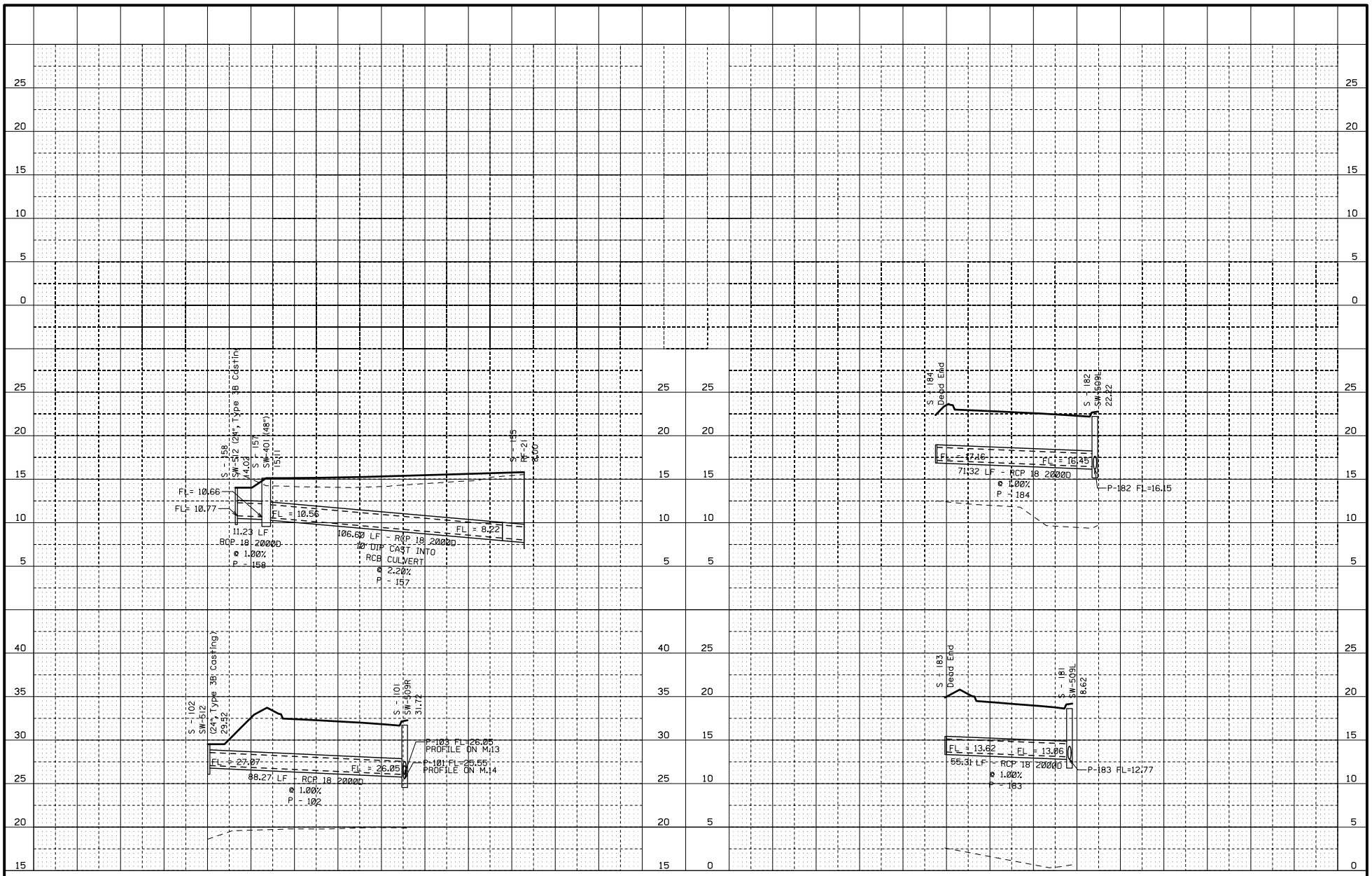

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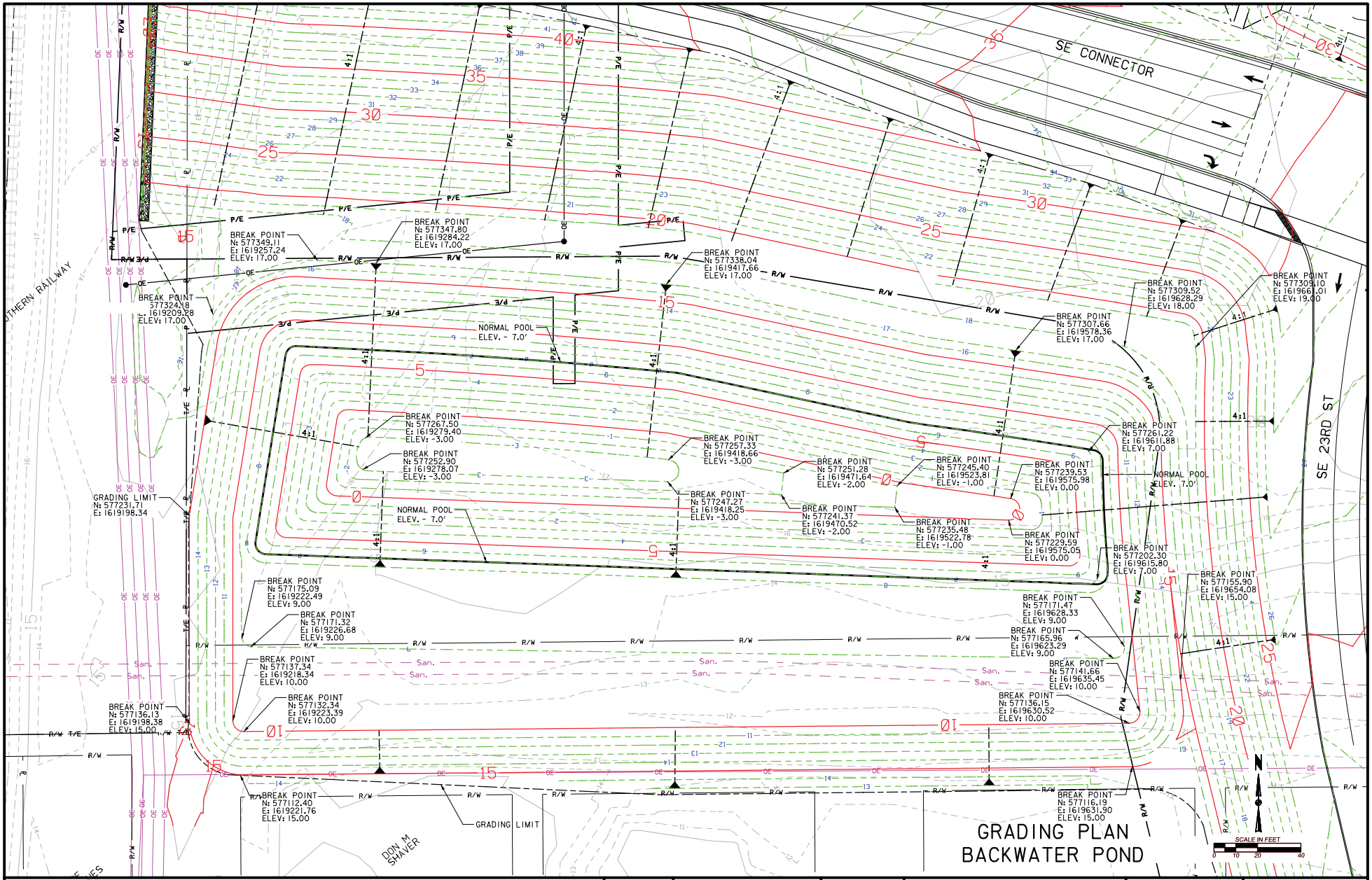

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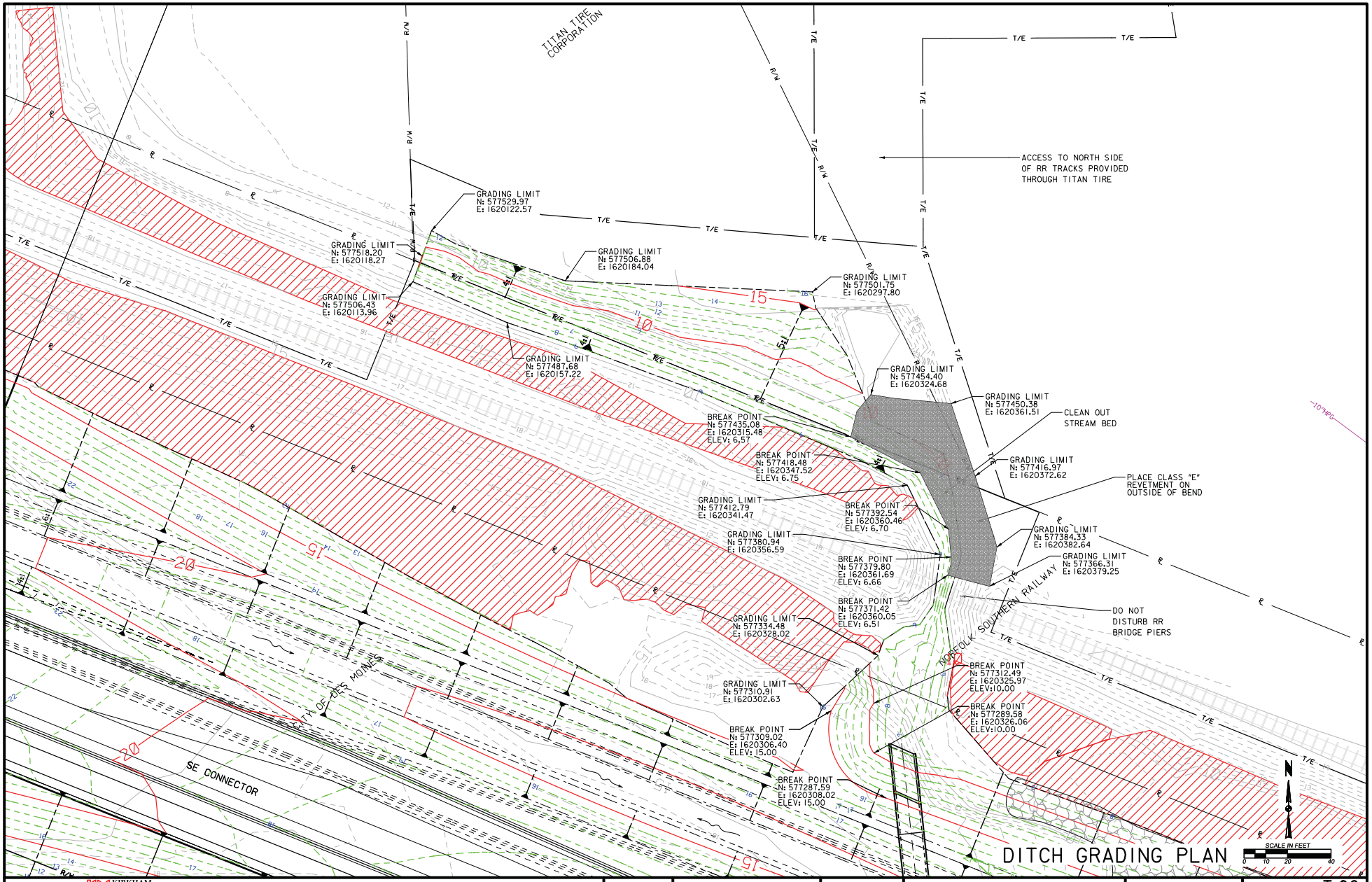

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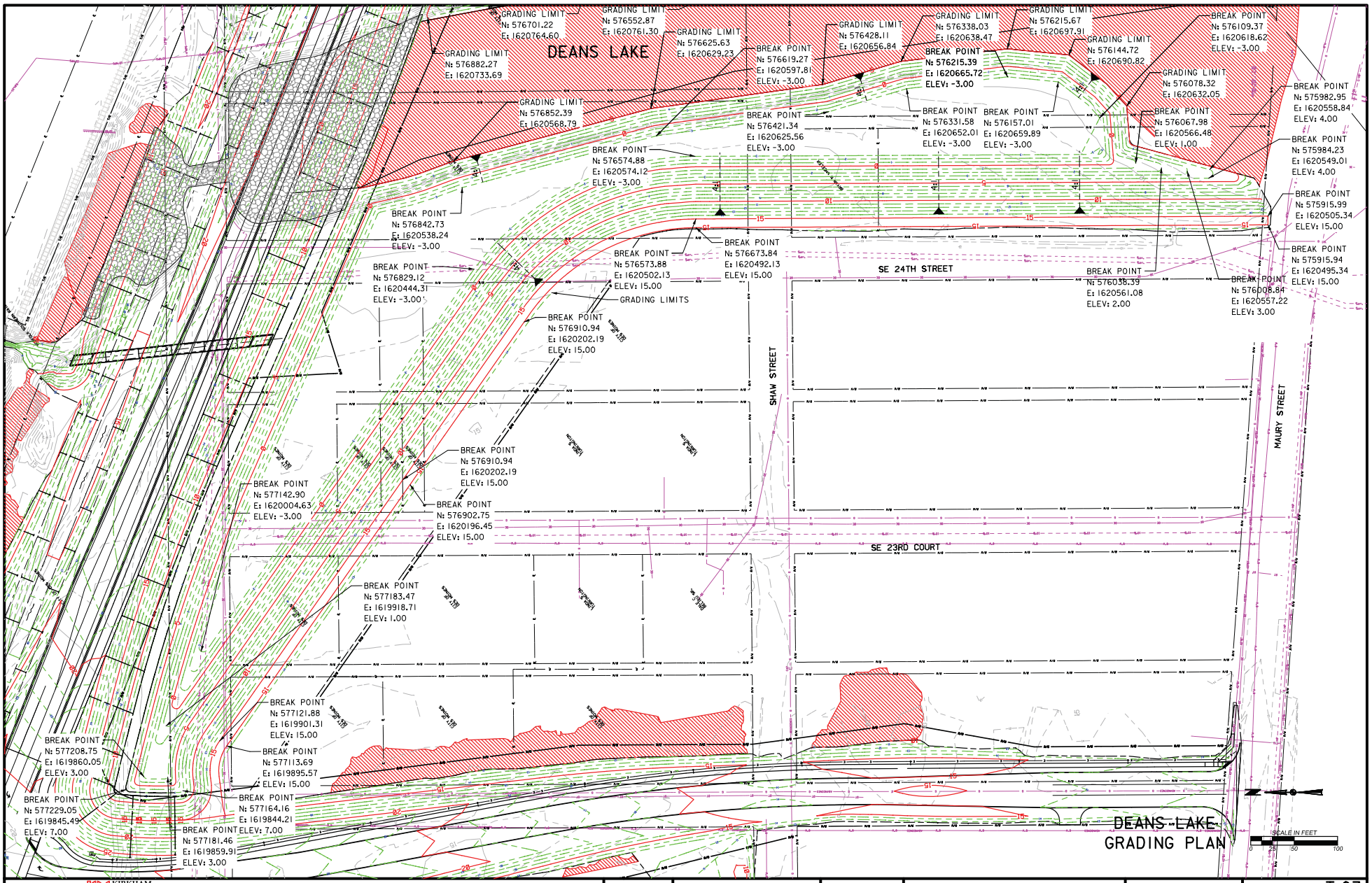

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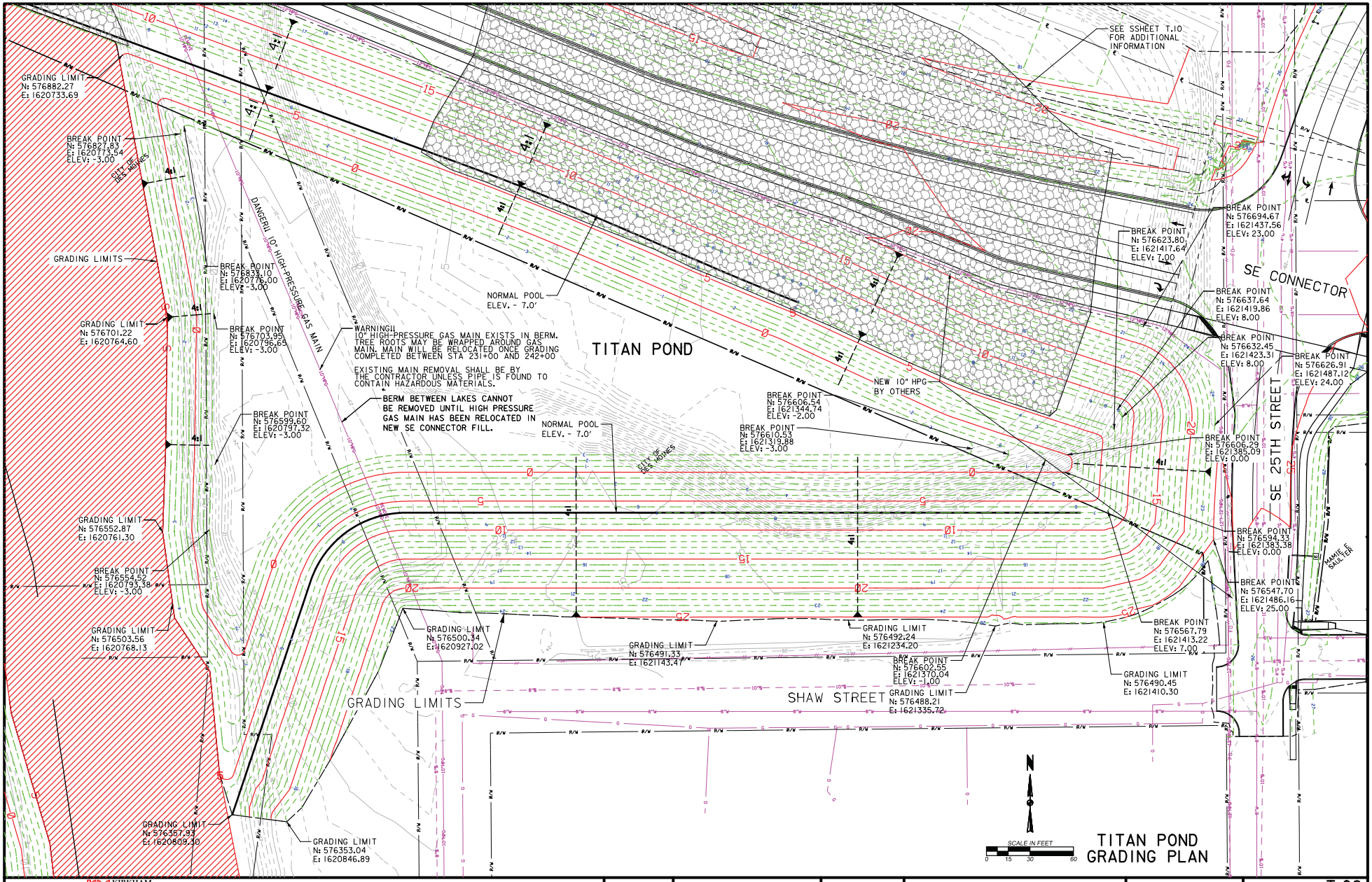

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-398	SHEET NUMBER T.08

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DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-399	SHEET NUMBER T.09

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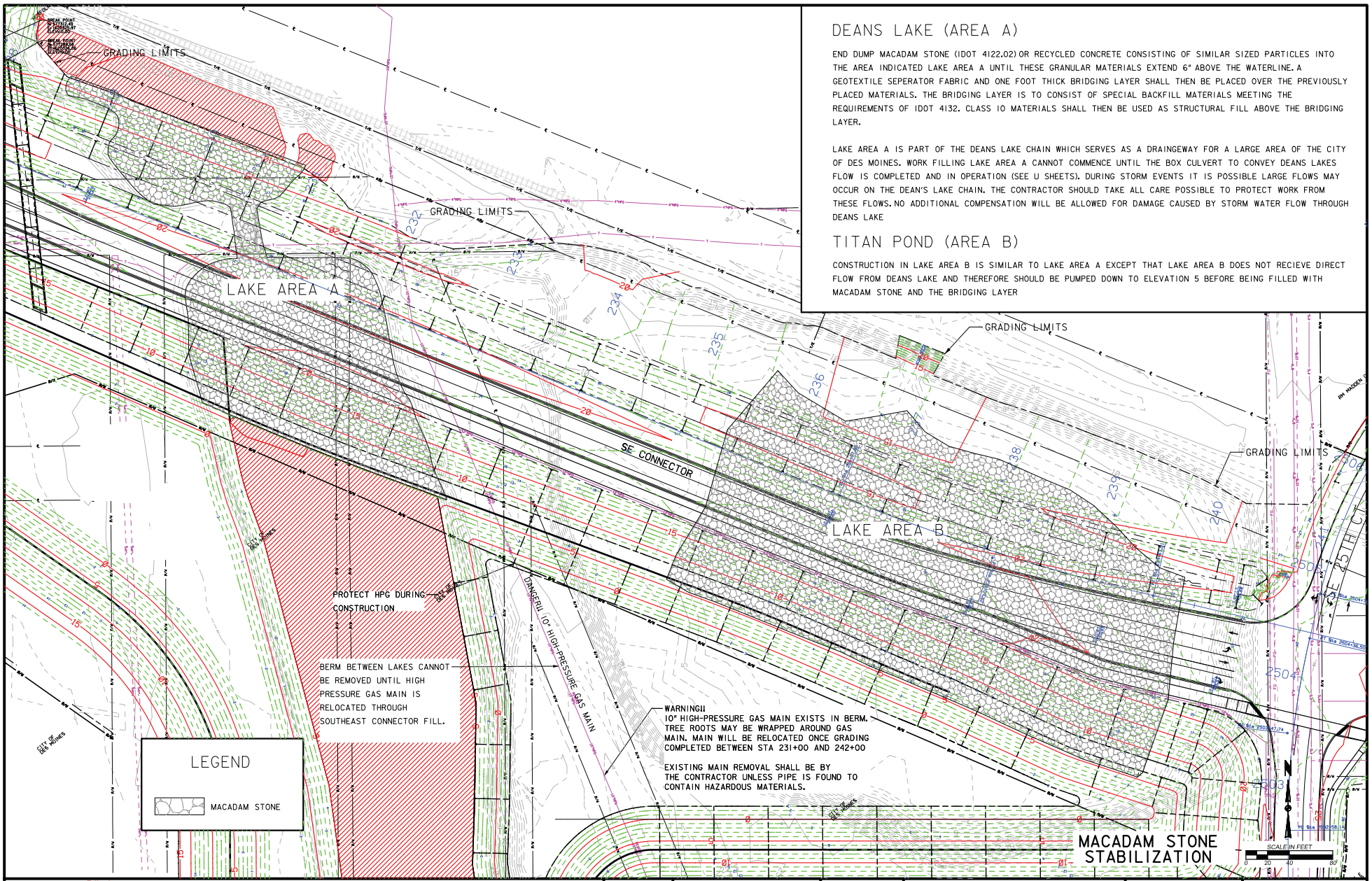
DEANS LAKE (AREA A)

END DUMP MACADAM STONE (IDOT 4122.02) OR RECYCLED CONCRETE CONSISTING OF SIMILAR SIZED PARTICLES INTO THE AREA INDICATED LAKE AREA A UNTIL THESE GRANULAR MATERIALS EXTEND 6" ABOVE THE WATERLINE. A GEOTEXTILE SEPERATOR FABRIC AND ONE FOOT THICK BRIDGING LAYER SHALL THEN BE PLACED OVER THE PREVIOUSLY PLACED MATERIALS. THE BRIDGING LAYER IS TO CONSIST OF SPECIAL BACKFILL MATERIALS MEETING THE REQUIREMENTS OF IDOT 4132. CLASS 10 MATERIALS SHALL THEN BE USED AS STRUCTURAL FILL ABOVE THE BRIDGING LAYER.

LAKE AREA A IS PART OF THE DEANS LAKE CHAIN WHICH SERVES AS A DRAINGEWAY FOR A LARGE AREA OF THE CITY OF DES MOINES. WORK FILLING LAKE AREA A CANNOT COMMENCE UNTIL THE BOX CULVERT TO CONVEY DEANS LAKES FLOW IS COMPLETED AND IN OPERATION (SEE U SHEETS). DURING STORM EVENTS IT IS POSSIBLE LARGE FLOWS MAY OCCUR ON THE DEAN'S LAKE CHAIN. THE CONTRACTOR SHOULD TAKE ALL CARE POSSIBLE TO PROTECT WORK FROM THESE FLOWS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR DAMAGE CAUSED BY STORM WATER FLOW THROUGH DEANS LAKE

TITAN POND (AREA B)

CONSTRUCTION IN LAKE AREA B IS SIMILAR TO LAKE AREA A EXCEPT THAT LAKE AREA B DOES NOT RECIEVE DIRECT FLOW FROM DEANS LAKE AND THEREFORE SHOULD BE PUMPED DOWN TO ELEVATION 5 BEFORE BEING FILLED WITH MACADAM STONE AND THE BRIDGING LAYER



DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-400	SHEET NUMBER T.10

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GENERAL NOTES:

1. IT IS THE INTENT OF THIS DESIGN TO CONSTRUCT A NEW SINGLE 10'x6'x184'-0 REINFORCED CONCRETE BOX CULVERT AT 28° SKEW RIGHT AHEAD AT STATION 228+43.
2. FAINT LINES ON TRACINGS AND FAINT LINES ON PRINTS INDICATE EXISTING STRUCTURES. UTILITY COMPANIES AND MUNICIPALITIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE STARTING DATE.
3. THE RCB CULVERT SECTION IS DESIGNED FOR HL-93 LIVE LOAD AND EARTH FILL OF 5 FEET.
4. THE RCB CULVERT SECTIONS ARE DESIGN FOR CLASS I EXPOSURE CONDITIONS:
5. ALL SLAB AND FLOOR REINFORCING STEEL IS TO BE SUPPORTED AT INTERVALS OF NOT MORE THAN 3'-0 IN EITHER DIRECTION AS OUTLINED IN THE STANDARD SPECIFICATIONS.
6. THE CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR EDGE OR END OF REINFORCING BAR TO BE 2" UNLESS OTHERWISE NOTED.
7. EXCEPT FOR DOWEL BARS 5r1 IN SLAB, LONGITUDINAL REINFORCING IS NOT TO EXTEND THROUGH THE CONSTRUCTION JOINTS.
8. FLOOR OF BARREL IS TO BE FINISHED SMOOTH. SIDES OF FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.
9. THE PERMISSIBLE CONSTRUCTION JOINT AT THE TOP OF THE WALLS MAY BE LOWERED AT THE CONTRACTOR'S OPTION WITH ENGINEER'S APPROVAL.
10. THE REINFORCEMENT SUPPLIED FOR THIS STRUCTURE SHALL BE GRADE 60 REINFORCEMENT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS. THE DESIGN STRESSES ARE BASED ON GRADE 60 REINFORCEMENT.
11. THE VERTICAL BARS IN THE WALLS MAY BE SPLICED ABOVE THE FOOTING AT THE CONTRACTOR'S OPTION AS FOLLOWS:

BAR SIZE NUMBER	4	5	6	7	8	9
MINIMUM SPLICE LENGTH	17"	21"	25"	31"	41"	51"

THIS SPLICE, IF USED, WILL BE AT THE CONTRACTOR'S EXPENSE.

12. REINFORCING BAR CLEARANCES WILL BE AS FOLLOWS:
    - EDGE CLEARANCES: 2" EXCEPT
      - TOP OF FLOOR: $2\frac{1}{4}$" TO NEAR TRANSVERSE REINFORCING BAR
      - BOTTOM OF FLOOR: $3\frac{1}{2}$" TO NEAR TRANSVERSE REINFORCING BAR
    - END CLEARANCES:
      - VERTICAL TOP: 2"
      - VERTICAL BOTTOM: 3" OR $3\frac{1}{2}$" IF OVERALL HEIGHT OF THE CULVERT IS NOT TO A FULL INCH
      - TRANSVERSE: 2"
13. ALL CONSTRUCTION JOINTS SHALL BE FORMED WITH A BEVELED KEYWAY.
14. ALL BEVELED KEYWAYS SHALL BE CENTERED.
15. KEYWAY SIZE SHALL BE 2x4.
16. KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.
17. ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED OR SHOWN.
18. CONCRETE FORMS ARE REQUIRED TO REMAIN IN PLACE 5 DAYS OR LONGER IN ACCORDANCE WITH ARTICLE 2403.03, M, 2, OF THE STANDARD SPECIFICATIONS, EXCEPT THE MINIMUM CONCRETE FLEXURAL STRENGTH REQUIRED BEFORE REMOVAL OF FORMS SHALL BE 575 PSI.
19. THESE CULVERT STANDARDS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$ INCH DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE	4	5	6	7	8	9
BAR DESIGNATION	13	16	19	22	25	29

20. WHEN DE-WATERING PRESENTS A PROBLEM FOR PLACING THE CURTAIN WALLS AS DETAILED, ALTERNATE METHODS SUCH AS STEEL SHEET PILE AND PRECAST CONCRETE WALLS MAY BE APPROVED BUT AT NO ADDITIONAL COST. THE CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL COMPLETE DRAWINGS OF THE PROPOSED CURTAIN WALL ALTERNATE BEFORE BEGINNING CONSTRUCTION.

SPECIFICATIONS:

DESIGN:
AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH ED., SERIES OF 2010.

CONSTRUCTION:
IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, CURRENT SERIES, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH ED., SERIES OF 2010:
REINFORCING STEEL IN ACCORDANCE WITH AASHTO LRFD SECTION 5, GRADE 60.
CONCRETE IN ACCORDANCE WITH AASHTO LRFD SECTION 5, f'c = 4.0 KSI.

TRAFFIC CONTROL NOTE

THE CULVERT SITE IS ON A NEW ROADWAY ALIGNMENT WHICH WILL BE CLOSED TO TRAFFIC DURING CONSTRUCTION.

NOTE:

CULVERT QUANTITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY. SEE "C" SHEETS FOR PROJECT QUANTITIES.

LICENSED PROFESSIONAL ENGINEER
STEVEN B. RENEKER
11455
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

STEVEN B. RENEKER, P.E. DATE

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2014
LICENSE NO.: 11455

PAGES OR SHEETS COVERED BY THIS SEAL:
SHEETS U.11 THRU U.19

SUMMARY OF REINFORCING STEEL

LOCATION	QUANTITY (LBS.)	TOTAL (LBS.)
P.W. HEADWALLS 30° SKEW (2 REQ'D.)	2 AT 3196	6392
38'-0 BARREL SECTION (4 REQ'D.)	4 AT 6918	27672
16'-0 END SECTION (2 REQ'D.)	2 AT 2913	5826
REINF. BARS "5r1" * (5 SETS)	5 AT 40	200
REINF. BARS "5p1" ** (3 SETS)	3 AT 25	75
	TOTAL (LBS.)	40165

* NOTE: 5 SETS OF 11 BARS @ 3'-6 EACH BAR
** NOTE: 3 SETS OF 8 BARS @ 3'-0 EACH BAR

CONCRETE PLACEMENT QUANTITIES

LOCATION	FOOTING (C.Y.)	WALLS (C.Y.)	SLAB (C.Y.)	TOTAL
P.W. HEADWALLS 30° SKEW (2 REQ'D.)	2 @ 13.6 = 27.2	2 @ 5.7 = 11.4	2 @ 1.5 = 3.0 *	41.6
38'-0 BARREL SECTION (3 REQ'D.)	4 @ 15.5 = 62.0	4 @ 11.9 = 47.6	4 @ 12.0 = 48.0	157.6
16'-0 END SECTION (2 REQ'D.)	2 @ 6.5 = 13.0	2 @ 5.0 = 10.0	2 @ 5.1 = 10.2	33.2
TOTAL (CU. YDS.)				232.4

* INCLUDES PARAPET AND TOP OF WINGWALL.

ESTIMATED CULVERT QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
6	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	350.0	
9	2107-0425020	COMPACTING BACKFILL ADJACENT TO B. C. & S.	CY	156.0	
31	2402-2720000	EXCAVATION, CLASS 20	CY	1938.0	
33	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY	232.4	
34	2404-7775000	REINFORCING STEEL	LB	40165.0	
90	2504-0116018	SAN. SWR. GRAVITY MAIN, DIP, 18"	LF	30.0	
97	2507-3250005	ENGINEERING FABRIC	SY	276.0	
98	2507-6800061	REVETMENT CLASS "E" RIPRAP	TON	273.0	
118	2519-1001000	FENCE, CHAIN LINK, VINYL COATED, 72 IN., ON WALL	LF	106.0	

ESTIMATE REFERENCE INFORMATION

ITEM NO.	ITEM CODE	DESCRIPTION
6	2104-2710020	SEE SHEET U.12 FOR MORE INFORMATION
9	2107-0425020	COMPACT BACKFILL TO ELEVATION OF TOP OF CULVERT
31	2402-2720000	SEE SHEET U.12 FOR MORE INFORMATION
33	2403-0100020	SEE SHEET U.11 FOR MORE INFORMATION, CERTIFIED PLANT INSPECTION REQUIRED
34	2404-7775000	SEE SHEETS U.11 - U-18 FOR MORE INFORMATION
90	2504-0116018	FOR USE AS STORM SEWER, SEE SHEET M.15 AND SHEET U.14 FOR MORE INFORMATION. PIPE TO BE CAST INTO RCB CULVERT CONNECT RCP STORM PIPE WITH COLLAR RF-2, COLLAR SHALL BE INCIDENTAL TO THIS BID ITEM
97	2507-3250005	REFER TO "M" SHEETS AND SHEET U.12 FOR MORE INFORMATION, FABRIC TO BE PLACED UNDER CLASS "E" REVETMENT
98	2507-6800061	REFER TO "M" SHEETS AND SHEET U.12 FOR MORE INFORMATION, REVETMENT TO BE PLACED AT LEAST 2' THICK AT ALL STORM SEWER OUTLETS AND AT ENDS OF RCB CULVERT
118	2519-1001000	FENCE TO BE INSTALLED ON RCB CULVERT HEADWALL, SEE SHEET U.19 FOR MORE INFORMATION

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

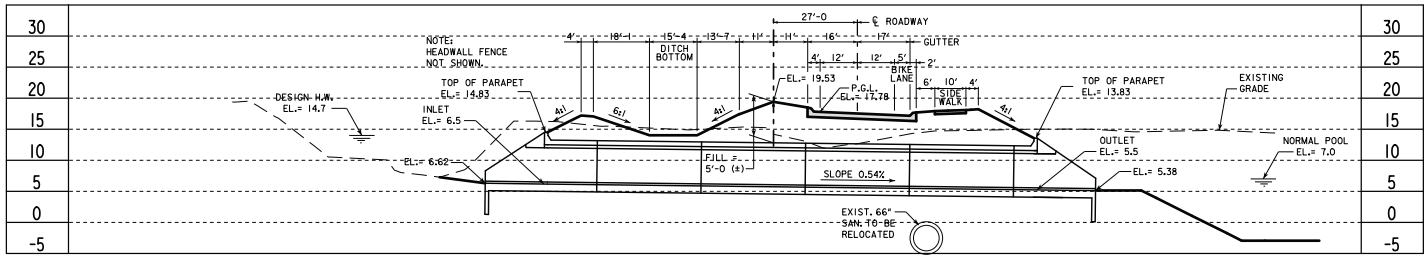
GENERAL NOTES AND QUANTITIES

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

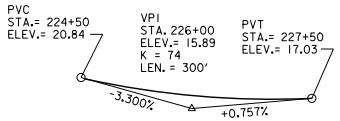
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____



LONGITUDINAL SECTION ALONG ℄ CULVERT

NOTES:
ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.

BENCH MARK: PK NAIL IN RAILROAD TIE ℄ OF TRACKS
STA. 222+72.10, 172.24' LT.
ELEV.= 17.72
N.= 577556.50, E.= 1619882.03



DESIGN SPEED = 40 MPH

PROPOSED GRADE

LOCATION

SOUTHEAST CONNECTOR
INLET TO DEAN'S LAKE
T-78 N R-24 W
SECTION 12
LATITUDE 41.58417°
LONGITUDE 93.57335°
CITY OF DES MOINES
POLK COUNTY

HYDRAULIC DATA

DRAINAGE AREA = 2300 ACRES
HW ELEV. = 14.7

FOR DESIGN Q's SEE HYDRAULIC STUDY;

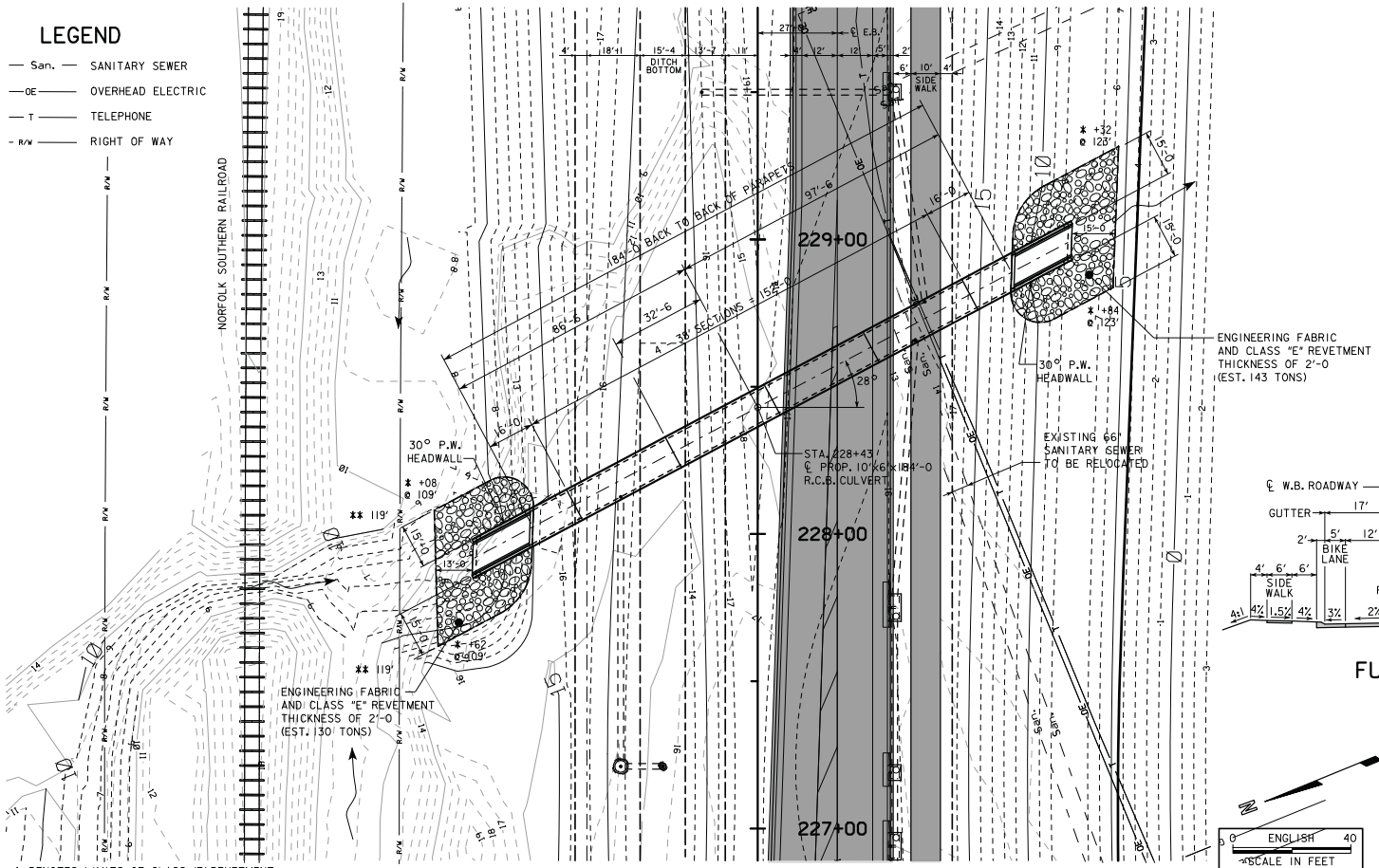
DEANS LAKE HYDROLOGY AND HYDRAULIC ANALYSIS
PREPARED BY:
HOWARD R. GREEN COMPANY
JANUARY 2008
UPDATED MARCH 2013

TRAFFIC ESTIMATE

2030	AADT	24000	V.P.D.
2030	DHV	2400	V.P.H.
TRUCKS		15	%

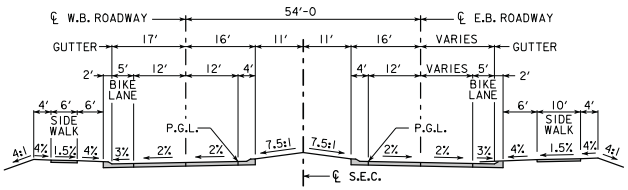
LEGEND

- San. — SANITARY SEWER
- OE — OVERHEAD ELECTRIC
- T — TELEPHONE
- R/W — RIGHT OF WAY

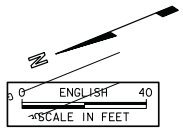


* DENOTES LIMITS OF CLASS 'E' REVETMENT
** DENOTES LIMITS OF CLASS 10 CHANNEL EXCAVATION

SITUATION PLAN



FUTURE TYPICAL SECTION



DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

SITUATION PLAN

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

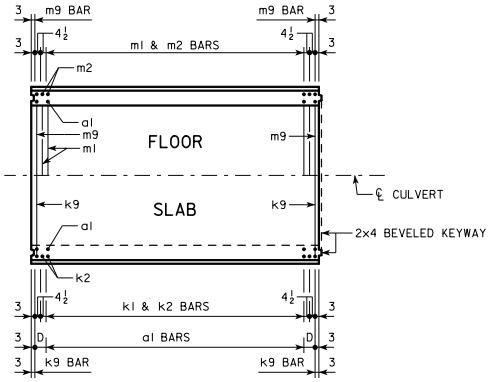
DESIGN TEAM	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-412	SHEET NUMBER U.12

KIRKHAM MICHAEL

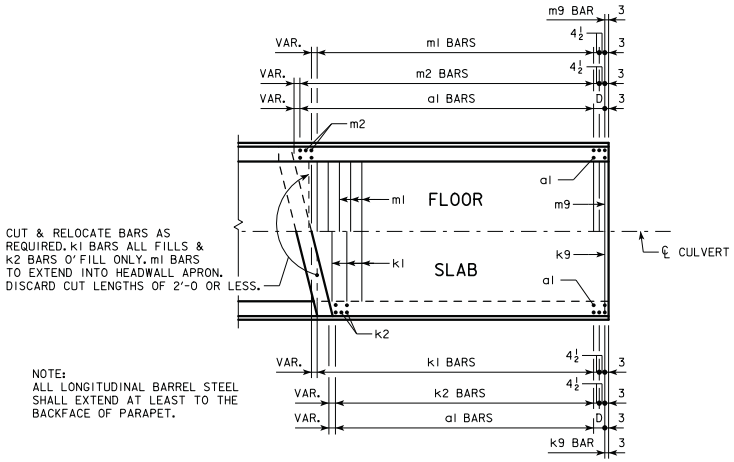
5/10/2013 nhardisty h:\0506650\cadd\plans\0506650_SEC15to23_U_Sheets_BOX CULVERT.dgn

VARIABLE DIMENSIONS AND QUANTITIES FOR 10 x 6 BARREL SECTIONS

DIMENSIONS							BAR LIST																																							QUANTITIES				
							a1			b1			e1			e2			f1			f2			k1			k2					k9		m1			m2					m9		CONCRETE (CY/FT)				STEEL
FILL	S	H	A	B	C	D	SIZE	SP.	L	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	NO.	SIZE	SP.	L	SIZE	SP.	L	H	V	SIZE	L	SIZE	SP.	L	SIZE	SP.	L	H	V	SIZE	L	SLAB	FLOOR	WALLS	TOTAL	(LB/FT)
4'-7'	10	6	8	10	9	9	4	12	7'-5	4	6	24	4	12	9	4	14	6	4	12	11	4	14	6	6	6	11'-2	5	6	6'-0	3'-0	3'-0	5	11'-2	6	6	11'-8	5	6	9'-2	2'-11	6'-3	5	11'-8	0.316	0.407	0.313	1.036	182.05



STANDARD SECTION PLAN VIEW



CUT & RELOCATE BARS AS REQUIRED. k1 BARS ALL FILLS & k2 BARS 0' FILL ONLY. m1 BARS TO EXTEND INTO HEADWALL APRON. DISCARD CUT LENGTHS OF 2'-0 OR LESS.

NOTE:
ALL LONGITUDINAL BARREL STEEL SHALL EXTEND AT LEAST TO THE BACKFACE OF PARAPET.

TYPICAL SKEW

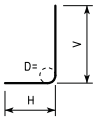
END SECTION PLAN VIEWS

(KEYWAYS NOT SHOWN)

NOTE:
END SECTION DETAILS SHOWN ARE FOR A 15° SKEW BARREL. USE FOR SKEW OF 30° BY INCREASING THE NUMBER OF TRANSVERSE REINFORCING BARS REQUIRED TO BE CUT AND RELOCATED.

BENT BAR DETAIL

BARS	D
4	3
5	3¾
6	4½

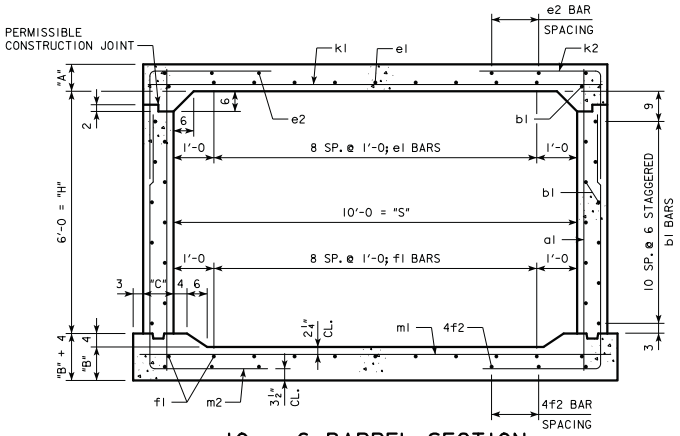


k2 & m2

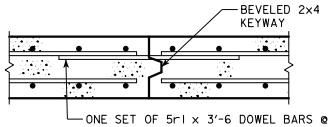
NOTE:
ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER.

5r1 BARS - ONE CONST. JT.

SPAN	NO.	WEIGHT (LB)
10'-0	11	40



10 x 6 BARREL SECTION



ONE SET OF 5r1 x 3'-6 DOWEL BARS @ 1'-0 SPACING REQUIRED IN SLAB AT ALL CULVERT BARREL JOINTS, EXCEPT JOINTS WITH BELL JOINTS. SEE TABLE FOR NUMBER REQUIRED AND TOTAL WEIGHT.

TOP SLAB CONSTRUCTION JOINT DETAIL

NOTES:

1. THE k2 AND m2 BARS HORIZONTAL LEGS MAY LAP IN LOW FILL SITUATIONS.
2. DIMENSIONS "A", "B", "C", "D", AND "SP." LISTED IN THE BAR LIST ARE IN INCHES.

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

CULVERT BARREL DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

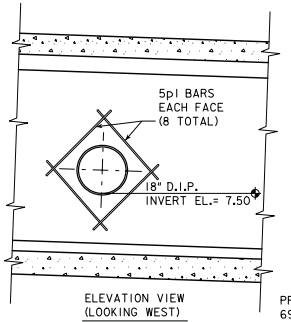
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

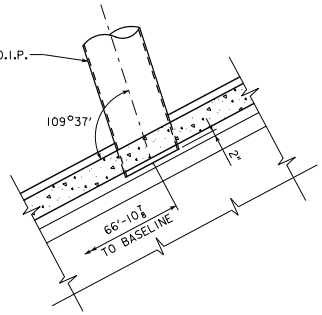
DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-413	SHEET NUMBER U.13

5/10/2013 nhardisty h:\0506650\cadd\plans\0506650_SEC15to23_U_Sheets_BOX CULVERT.dgn

BENCH MARK: PK NAIL IN RAILROAD TIE ℄ OF TRACKS
STA. 222+72.10, 172.24' LT.
ELEV.= 17.72
N.= 577556.50, E.= 1619882.03



ELEVATION VIEW
(LOOKING WEST)

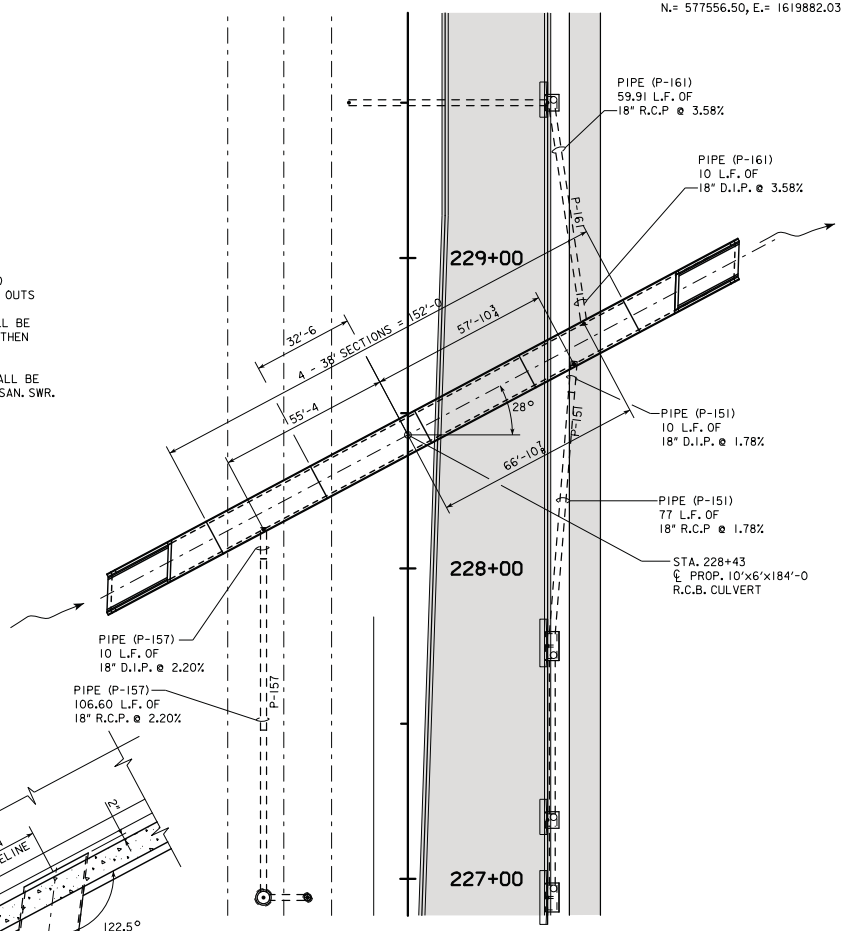


PROPOSED PIPE (P-161)
69.91 L.F. OF 18" @ 3.58%
SEE "M" SHEETS FOR
ADDITIONAL INFORMATION

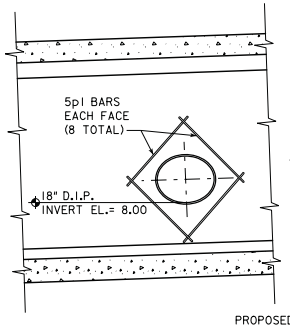
PLAN VIEW

18" STORM SEWER DETAIL
(PIPE P-161)

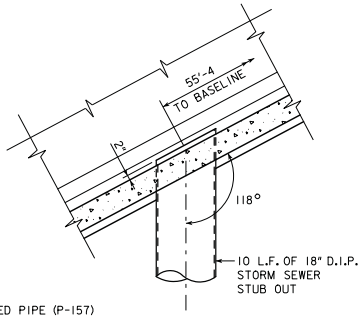
NOTES:
1. FIELD CUT ALL WALL BARS AS REQUIRED TO MAINTAIN MIN. 2" CLEARANCE AROUND PROPOSED 18" D.I.P. STORM SEWER STUB OUTS
2. ALL STORM SEWER STUB OUT PIPES SHALL BE PROJECTED 2" INTO INTERIORWALL AND THEN CUT OFF PARALLEL TO WALL FACE.
3. ALL DUCTILE IRON PIPE (D.I.P.) CUTS SHALL BE CONSIDERED INCIDENTAL TO BID ITEM, (SAN. SWR. GRAVITY MAIN, DIP, 18")



LAYOUT PLAN VIEW



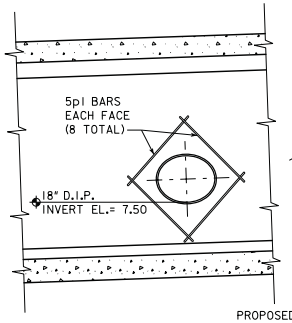
ELEVATION VIEW
(LOOKING EAST)



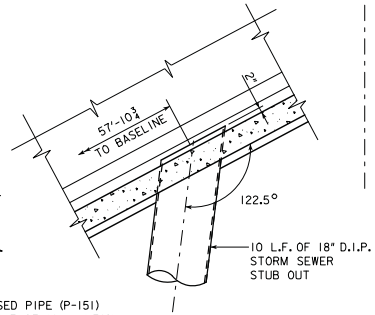
PROPOSED PIPE (P-157)
116.60 L.F. OF 18" @ 2.20%
SEE "M" SHEETS FOR
ADDITIONAL INFORMATION

PLAN VIEW

18" STORM SEWER DETAIL
(PIPE P-157)



ELEVATION VIEW
(LOOKING EAST)



PROPOSED PIPE (P-151)
87.06 L.F. OF 18" @ 1.78%
SEE "M" SHEETS FOR
ADDITIONAL INFORMATION

PLAN VIEW

18" STORM SEWER DETAIL
(PIPE P-151)

N

0 ENGLISH 40
SCALE IN FEET

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

STORM SEWER PIPE INLET DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-414	SHEET NUMBER U.14

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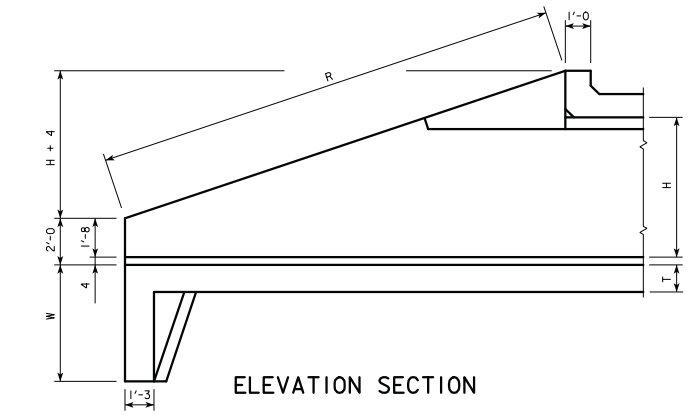
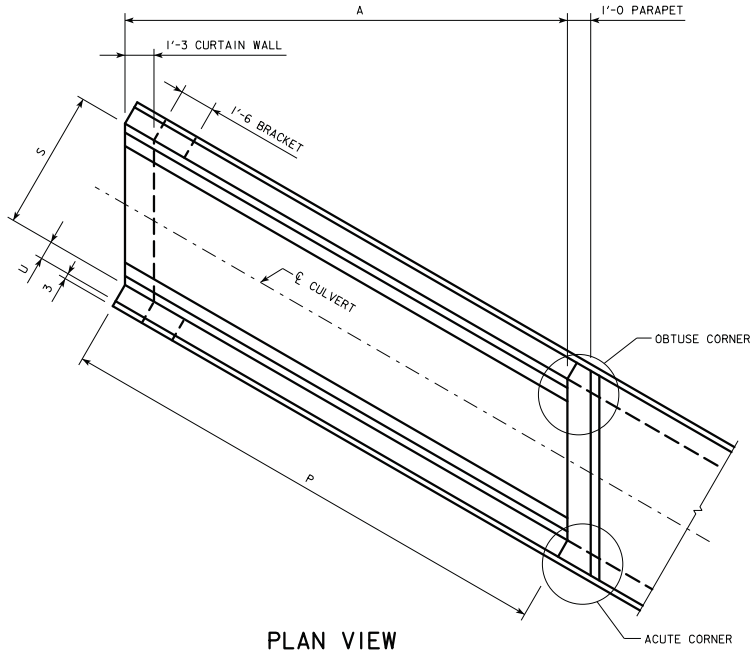


ELEVATION SECTION



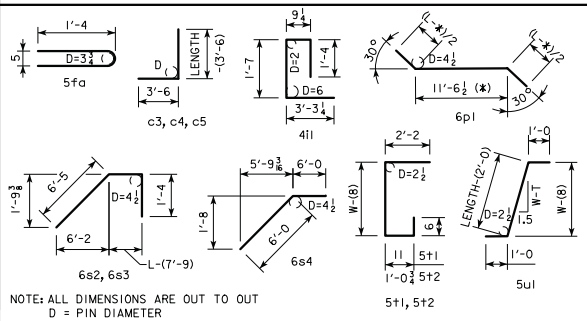
PLAN VIEW

DIMENSION TABLE

	S × H	10' × 6'
HEADWALL DIMENSIONS	A	19'-0
	H	6'-0
	P	21'-11 5/16
	R	22'-10 1/16
	S	10'-0
	T	1'-1
	U	9
	W	3'-6
BAR SPACINGS	M	8'-0
	B	1'-0
	C	1'-0
	D	1'-0
	E	9

SEE PARALLEL WING HEADWALL DETAIL DRAWINGS FOR LOCATION OF CERTAIN DIMENSIONS TABULATED.

BENT BAR DETAILS



NOTE: ALL DIMENSIONS ARE OUT TO OUT
D = PIN DIAMETER
SEE TABLE AT RIGHT FOR PIN DIAMETER "D" OF c BARS

HEADWALL NOTES:

THIS HEADWALL IS BASED ON A 3:1 SLOPE NORMAL TO CENTERLINE OF ROADWAY.

THE SIDES OF THE FOOTING ARE TO BE FORMED TO INSURE CORRECT LINE AND GRADE.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

ALL REINFORCING IS TO BE SECURELY WIRED IN PLACE BEFORE THE CONCRETE IS POURED. ALL SLAB AND FLOOR REINFORCING STEEL IS TO BE SUPPORTED BY BAR CHAIRS AT INTERVALS OF NOT MORE THAN 3'-0 IN EITHER DIRECTION AS OUTLINED IN THE STANDARD SPECIFICATIONS.

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN. CLEARANCE TO THE BOTTOM ENDS OF VERTICAL BARS SHALL BE 3 INCHES.

CONCRETE QUANTITIES ARE ESTIMATED FROM BACK OF PARAPET.

HORIZONTAL TAILS OF BARS "b" & "s" ESTIMATED TO EXTEND 2'-0 BEYOND BACK OF PARAPET (INTO END OF BARREL). LONGITUDINAL BARS "4d1" AND "6f1" ESTIMATED TO PROJECT INTO END SECTION OF BARREL A MINIMUM OF 2'-0 BEYOND BACK OF PARAPET. THE "LENGTH" COLUMN REFLECTS TOTAL NUMBER OF FEET NECESSARY TO MEET THESE REQUIREMENTS.

BILL OF REINF. FOR ONE HEADWALL

LOCATION	SHAPE	10' x 6' BAR	NO.	LENGTH	WT.
FENCE ANCHOR (GALV.)		5fa	2	3'-1	6
WINGWALL, F.F.H.		5b1	2	25'-1	52
WINGWALL, F.F.H.		5b2	10 VAR	2 EACH 10'-0;23'-11	177
WINGWALL, B.F.H.		4b3	2	25'-3	34
WINGWALL, B.F.H.		4b4	8 VAR	2 EACH 13'-8;24'-1	101
WINGWALL, F.F.V.		4c1	44 VAR	2 EACH 2'-8;8'-8	167
WINGWALL, F.F.V. (O)		4c2	2	8'-11	12
WINGWALL, F.F.V. (A)		4c2	2	8'-11	12
WINGWALL, B.F.V.		5c3	44 VAR	2 EACH 6'-3;12'-3	425
WINGWALL, B.F.V. (O)		5c4	1	12'-5	13
WINGWALL, B.F.V. (A)		5c4	3	12'-5	39
WINGWALL, B.F.V.		5c5	28	8'-5	246
APRON, LONGIT., BOTT.		4d1	9	24'-11	150
APRON, LONGIT., TOP		6f1	11	24'-11	412
PARAPET, VERTICAL		4i1	24	7'-0	112
PARAPET, HORIZ.		7j1	4	12'-11	106
APRON, TRANS., TOP		6m1	27	11'-8	473
APRON, TRANS., TOP		6m2	7 VAR	2'-3;10'-0	64
APRON, TRANS., BOTT.		4m3	19	9'-4	118
CURTAIN, HORIZ.		6p1	5	13'-3	100
WING SLOPE, BOTH F.		6s1	4	18'-8	112
WING SLOPE, BOTH F. (O)		6s2	2	8'-4	25
WING SLOPE, BOTH F. (A)		6s3	2	8'-9	26
WING SLOPE, F. F.		6s4	2	12'-0	36
WING SLOPE, F. F.		6s5	2	16'-5	49
CURTAIN, VERT.		5t1	12	6'-5	80
CURTAIN, VERT., ENDS		5t2	4	6'-7	27
BRACKET, VERT.		5u1	4	5'-4	22

ESTIMATED QUANTITIES ONE HEADWALL				
	REINF. STEEL	3196 LBS.		
	CONCRETE	PARAPET Δ	1.5	20.8 CU.YD.
		WINGWALLS	5.7	
		APRON	13.6	

Δ INCLUDES TOP OF WINGWALL QUANTITIES.

NOTE: WEIGHT OF BARS OVER 40'-0 LONG INCLUDE AN ALLOWANCE OF 2'-0 FOR LAP.

(A) - INDICATES BAR LOCATED AT ACUTE CORNER.
(O) - INDICATES BAR LOCATED AT OBTUSE CORNER.
REFER TO PLAN VIEW THIS SHEET FOR ACUTE AND OBTUSE CORNER LOCATIONS.

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

PARALLEL WING HEADWALL DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-415	SHEET NUMBER U.15

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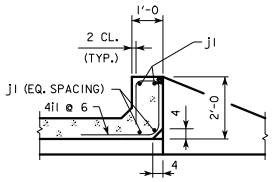
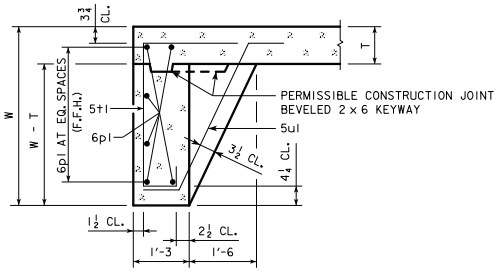
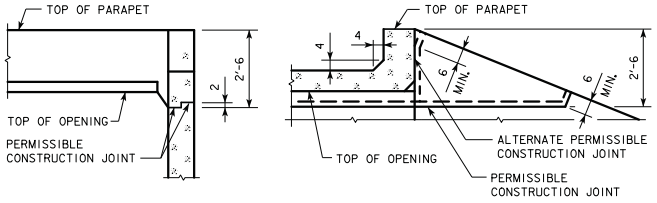


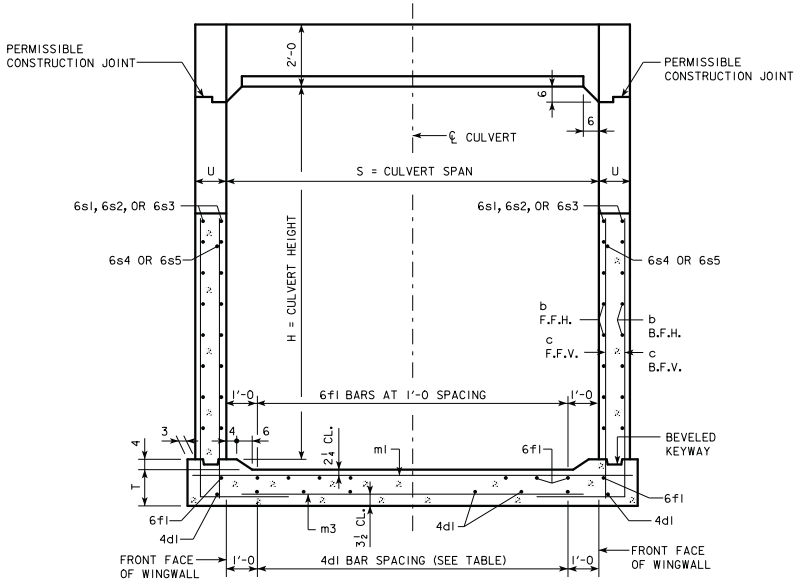
SECTION THRU PARAPET



SECTION THRU CURTAIN WALL

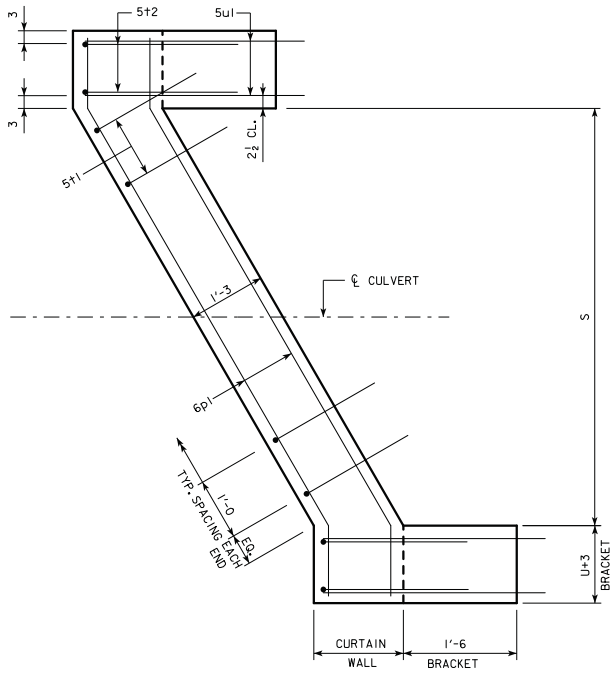


TOP OF WINGWALL DETAILS



TYPICAL CROSS SECTION - THRU HEADWALL

4d1 BAR SPACING		
SPAN	SPACING	NO. OF BARS
10'-0	6 SPA. AT 1'-4	9



CURTAIN WALL DETAIL

APRON IS NOT SHOWN

NOTE:

FOR DIMENSION TABLE SEE DRAWING U.15

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

PARALLEL WING HEADWALL DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-416	SHEET NUMBER U.16

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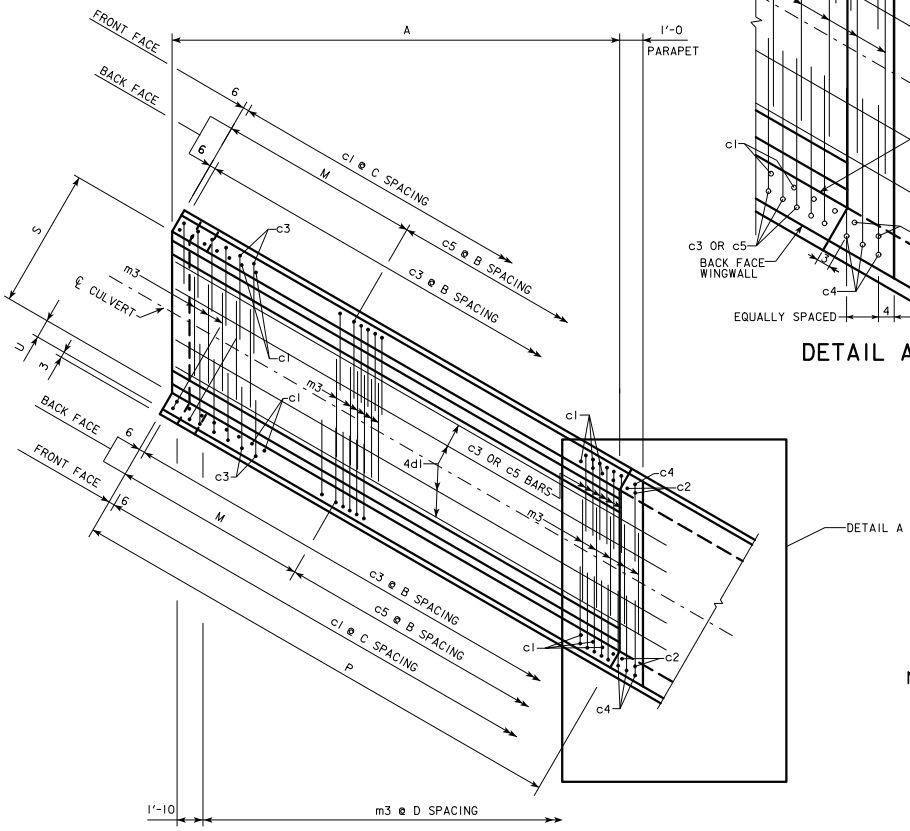
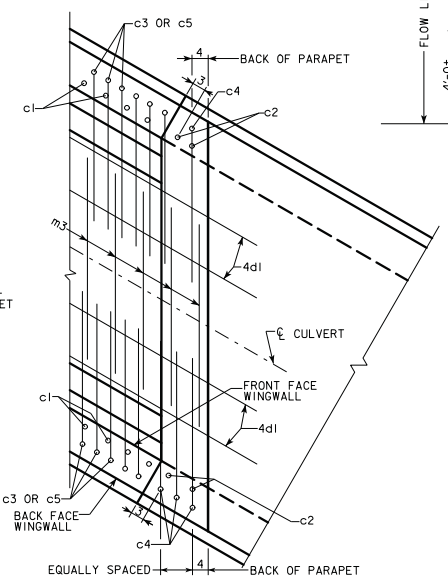
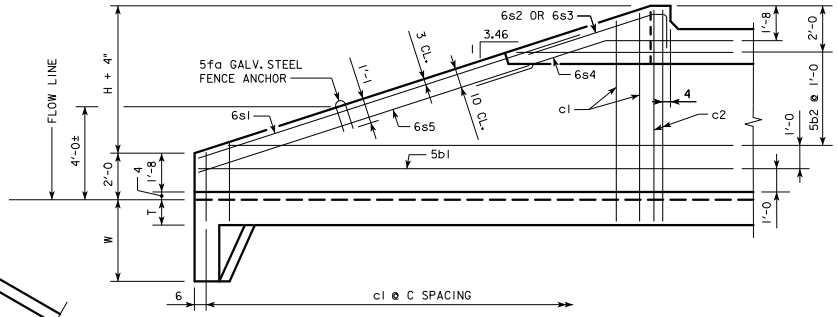


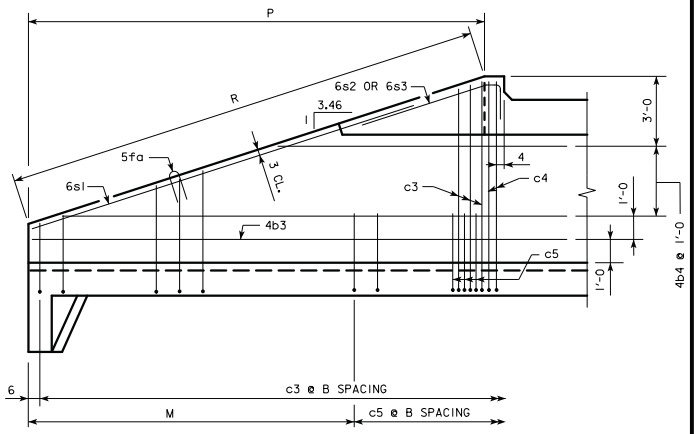
PLAN VIEW - BOTTOM APRON REINFORCING



DETAIL A



TYPICAL VIEW - FRONT FACE WINGWALL REINFORCING



TYPICAL VIEW - BACK FACE WINGWALL REINFORCING

NOTES:

1. FOR HEADWALL DIMENSIONS AND BAR SPACING SEE DRAWING U.15.
2. WINGWALL BARS CONSISTENTLY REFERENCED FROM END OF WING.
3. APRON m3 BARS ARE TO BE CENTERED ON ℄ CULVERT.
4. B.F.V. (c4) AND F.F.V. (c2) BARS ARE APPROXIMATELY 4" FROM THE BACK OF PARAPET FOR ALL HEADWALLS.

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

PARALLEL WING HEADWALL DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-417	SHEET NUMBER U.17

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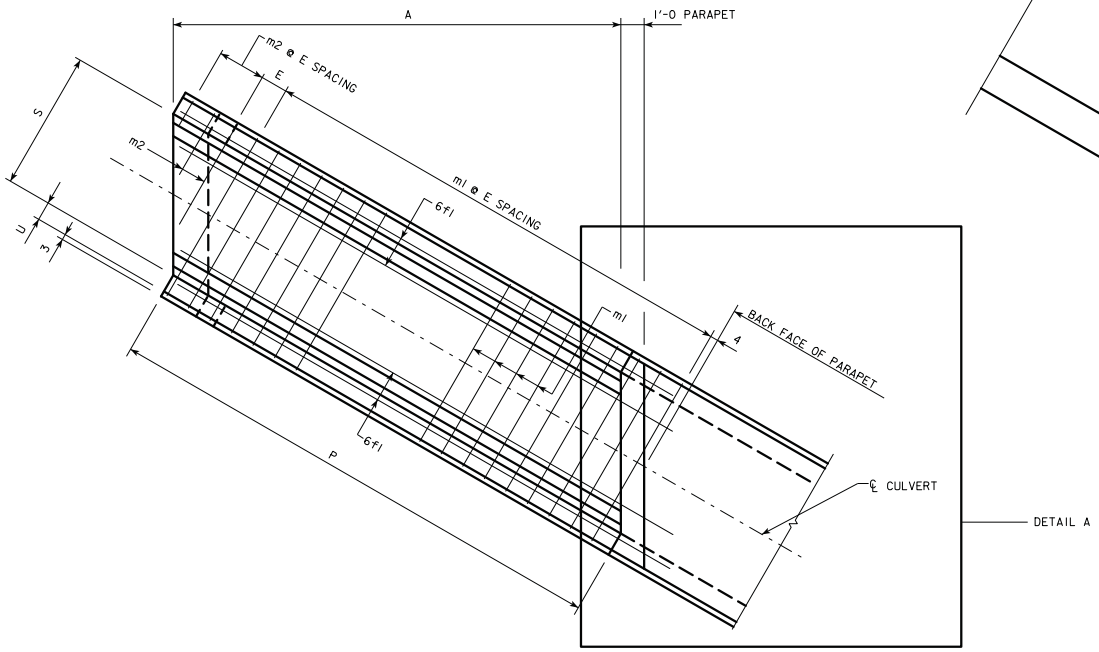
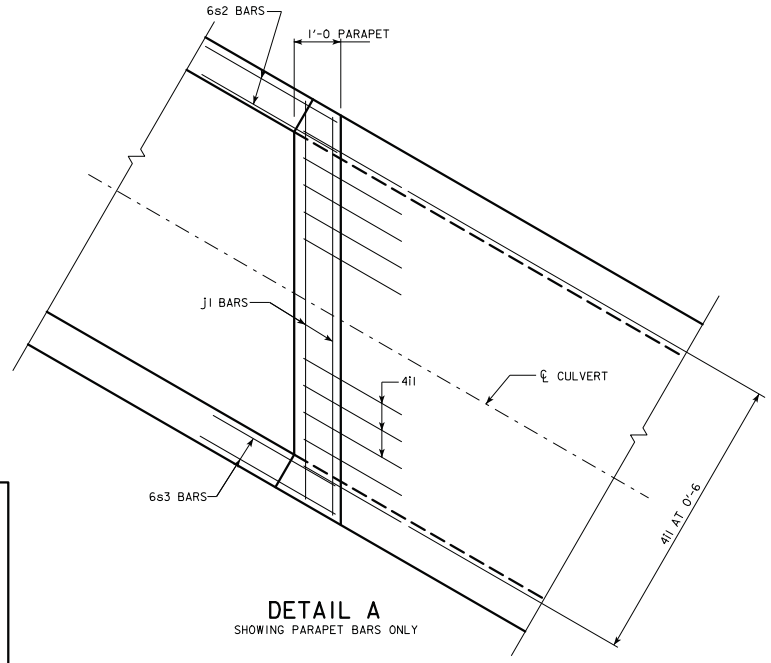


PLAN VIEW - TOP APRON REINFORCING



DETAIL A
SHOWING PARAPET BARS ONLY

NOTES :

1. FOR HEADWALL DIMENSIONS AND BAR SPACING SEE DRAWING U.15.
2. TOP TRANSVERSE APRON BARS ARE REFERENCED APPROXIMATELY 4" FROM THE BACK OF THE PARAPET FOR ALL HEADWALLS.

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

PARALLEL WING HEADWALL DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-418	SHEET NUMBER U.18

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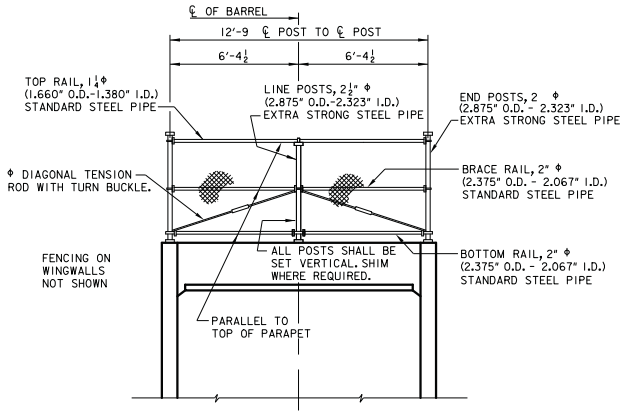
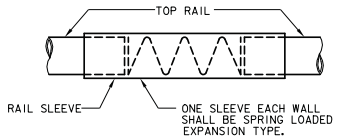


ELEVATION OF FENCE ON PARAPET



TYPICAL DETAIL
RAIL SLEEVE

FENCE NOTES

THE LENGTH SHOWN FOR CHAIN LINK FENCE IS MEASURED FROM CENTERLINE TO CENTERLINE OF END POSTS. THE CONTRACTOR SHALL FURNISH ALL MATERIAL, INCLUDING CONCRETE ANCHORS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE FENCE ALONG BOTH CULVERT HEADWALLS IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

THE CHAIN LINK FENCE SHALL BE EITHER ZINC OR ALUMINUM COATED FABRIC, 2" MESH, NO. 6 WIRES, 72" HEIGHT WITH KNUCKLED SELVAGES TOP AND BOTTOM.

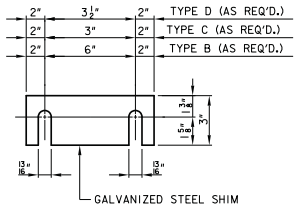
THE STUD CONCRETE ANCHORS SHALL BE STAINLESS STEEL AND HAVE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS BASED ON 4000 PSI CONCRETE.

THE POSTS, BRACES, RAILS AND SPECIAL FITTINGS SHALL BE IN ACCORDANCE WITH ARTICLES 4154.10 AND 4154.11 OF THE STANDARD CONSTRUCTION SPECIFICATIONS UNLESS NOTED OTHERWISE.

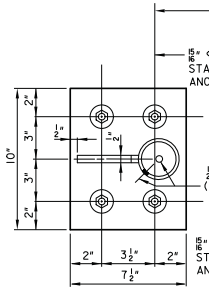
THE FENCE SHALL BE TRUE TO LINE, TAUT, AND COMPLY WITH THE BEST PRACTICE FOR FENCE CONSTRUCTION OF THIS TYPE. ALL ENDS OF WIRES SHALL BE TURNED SO THAT THEY EXTEND AWAY FROM THE EMBANKMENT SIDE OF THE FENCE. ALL POSTS SHALL BE INSTALLED VERTICALLY.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER. FENCE MATERIALS SHALL NOT BE ORDERED UNTIL APPROVED SHOP DRAWINGS ARE RETURNED TO THE CONTRACTOR.

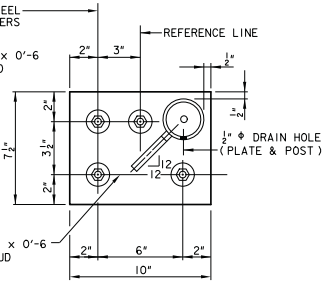
POSTS AND BASE PLATES SHALL BE HOT-DIP GALVANIZED AFTER THE POSTS AND BASE PLATES AND WELDED.



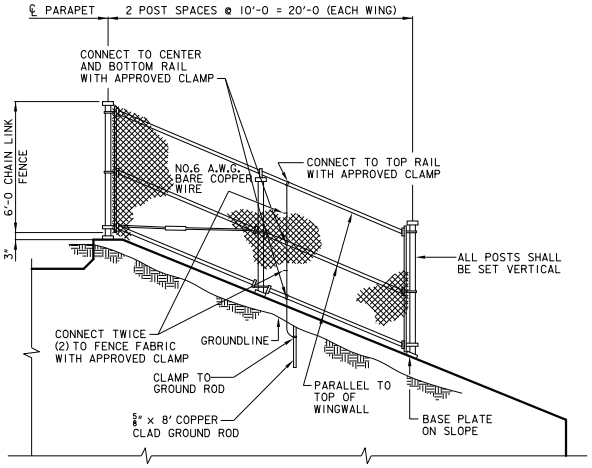
SHIM DETAIL



TYPICAL BASE PLATE

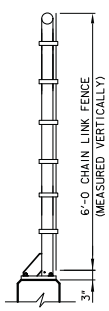


END POST BASE PLATE

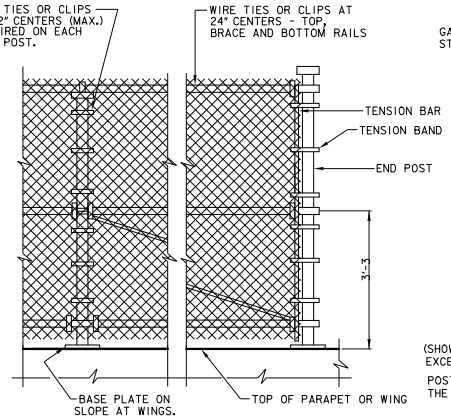


ELEVATION OF FENCE ON EXTERIOR WINGWALL

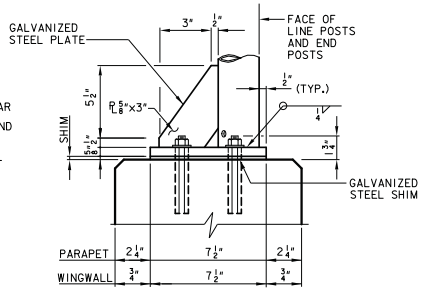
(TYPICAL BOTH WINGWALLS)
ONE GROUND ROD INSTALLATION PER HEADWALL



TYPICAL SECTION



FENCE DETAILS



BASE PLATE DETAILS

(SHOWN FOR TOP OF PARAPET; SIMILIAR FOR WINGWALL EXCEPT ON SLOPE WITH POST VERTICAL.)

POST AND BASE PLATES SHALL BE GALVANIZED AFTER THE POSTS AND BASE PLATES ARE WELDED.

DESIGN FOR 28° SKEW (R.A.) W/ 30° P.W. HEADWALLS

10' x 6' x 184'-0 REINFORCED CONCRETE BOX CULVERT

FENCE DETAILS

STA. 228+43 MARCH, 2013

POLK COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. ____ OF ____ FILE NO. _____ DESIGN NO. _____

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-419	SHEET NUMBER U.19

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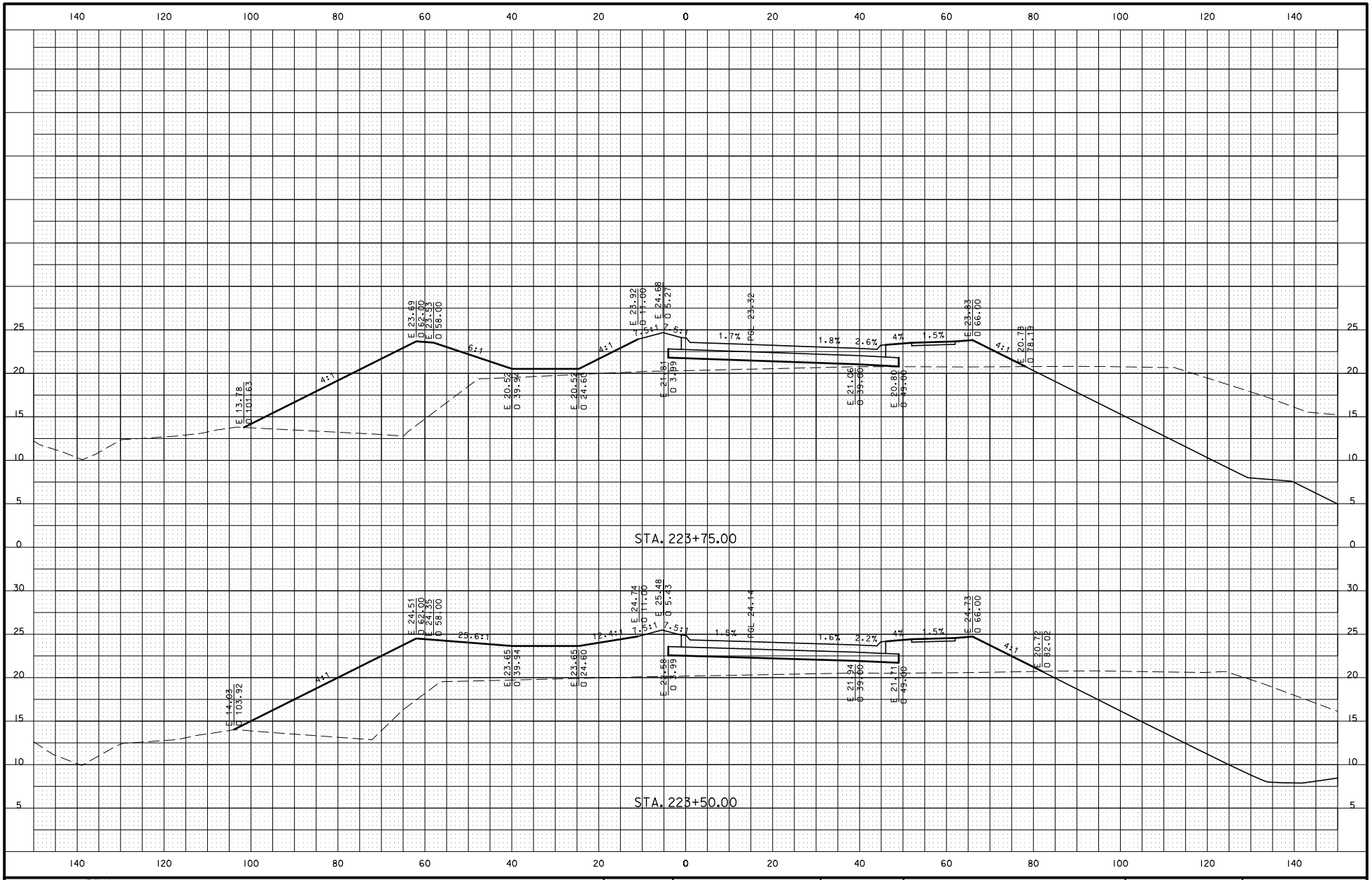

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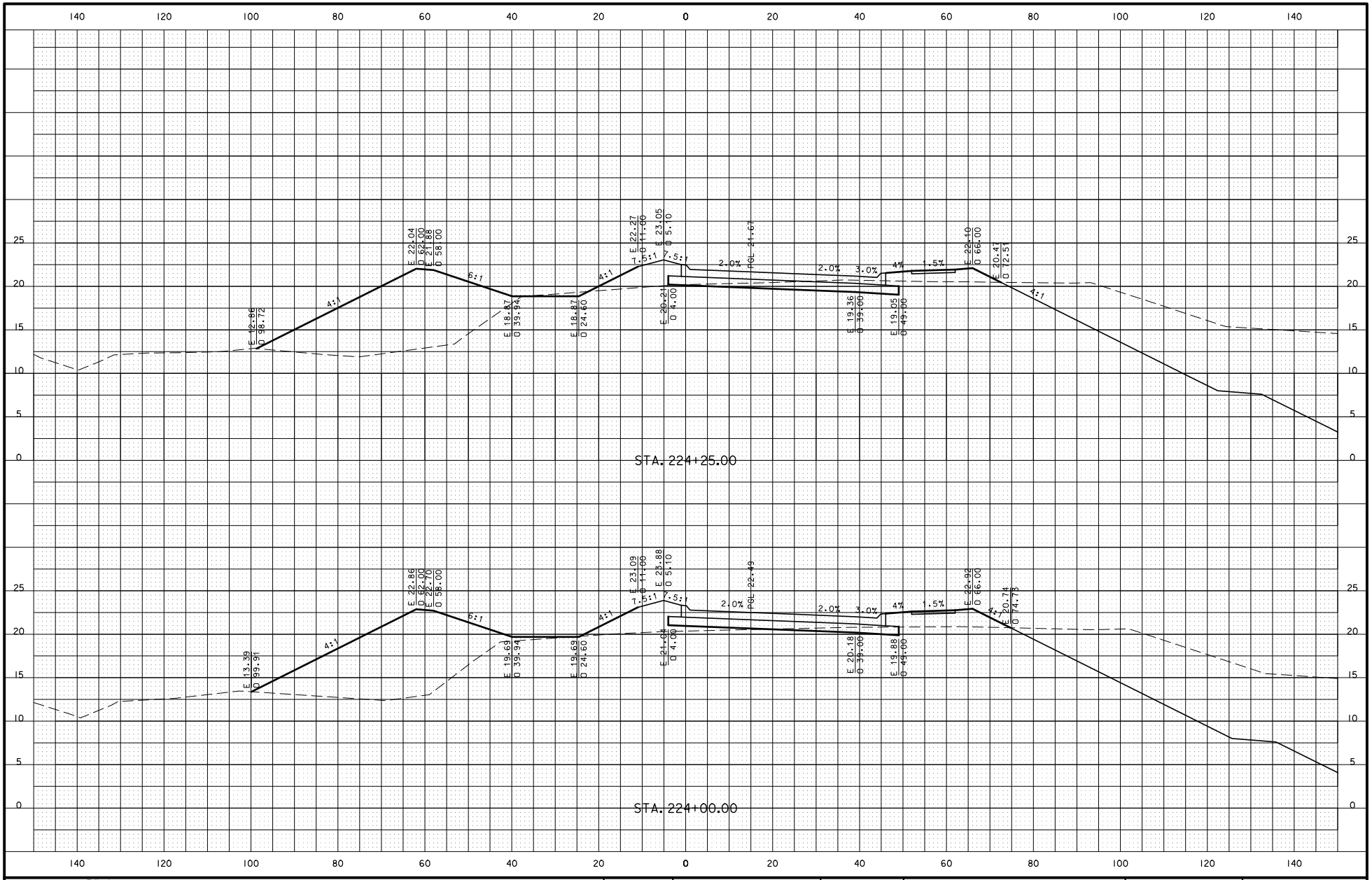

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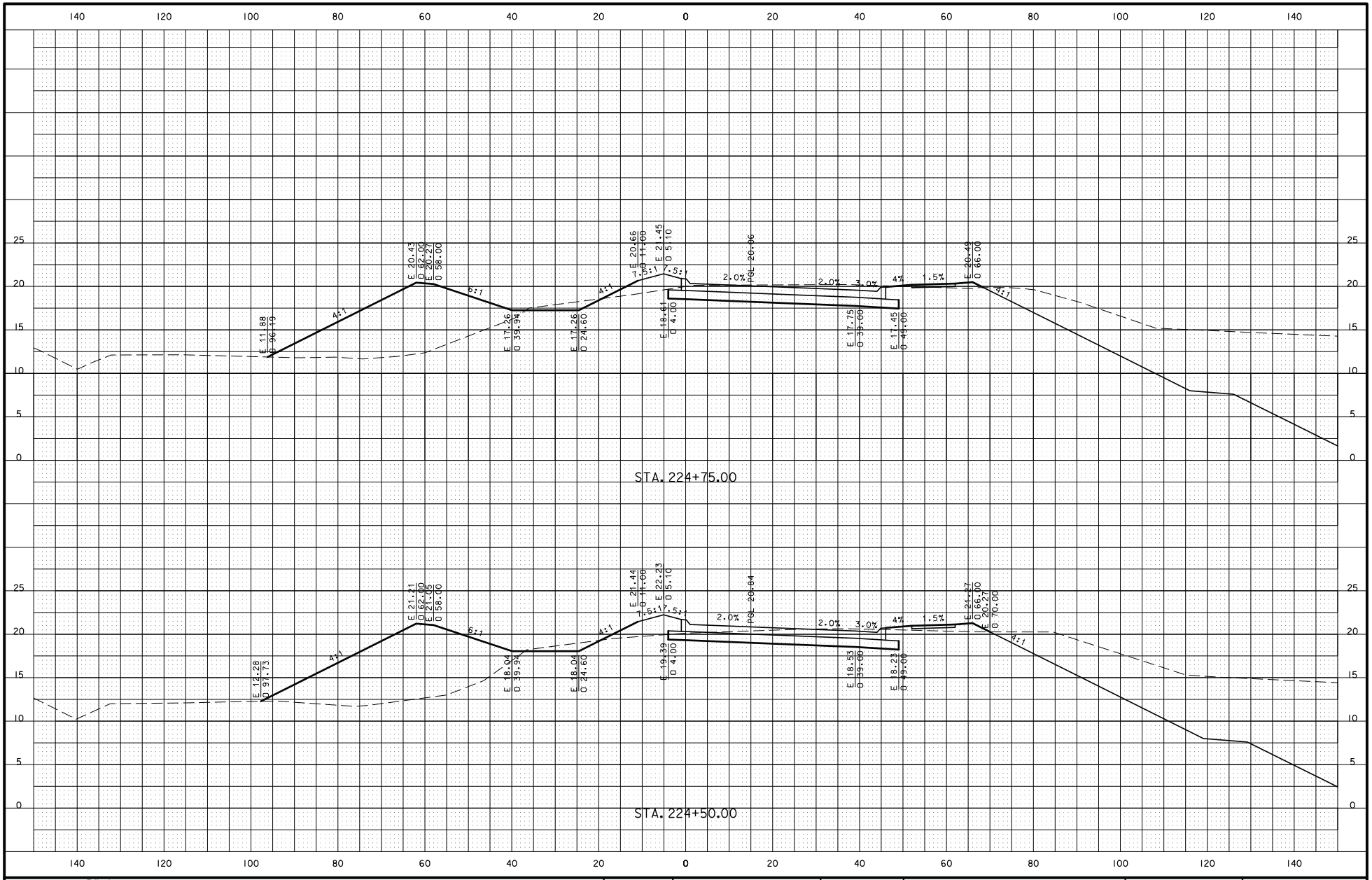

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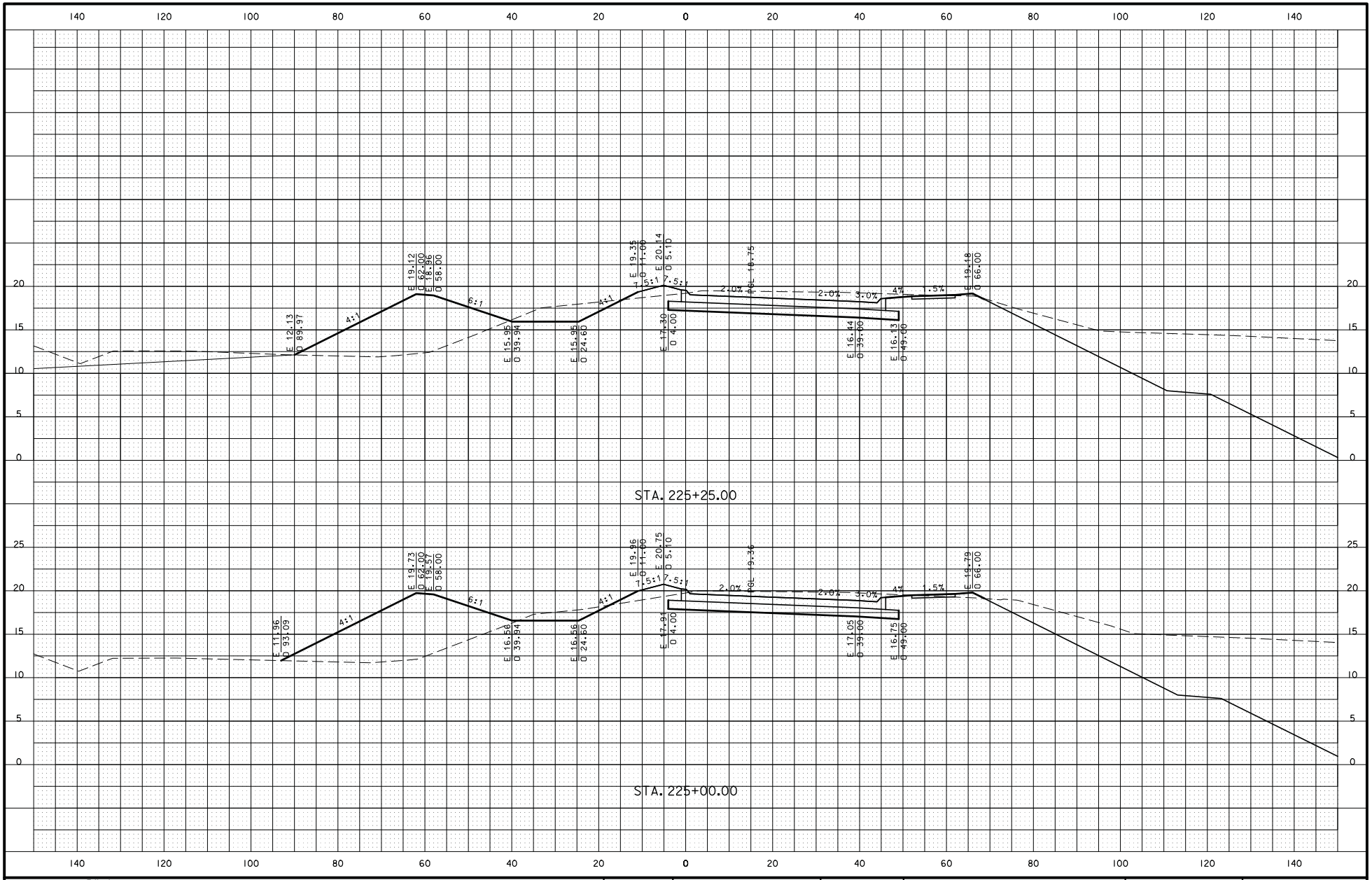

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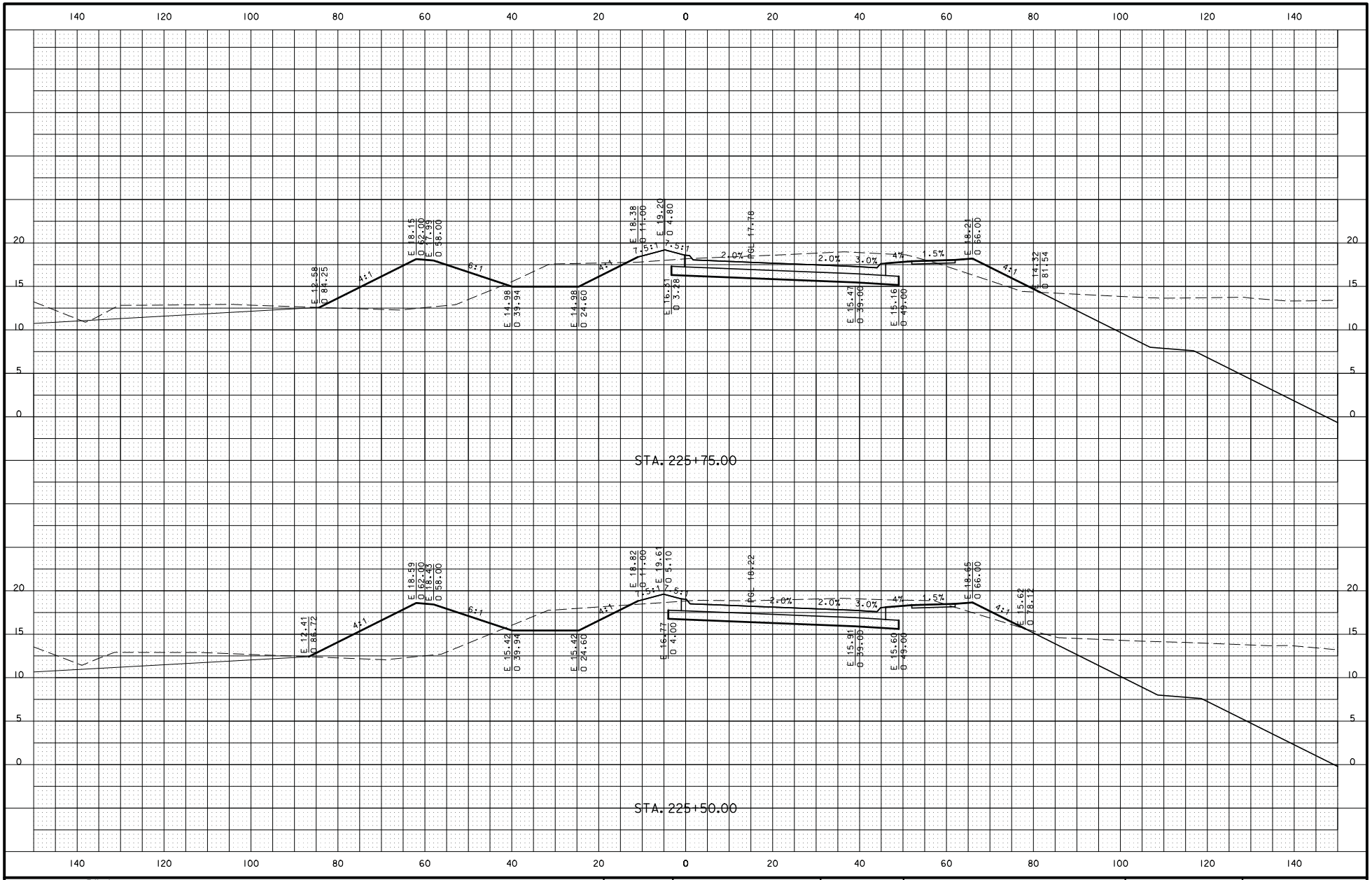

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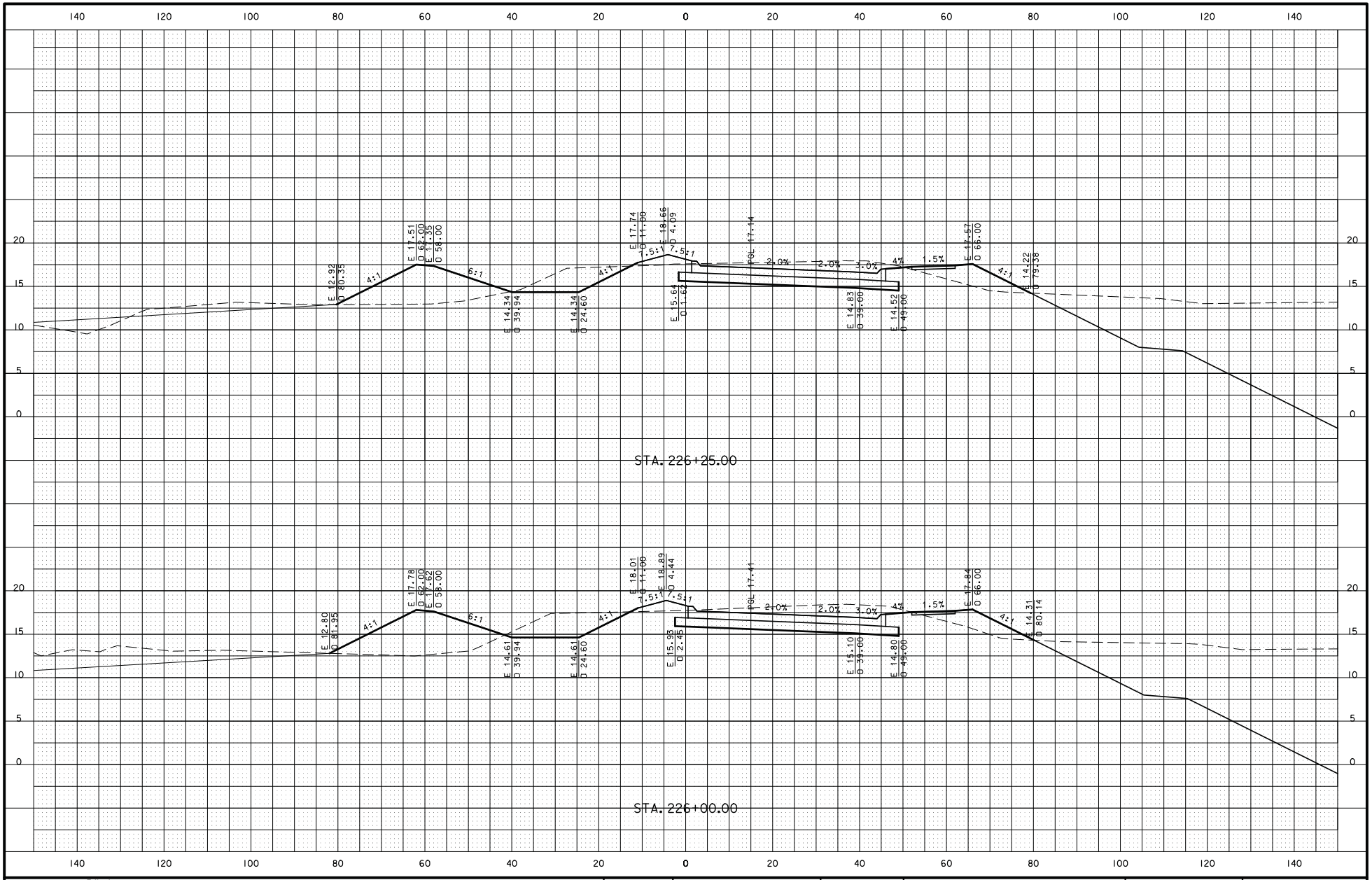

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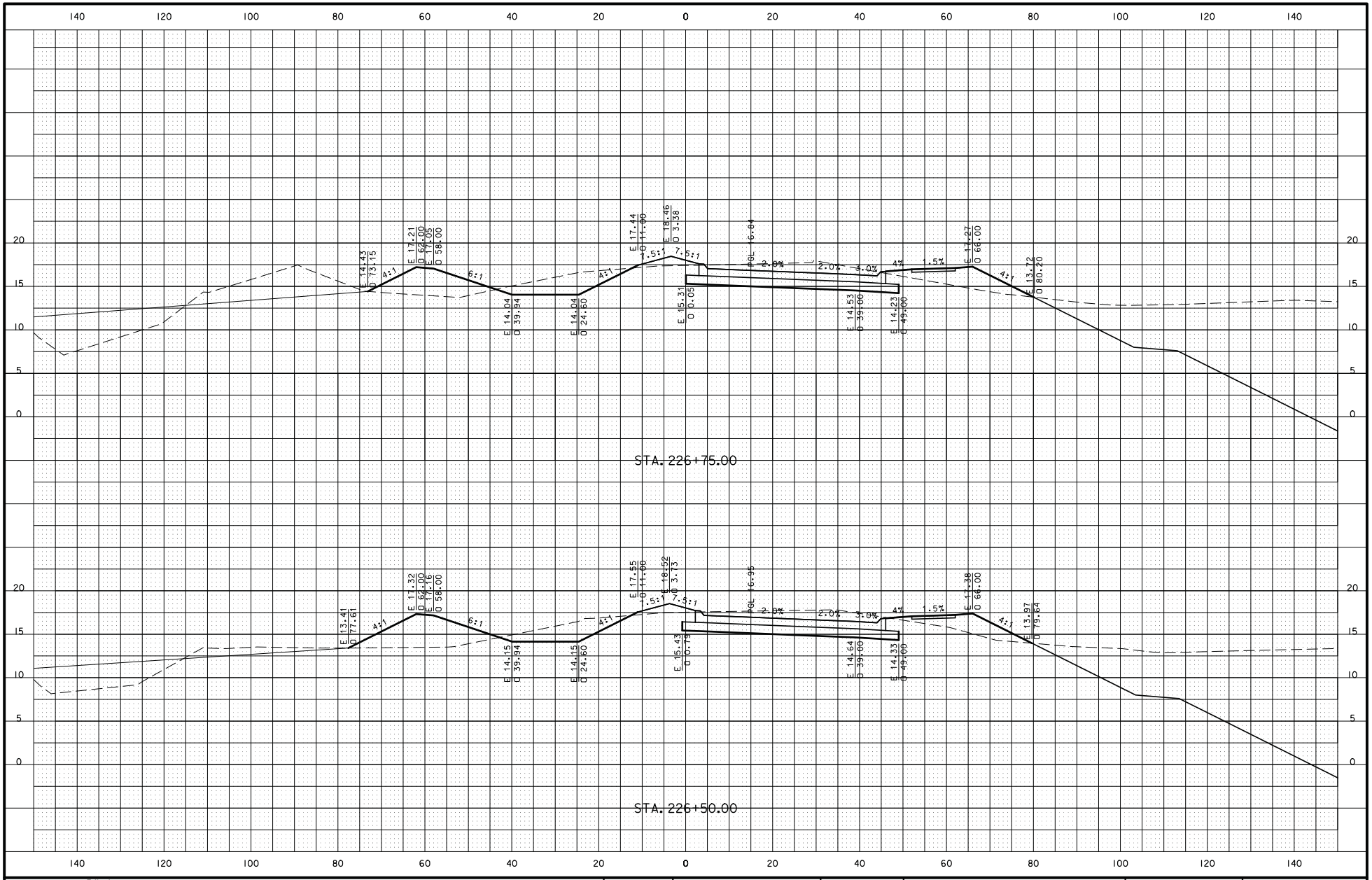

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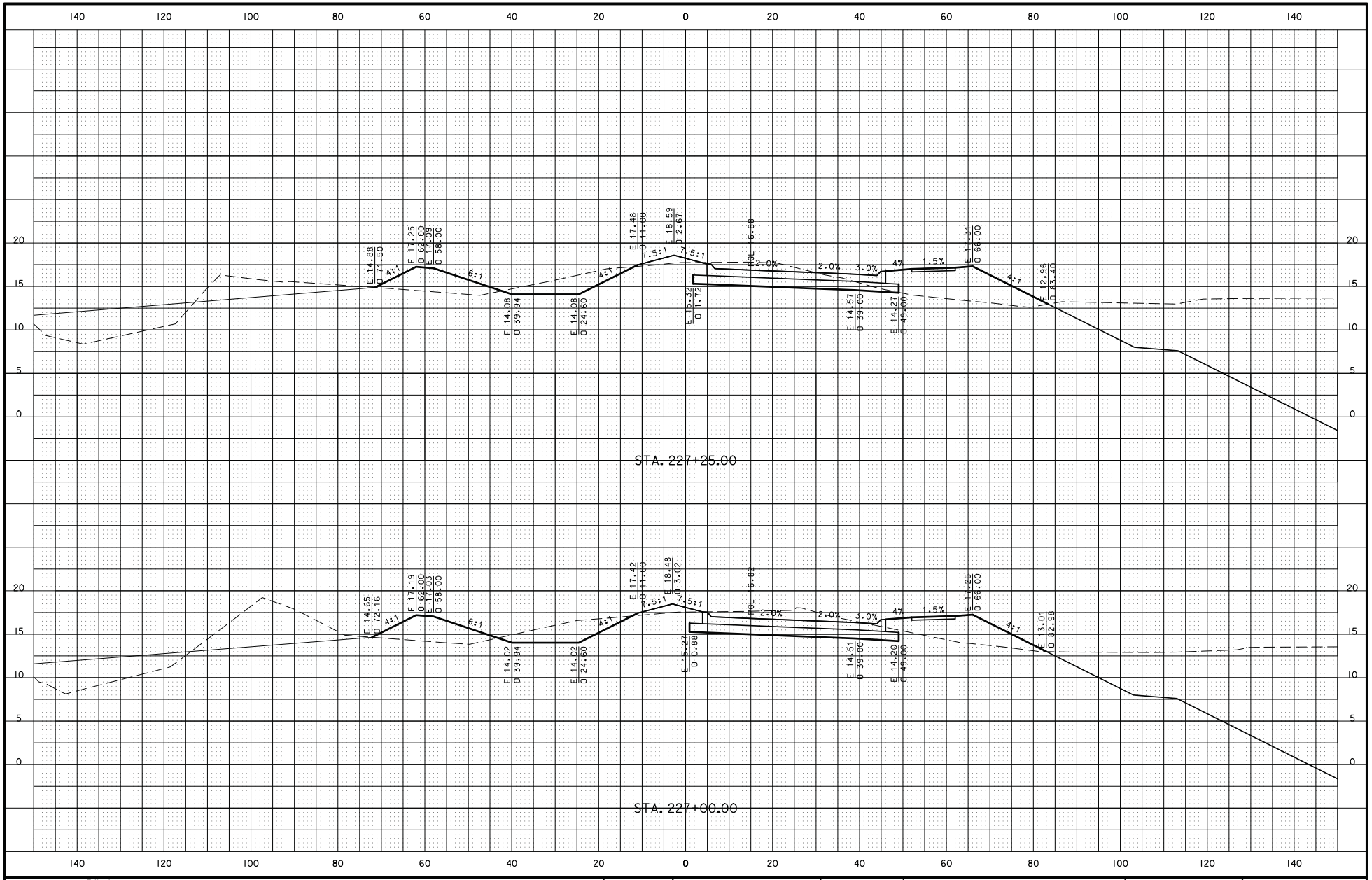

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-606	SHEET NUMBER W.110

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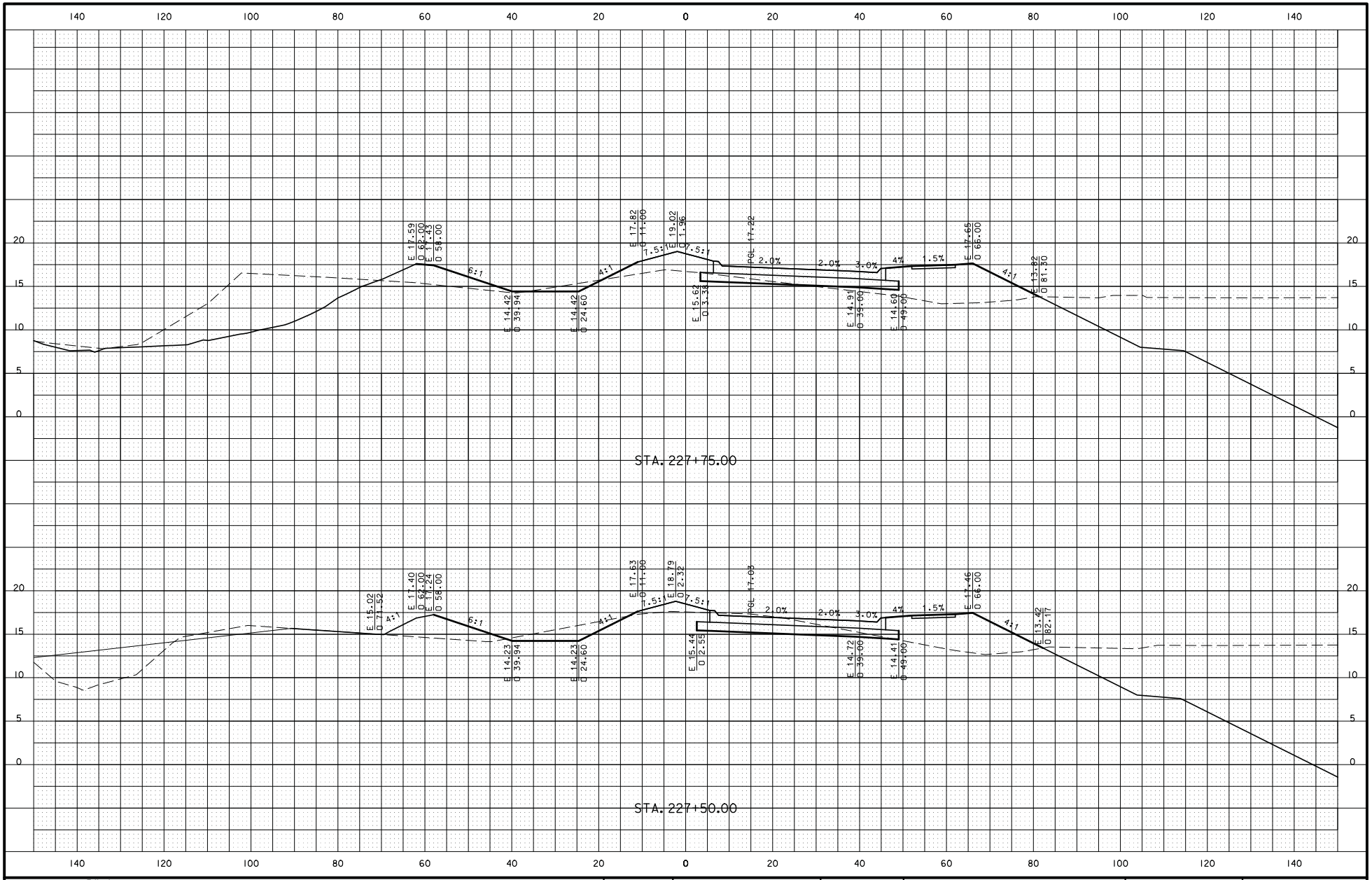

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-607	SHEET NUMBER W.111

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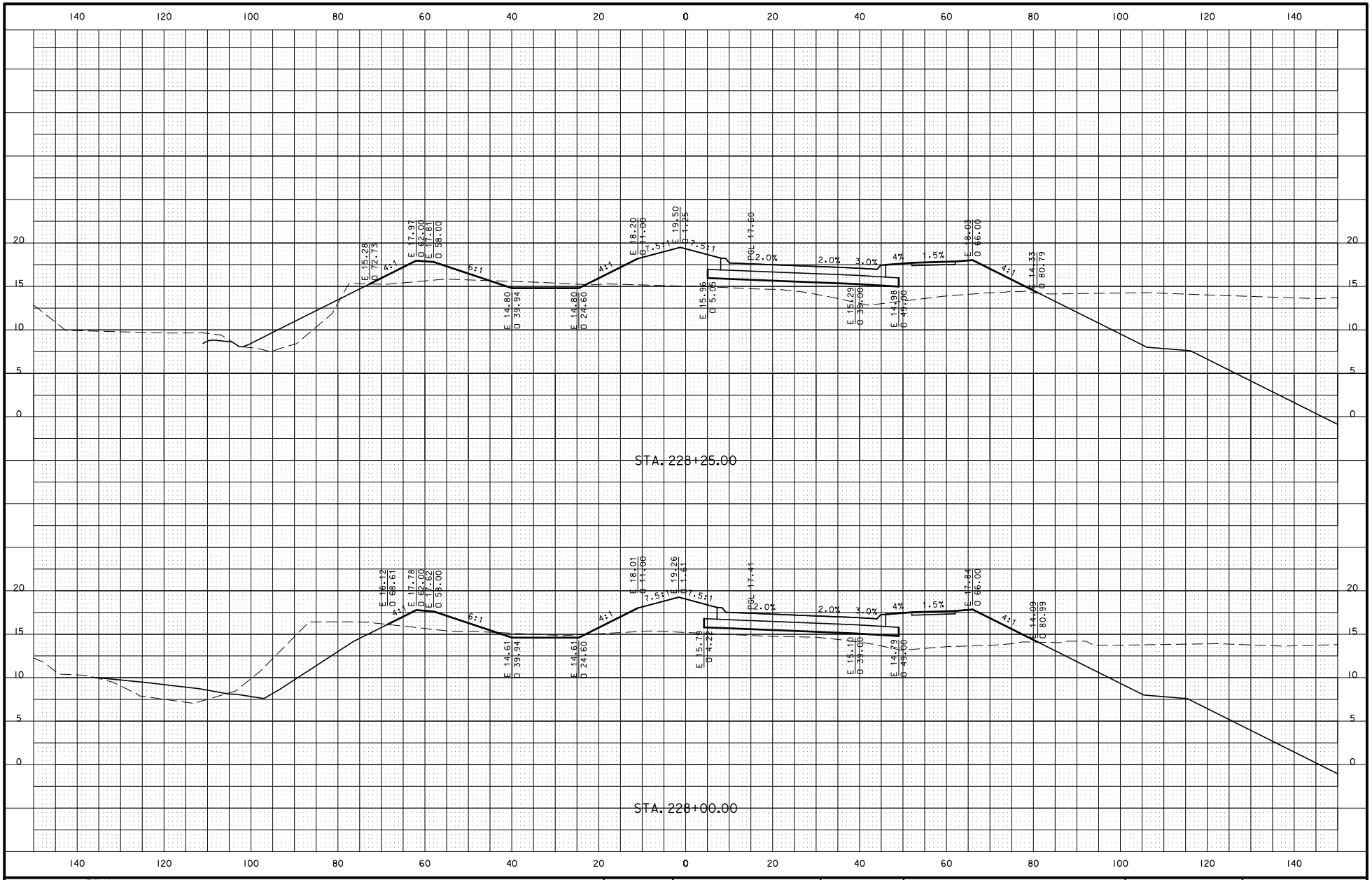

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-608	SHEET NUMBER W.112

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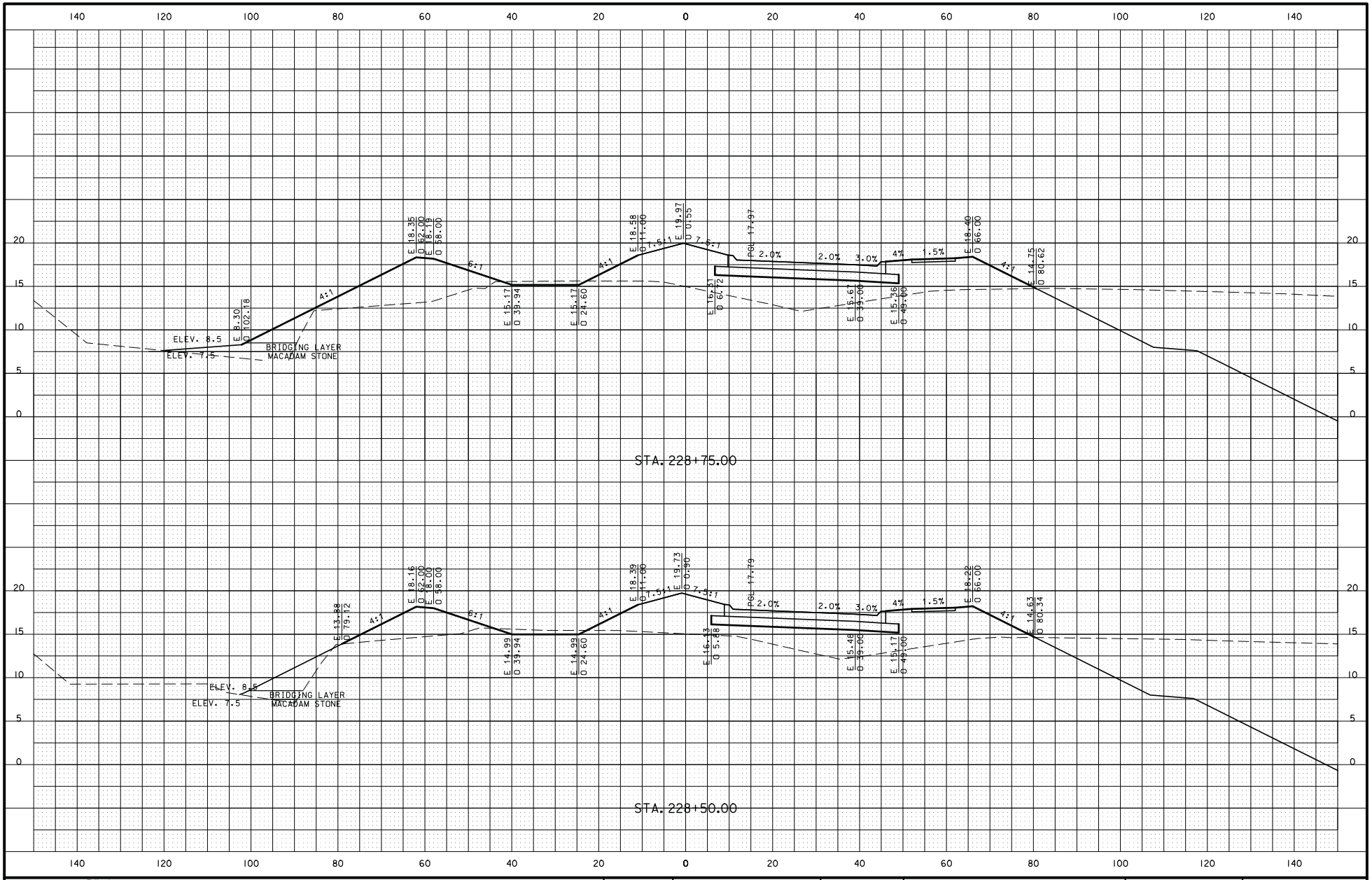

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-609	SHEET NUMBER W.113

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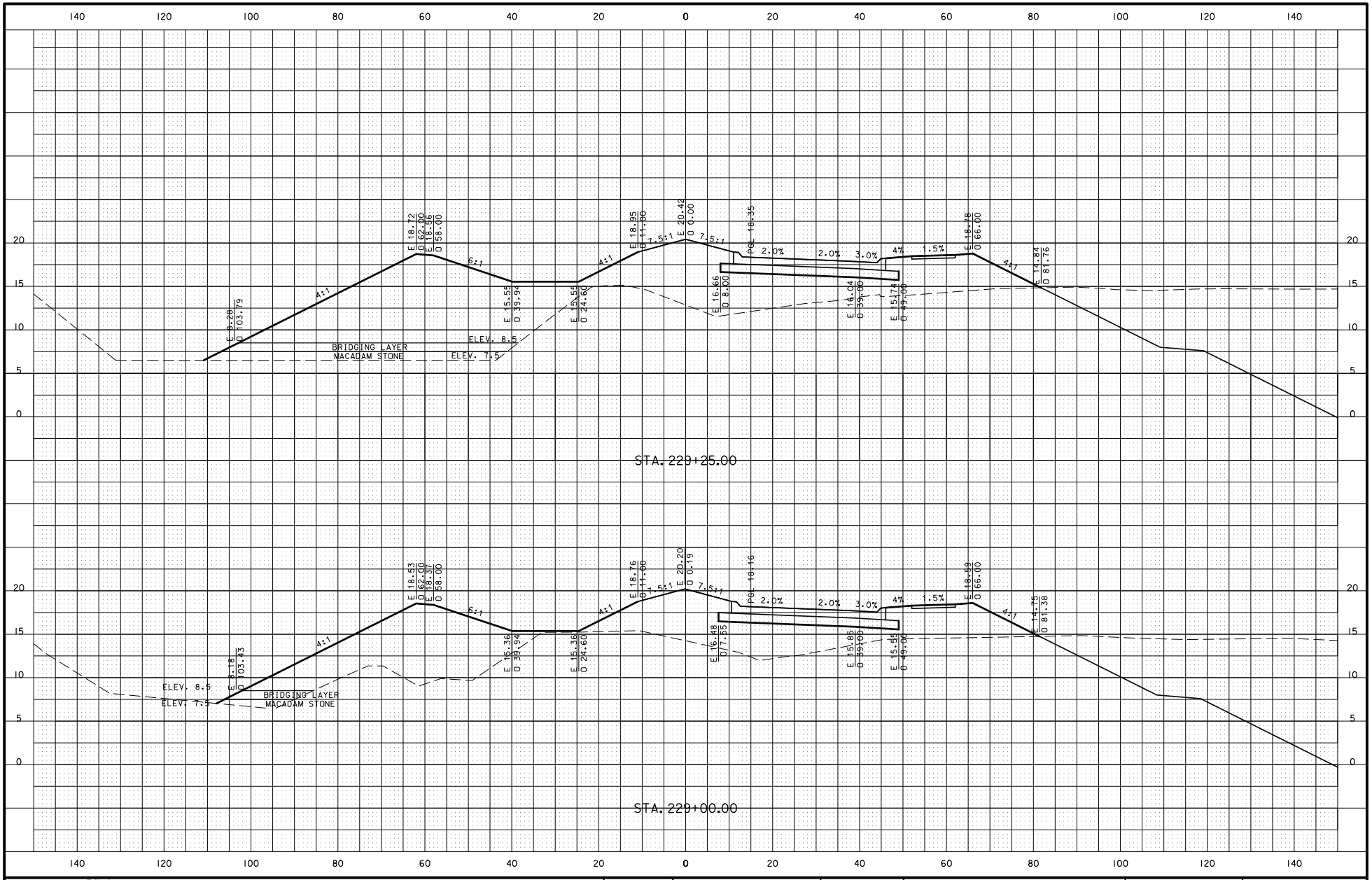

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-610	SHEET NUMBER W.114

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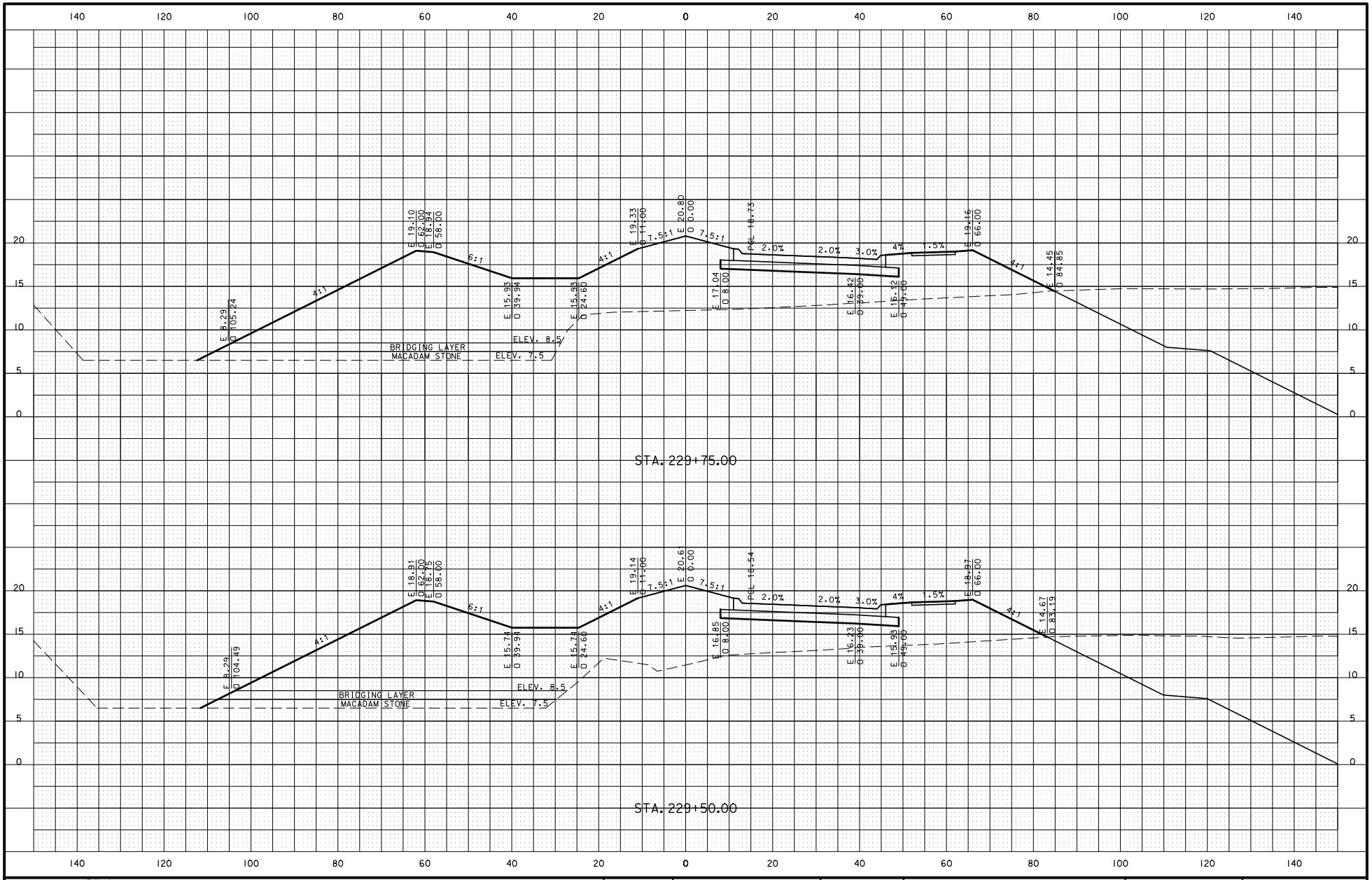

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-611	SHEET NUMBER W.115

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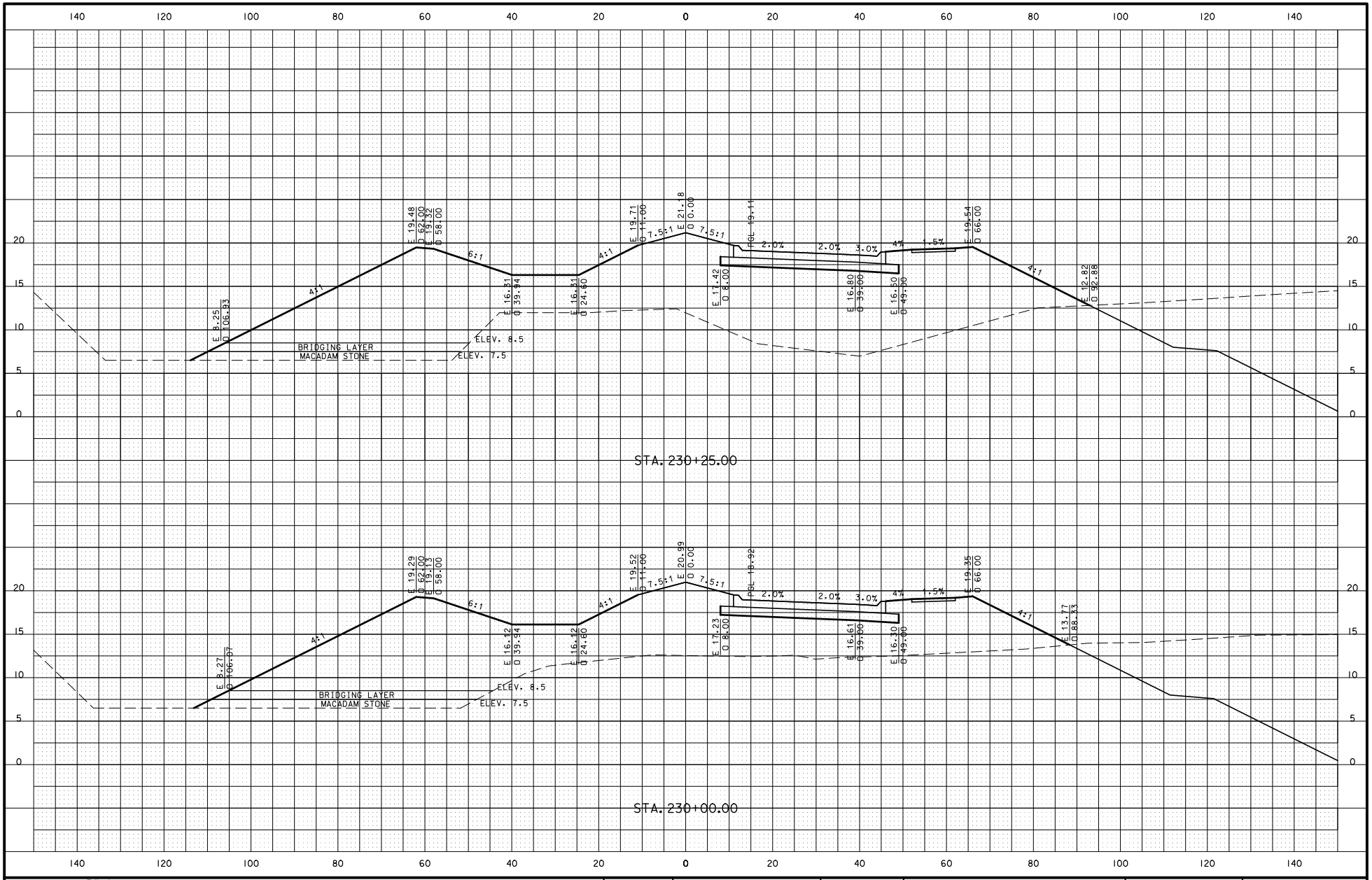

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-612	SHEET NUMBER W.116

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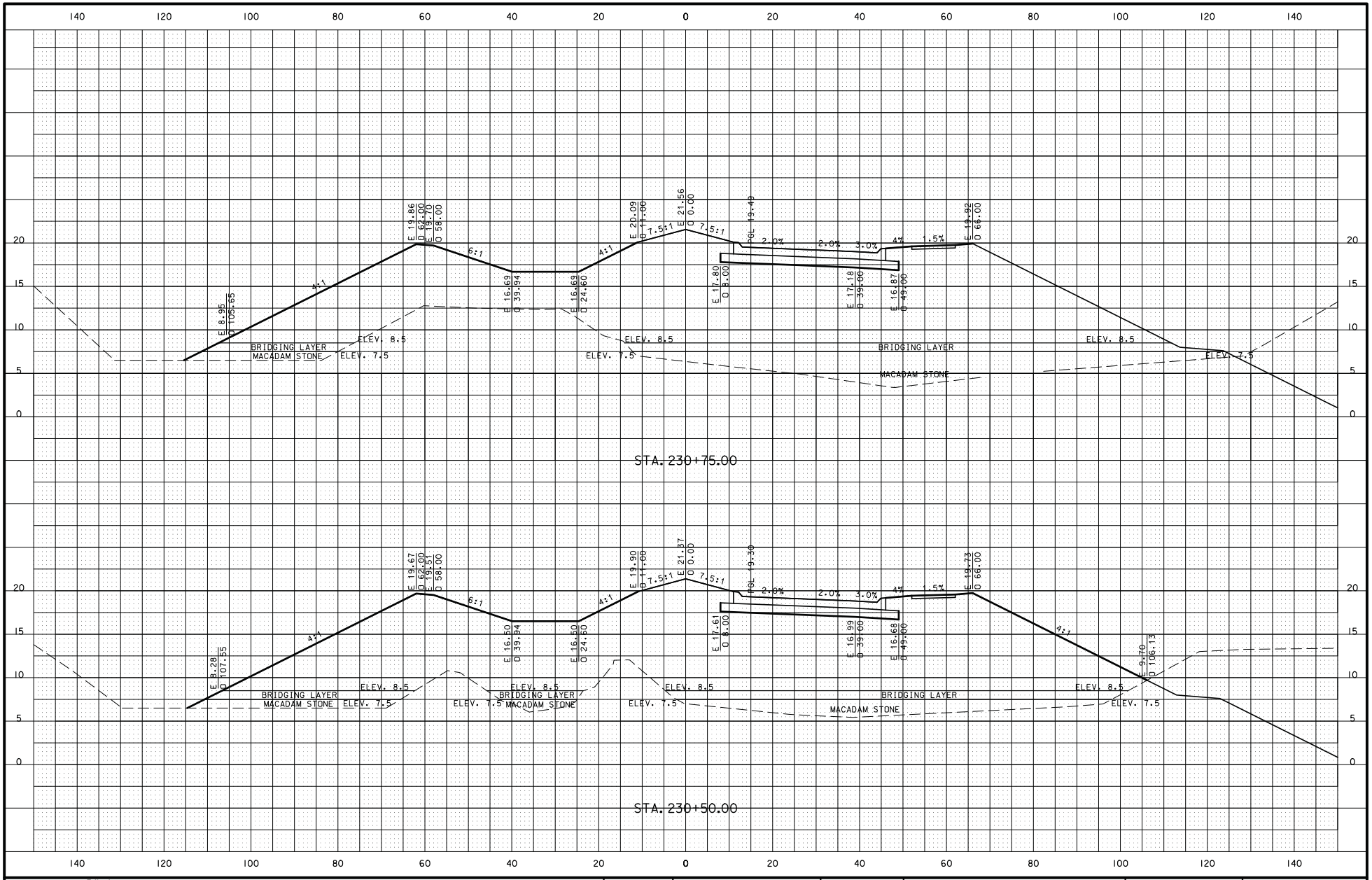

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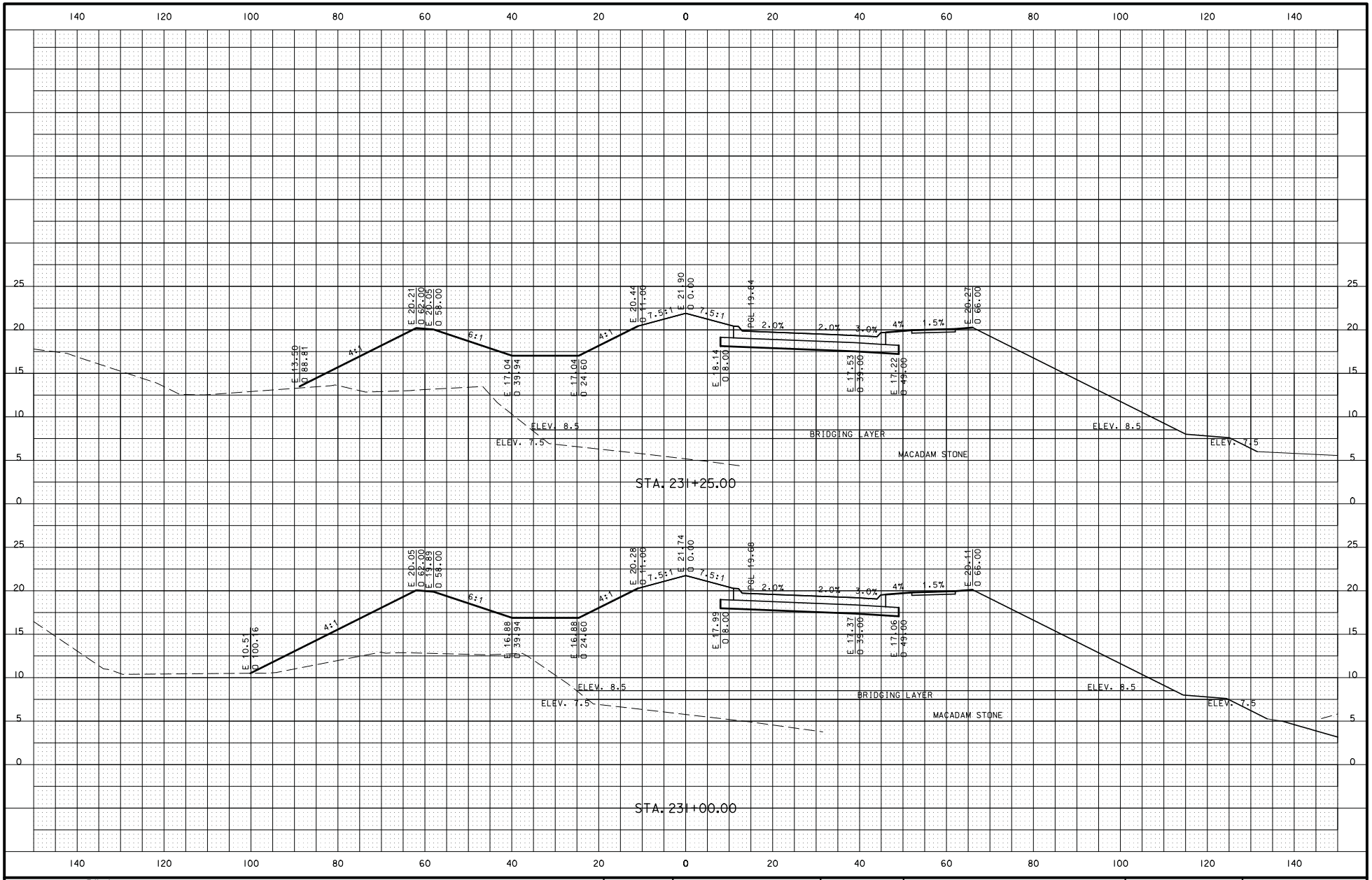

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-614	SHEET NUMBER W.118

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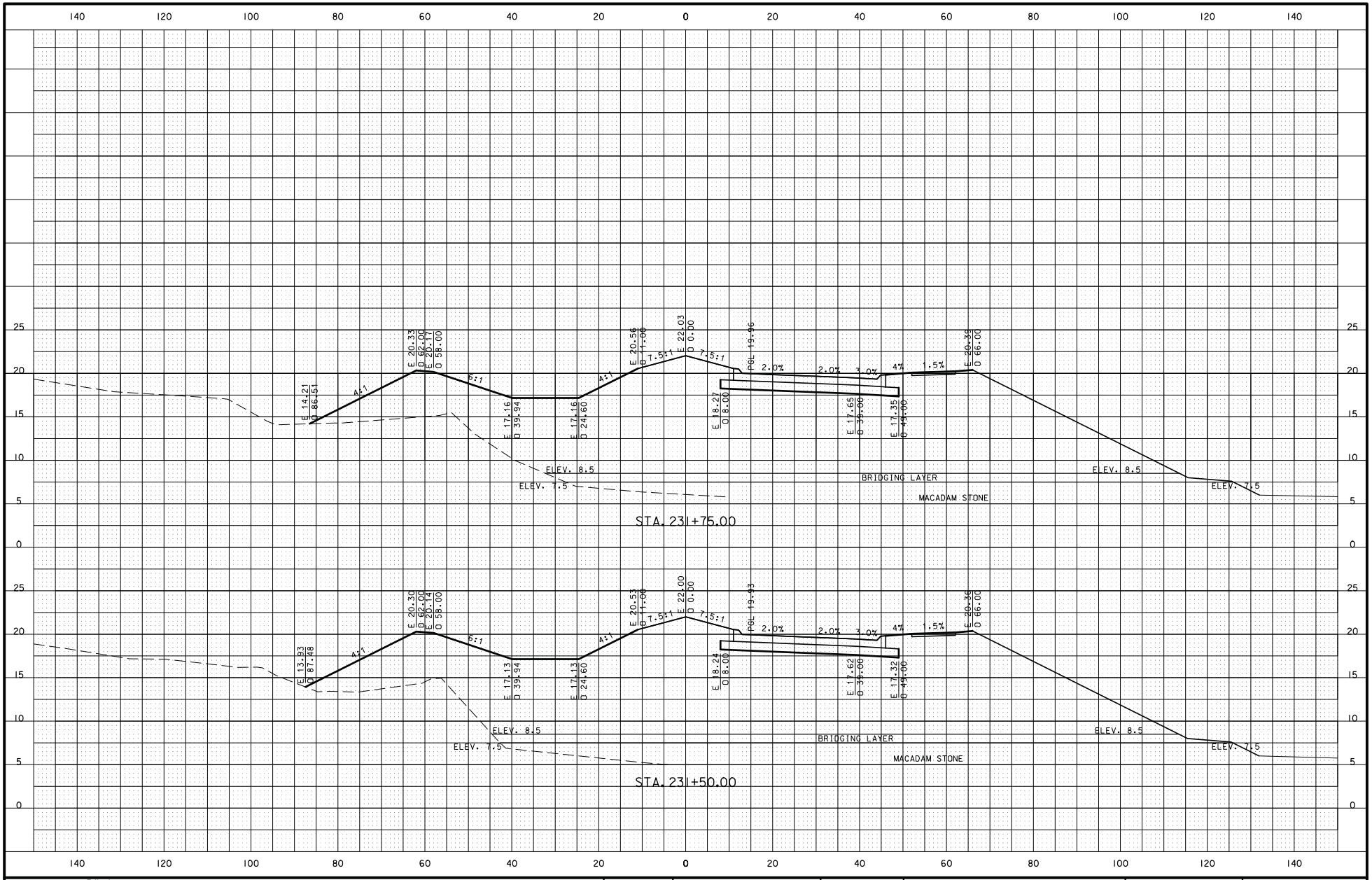

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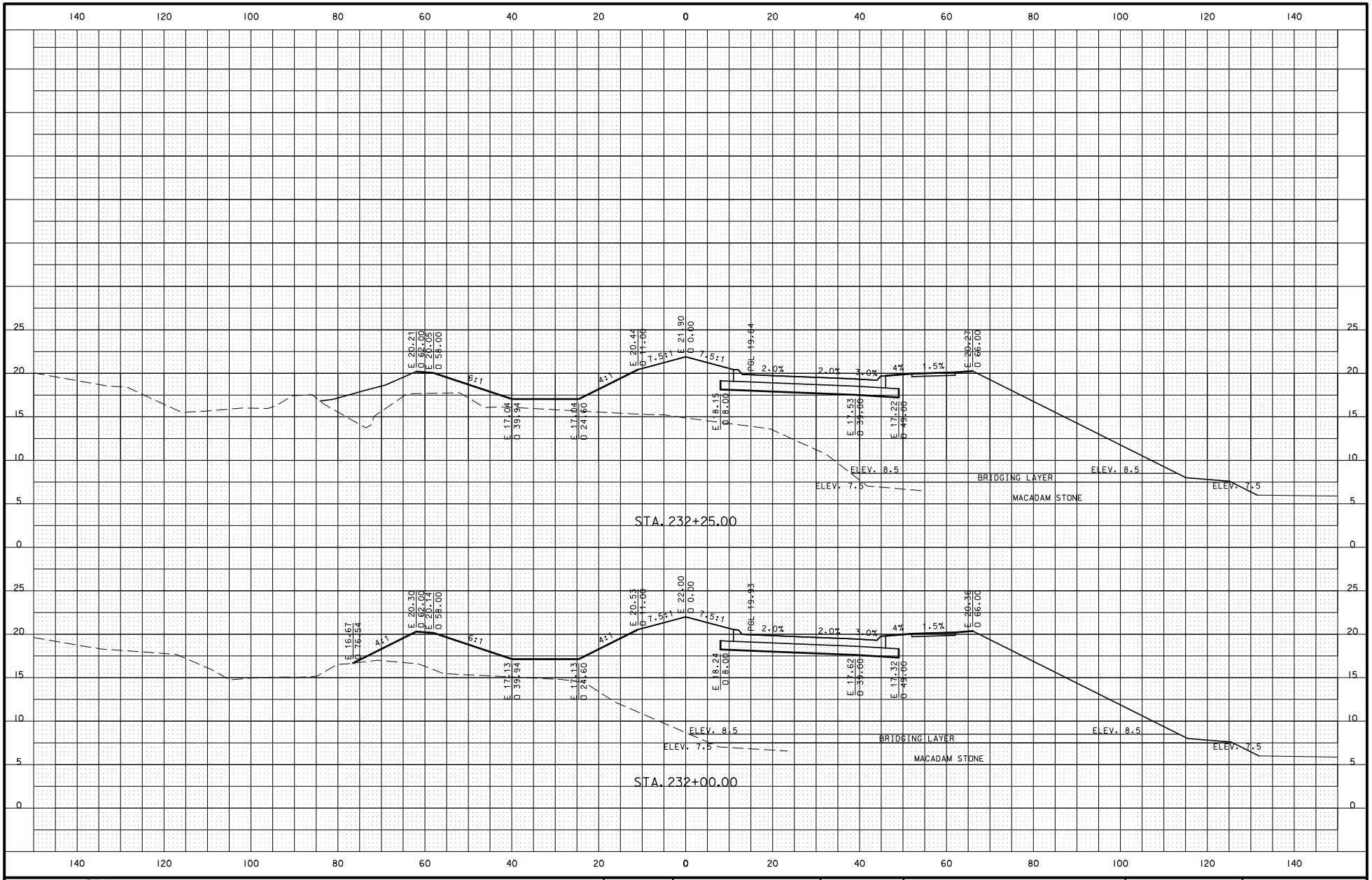

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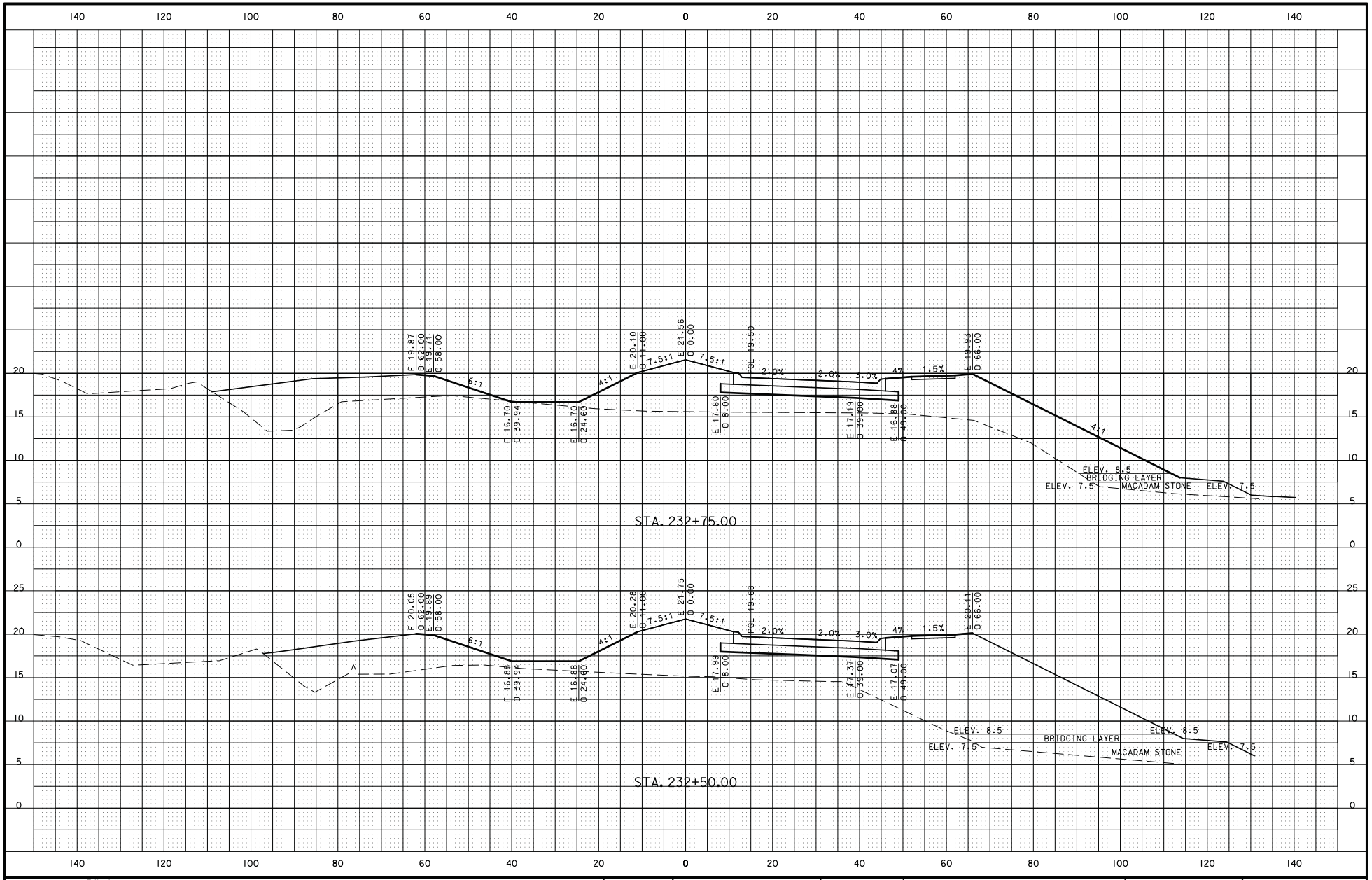

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-617	SHEET NUMBER W.121

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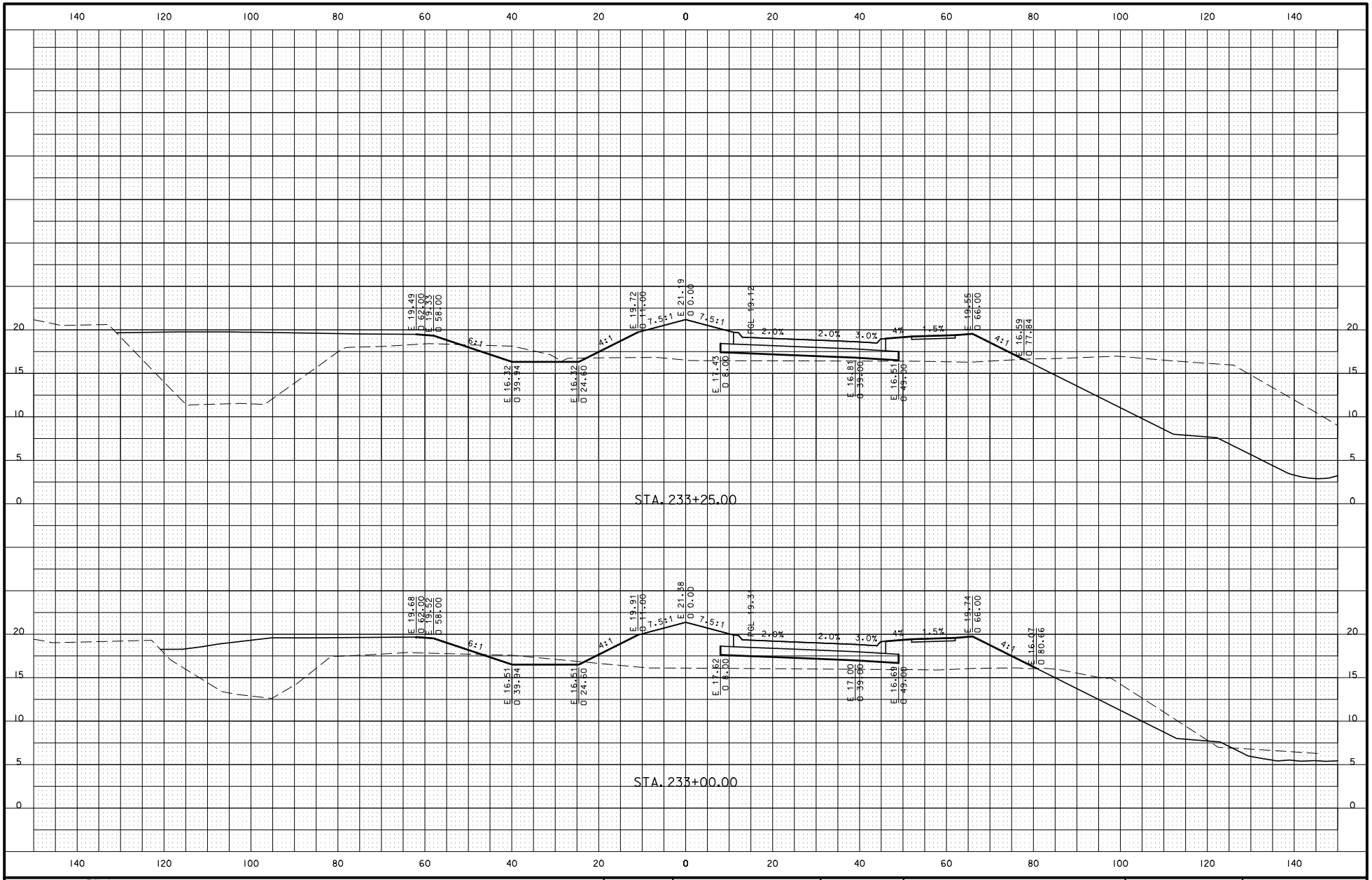

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-618	SHEET NUMBER W.122

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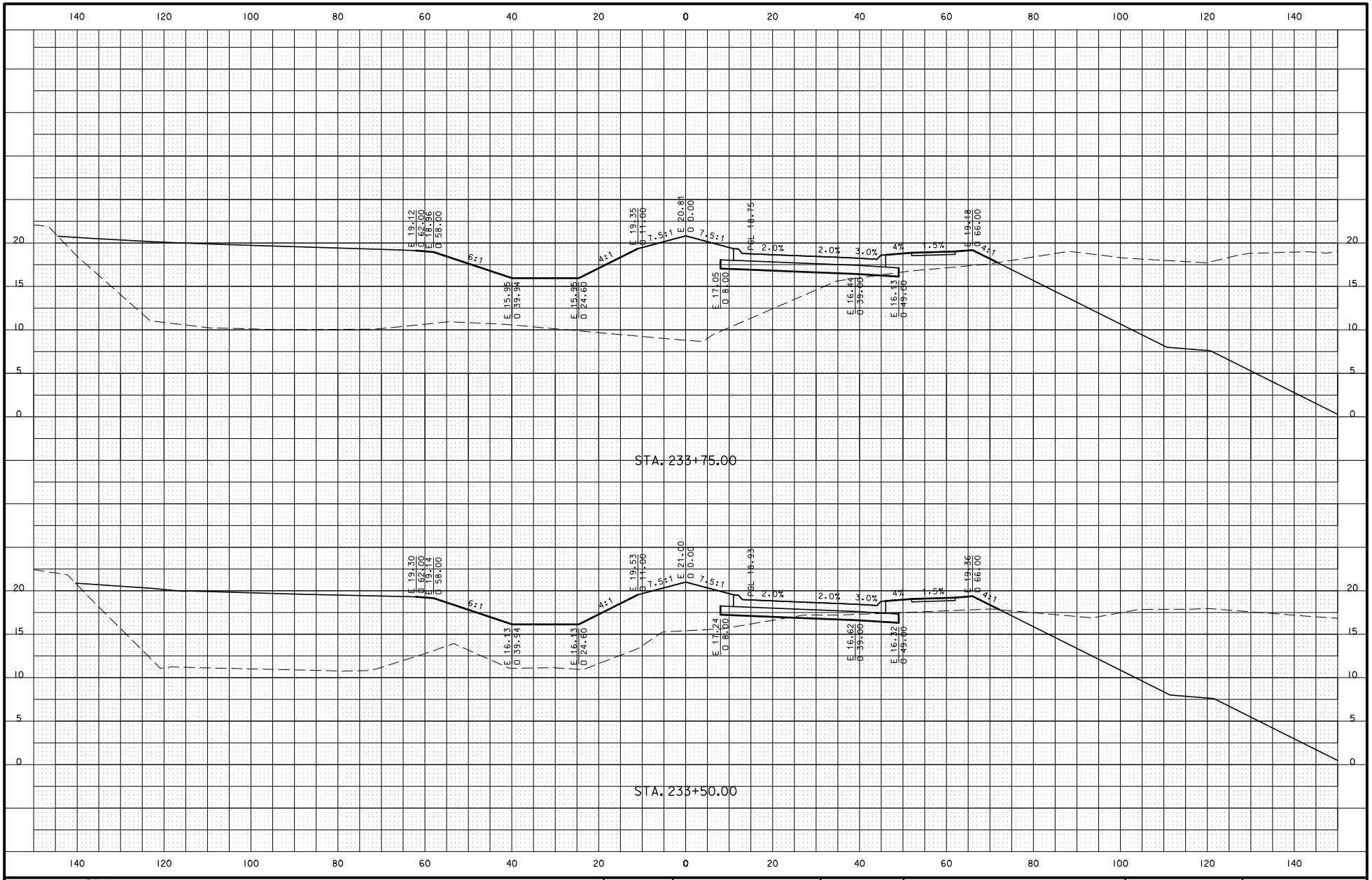

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-619	SHEET NUMBER W.123

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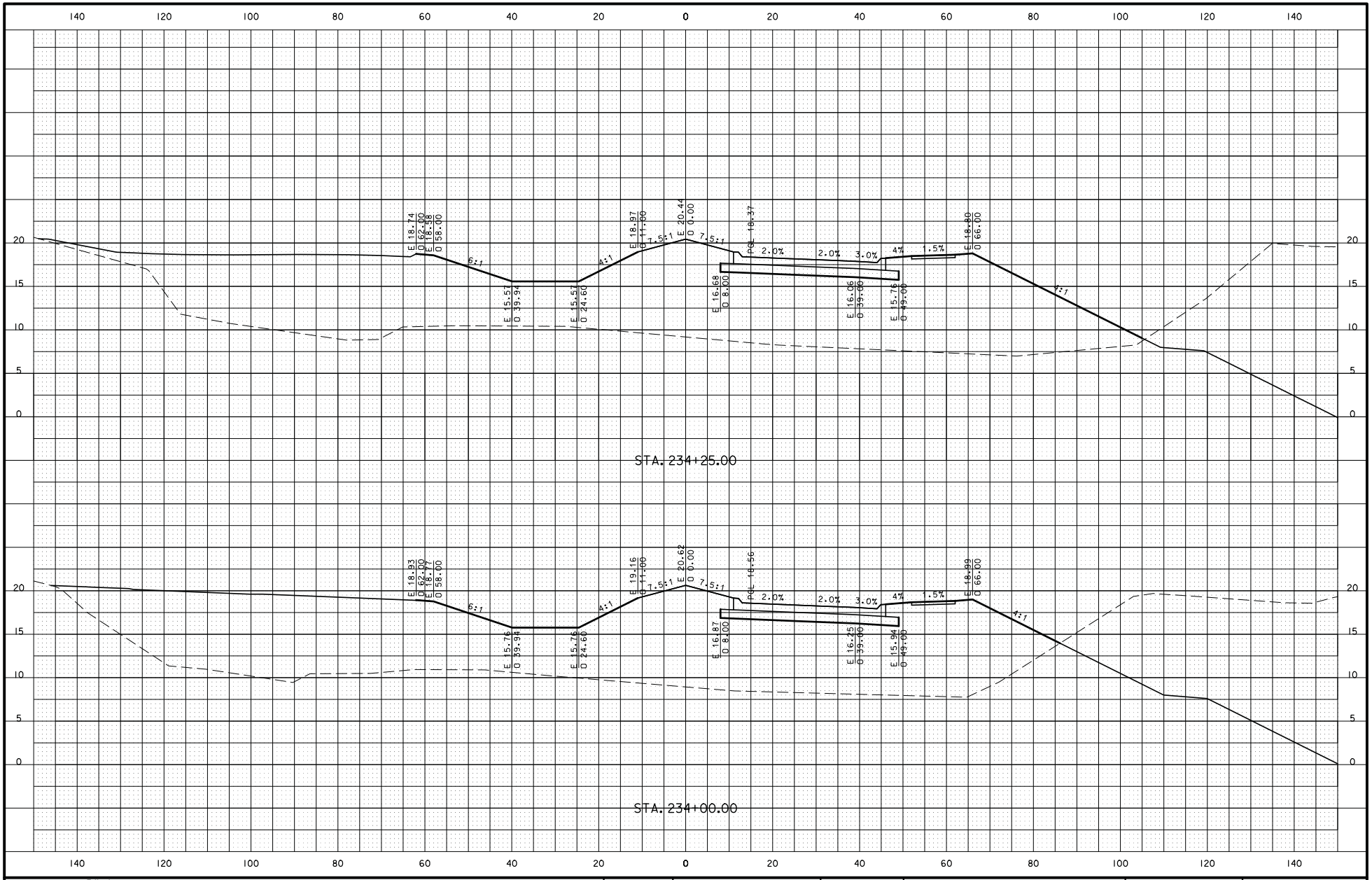

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-620	SHEET NUMBER W.124

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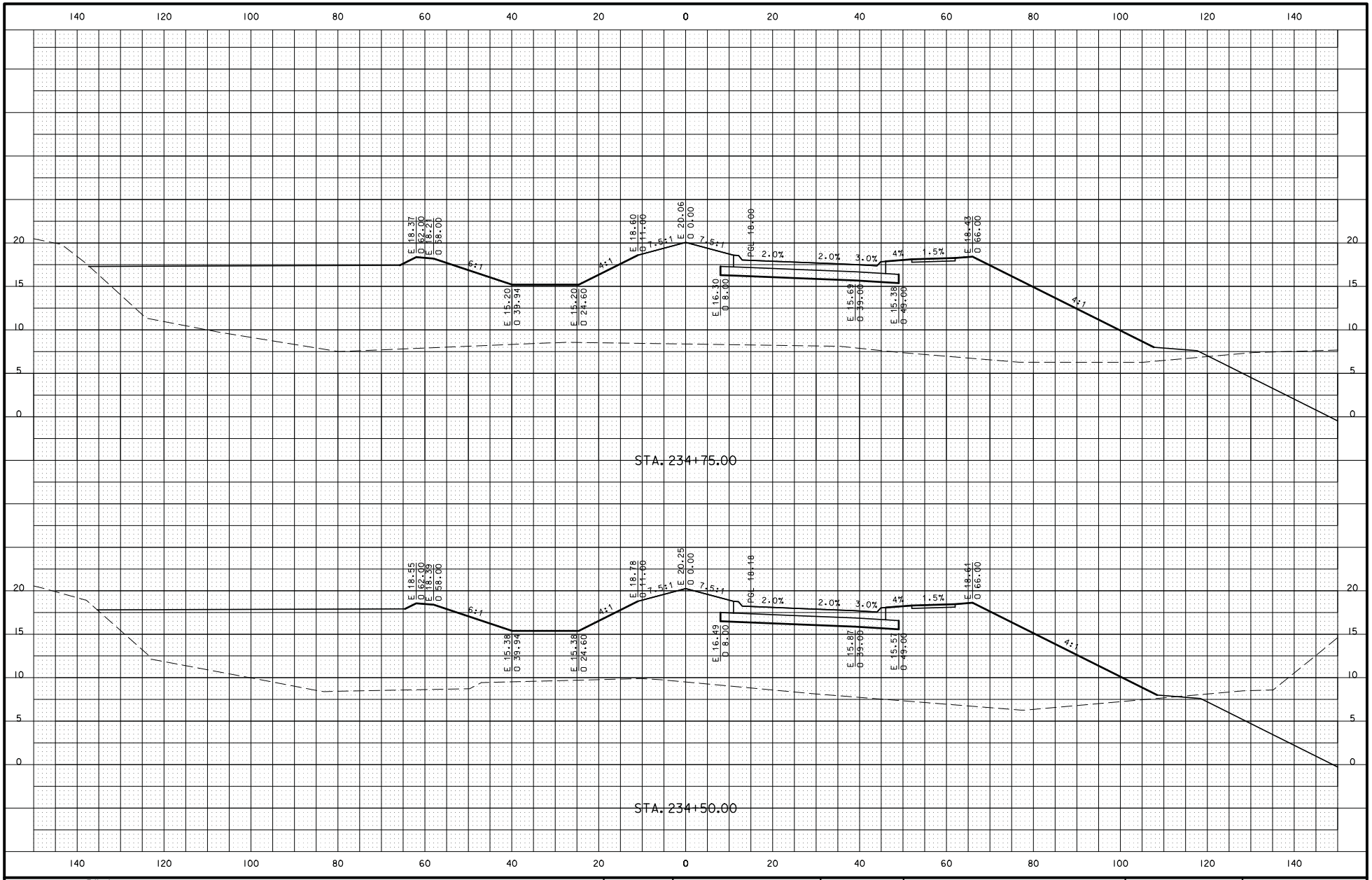

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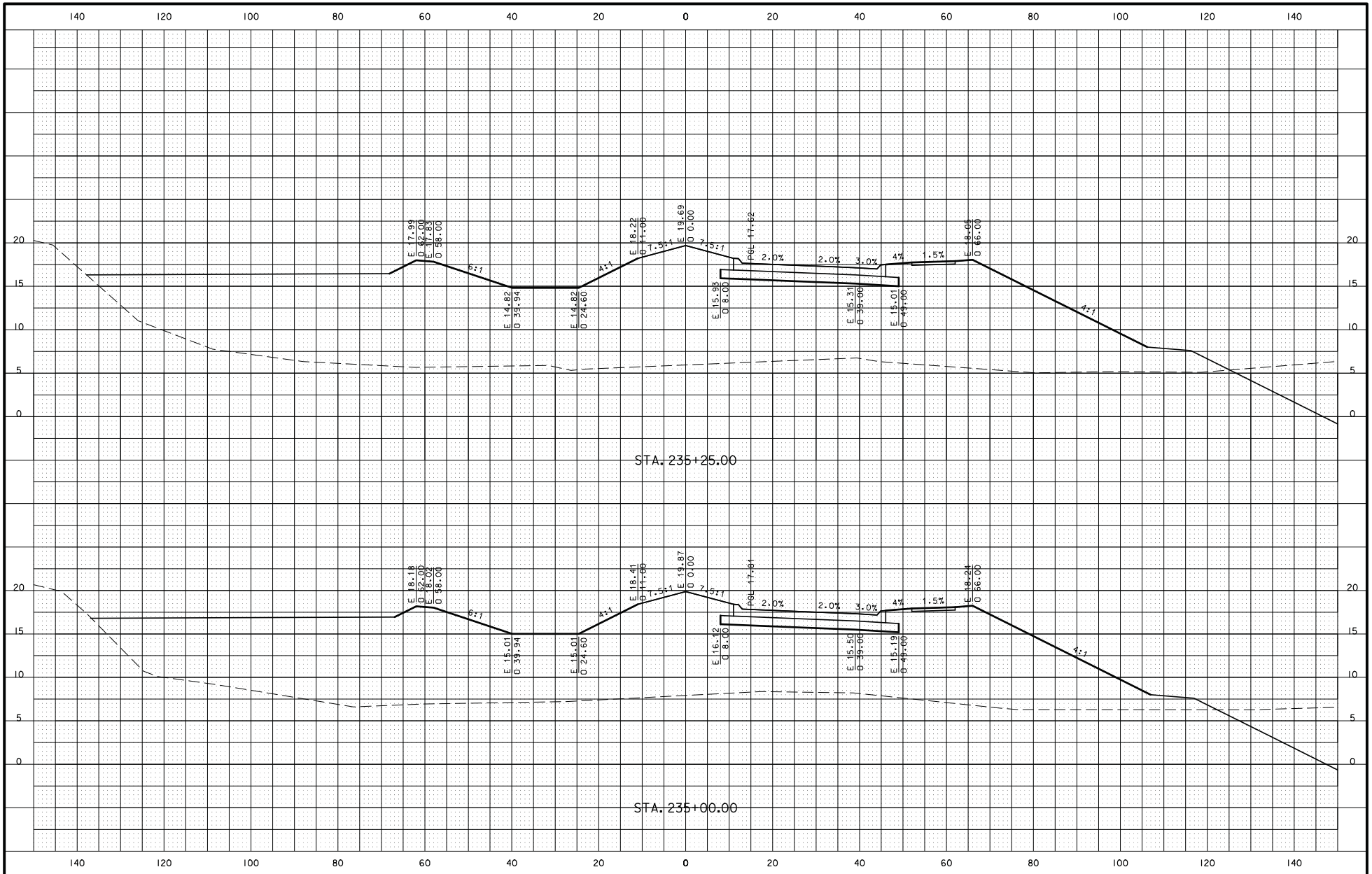

DESIGN TEAM KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-622	SHEET NUMBER W.126

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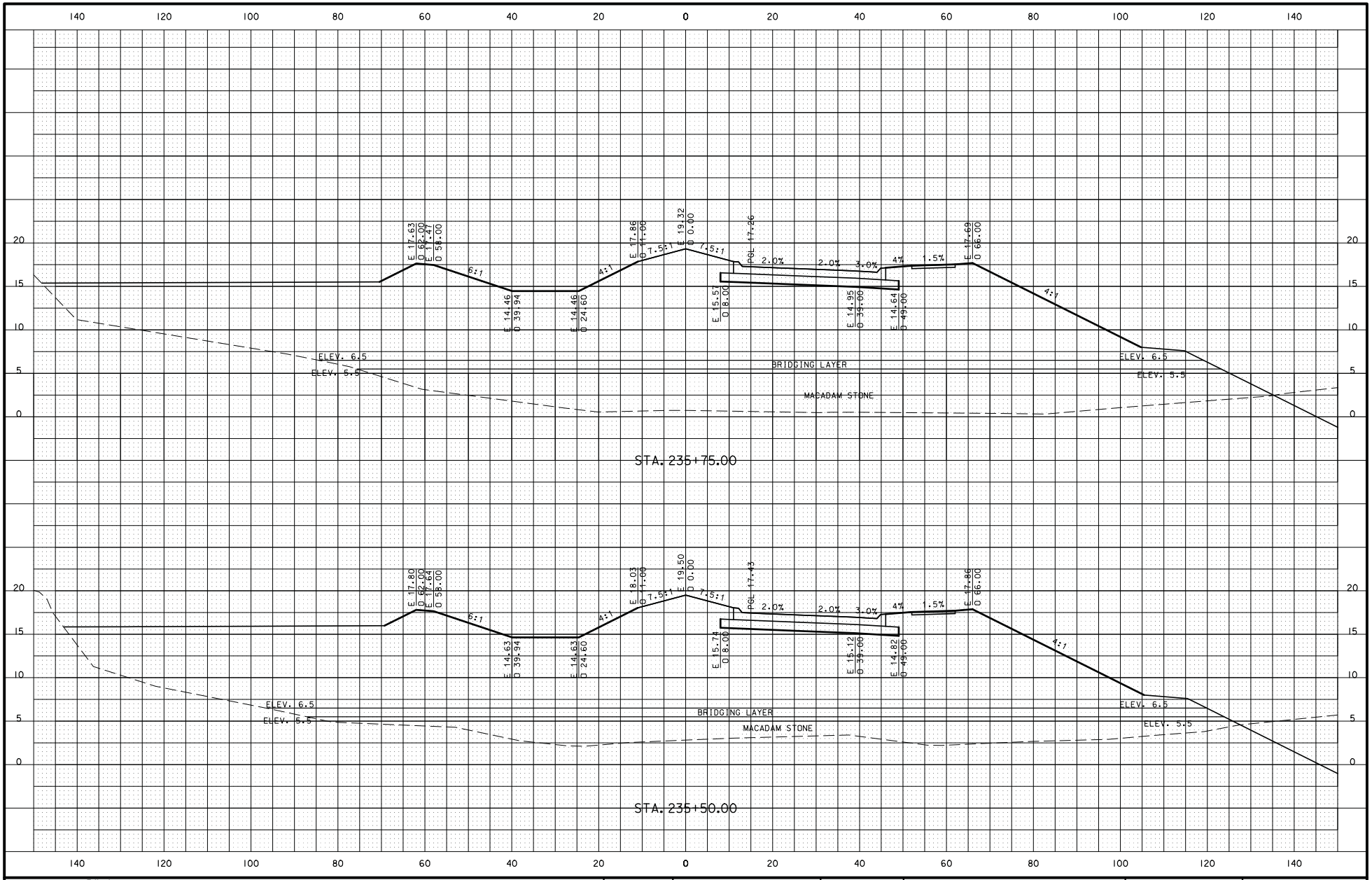

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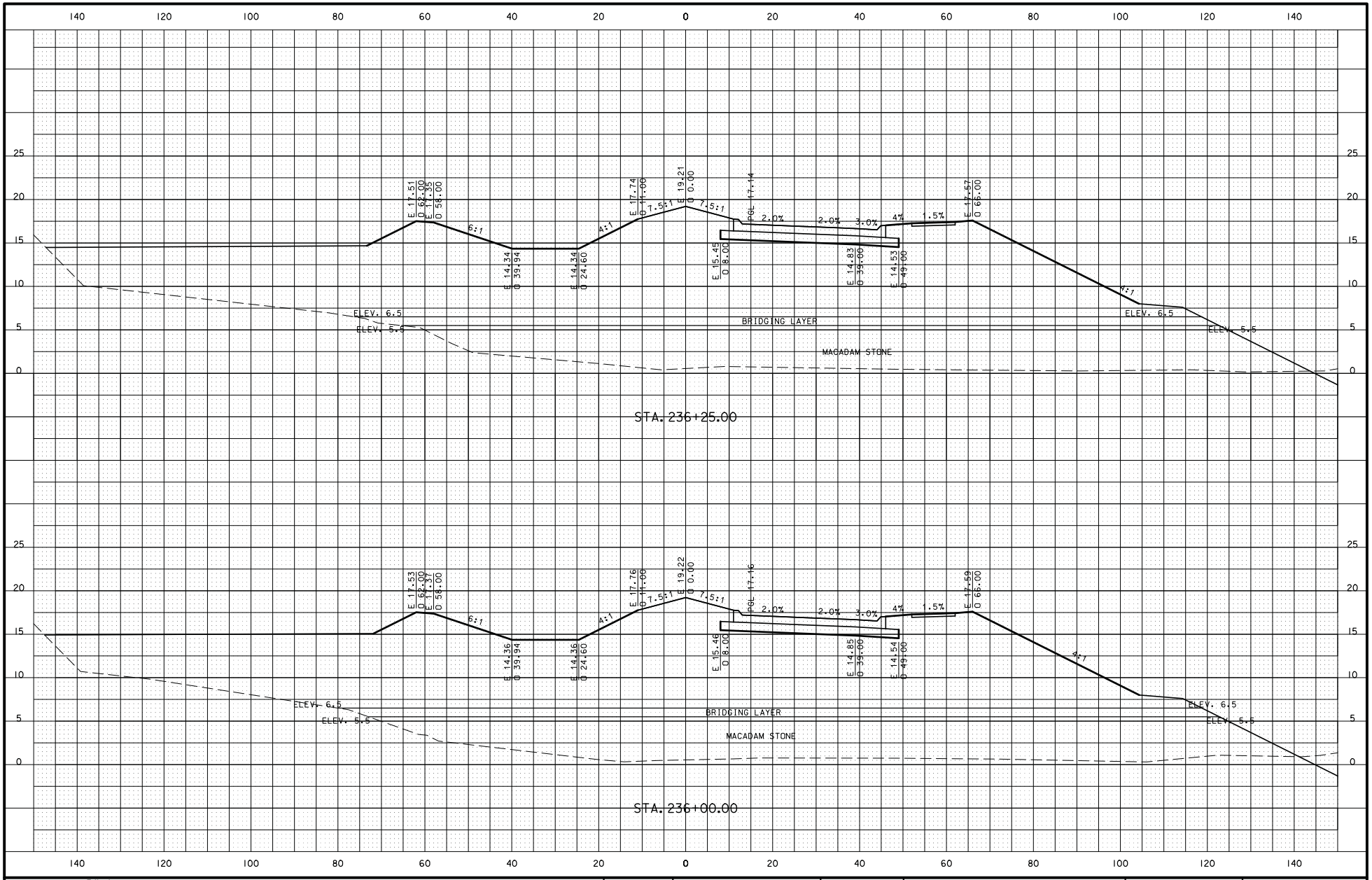

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-624	SHEET NUMBER W.128

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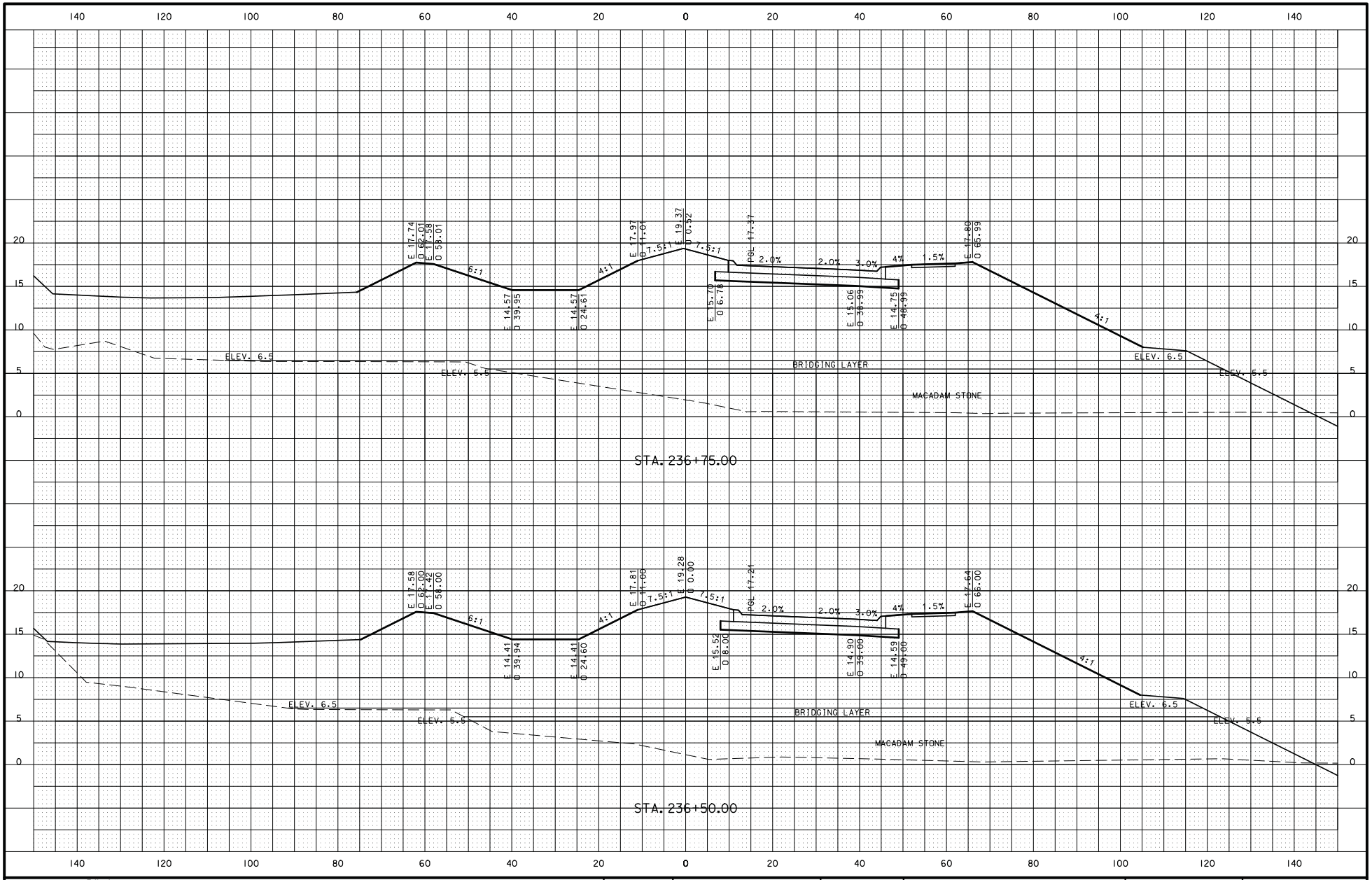

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-625	SHEET NUMBER W.129

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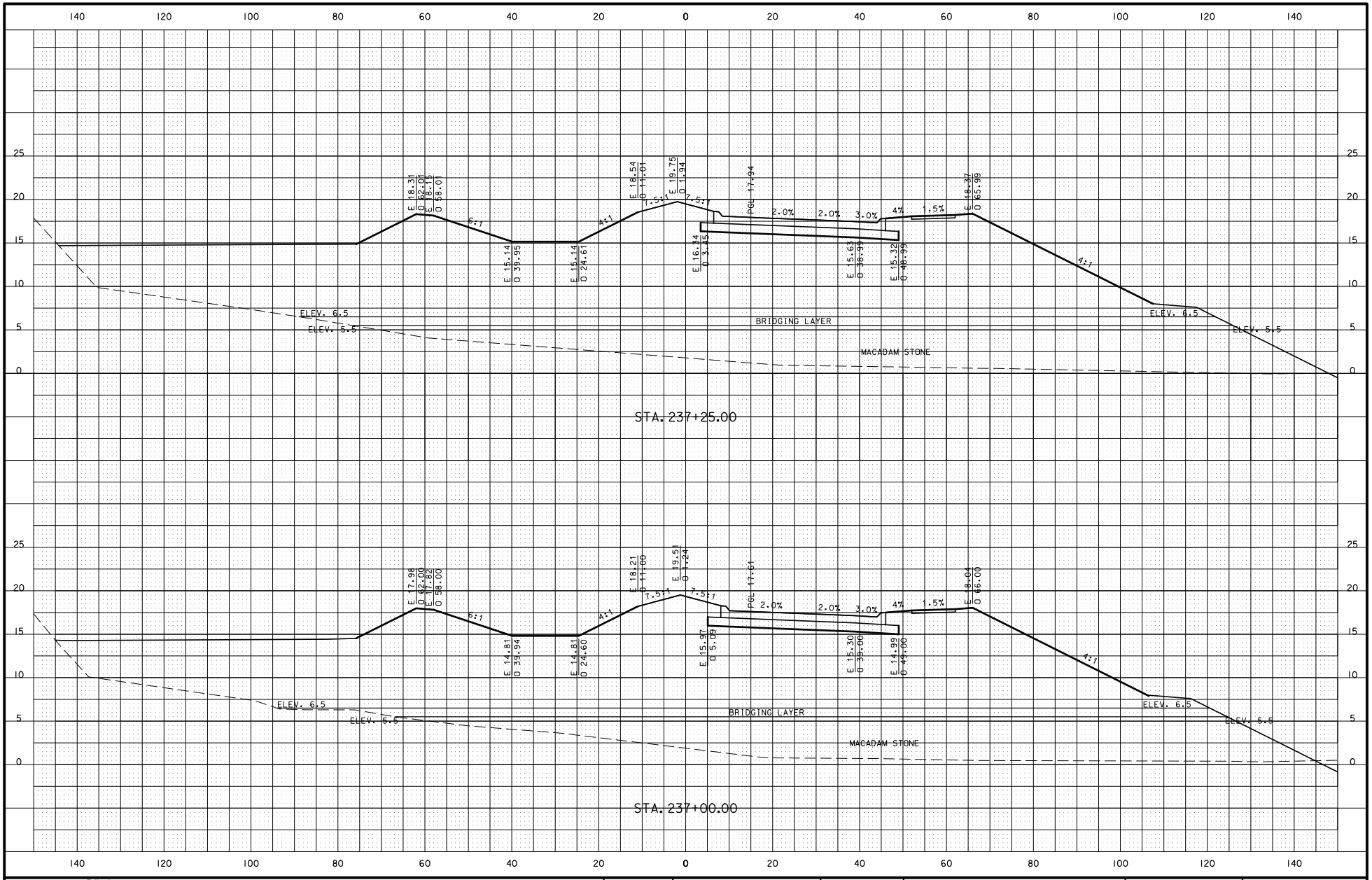

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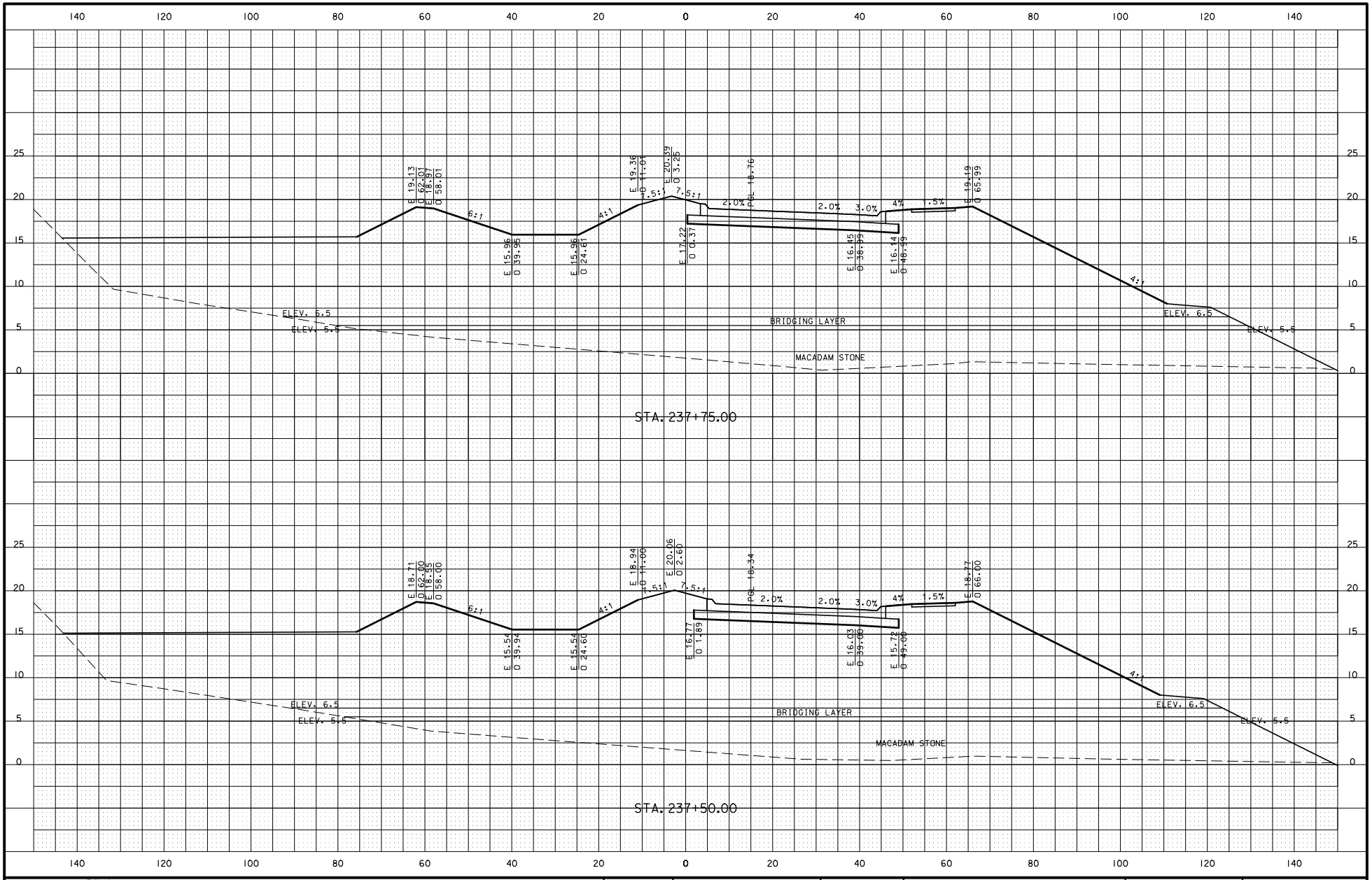

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-627	SHEET NUMBER W.131

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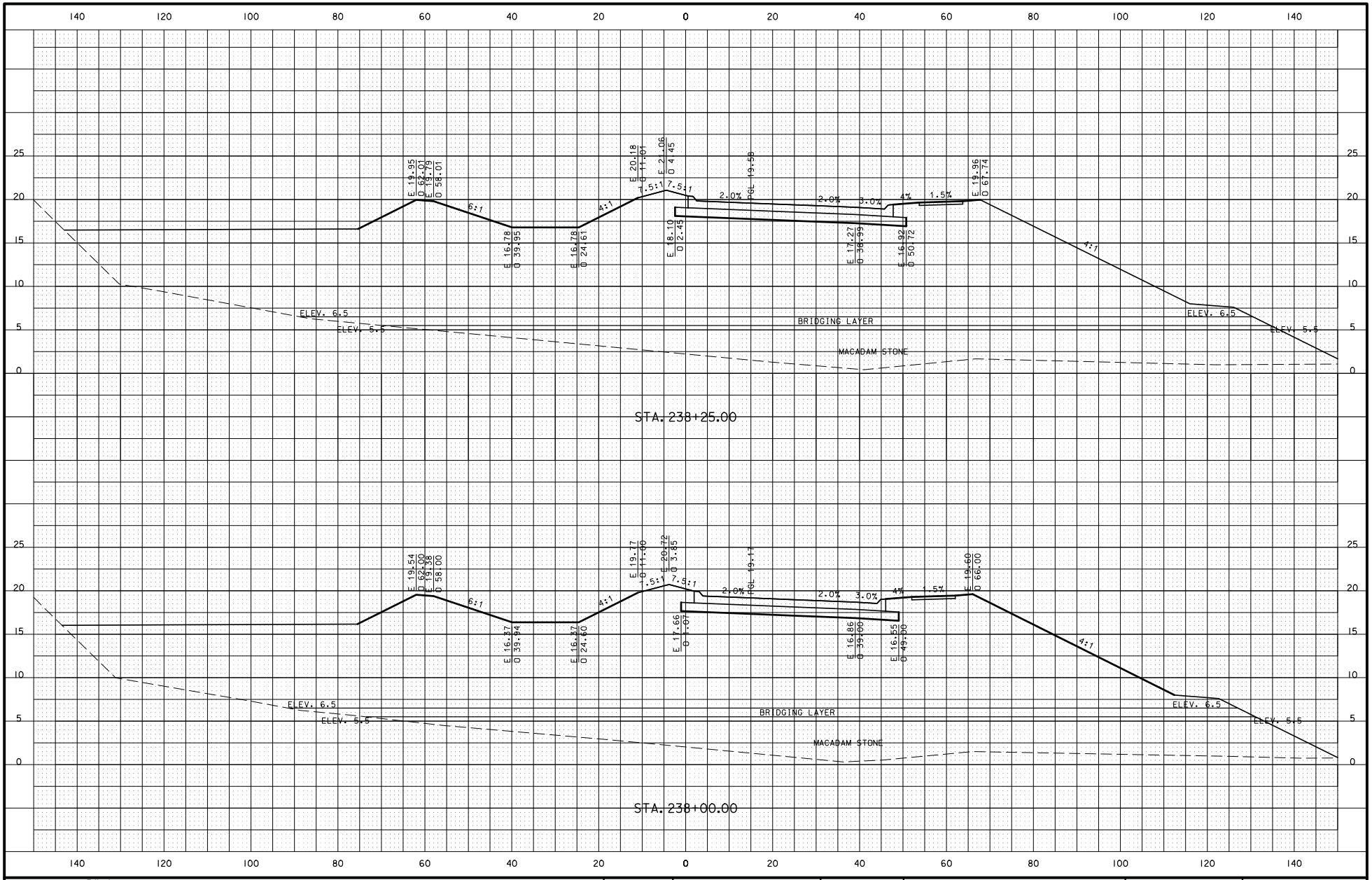

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-628	SHEET NUMBER W.132

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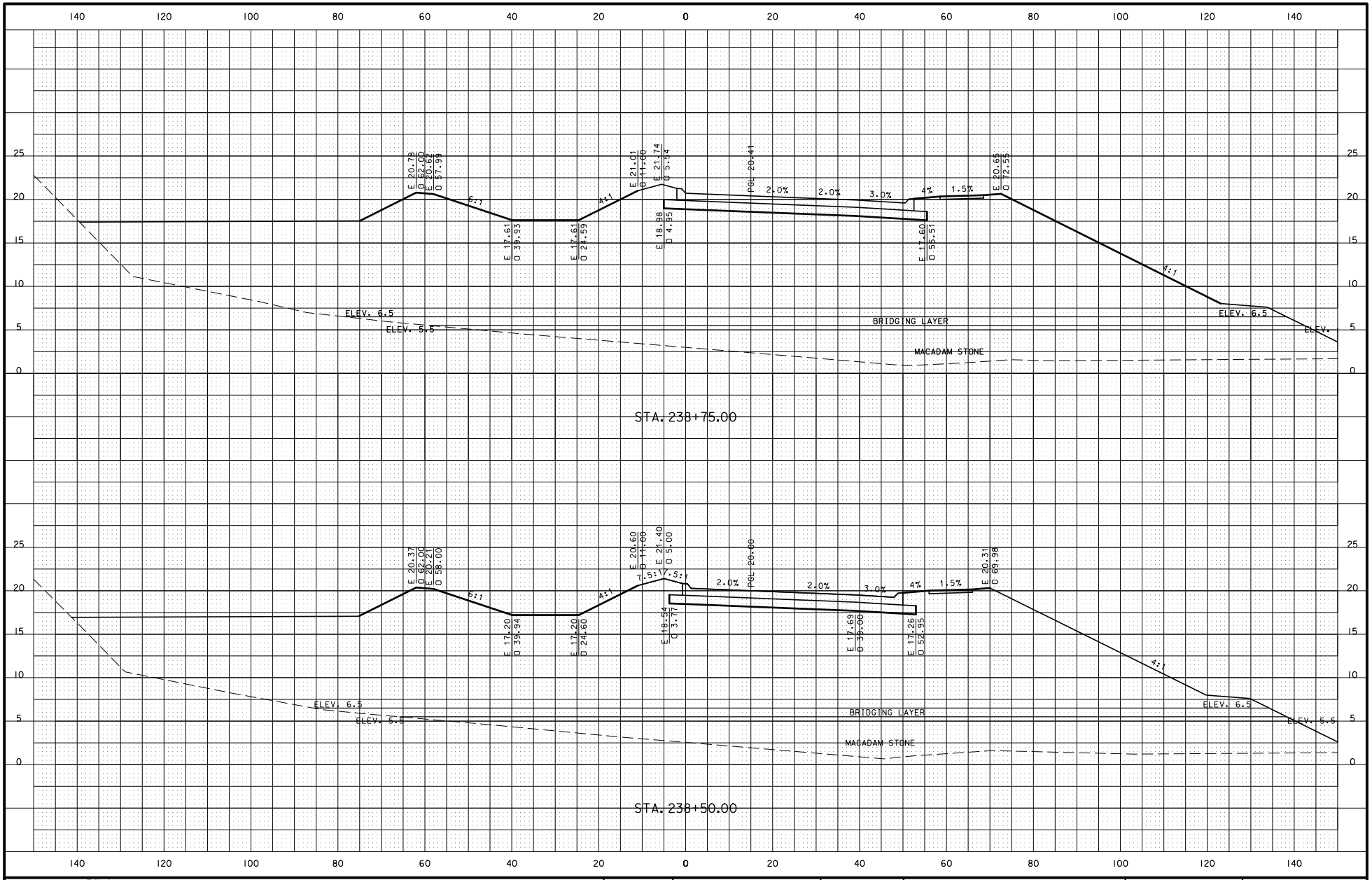

DESIGN TEAM	KIRKHAM MICHAEL	ENGLISH	ACTIVITY ID 06-2012-006	POLK COUNTY	PROJECT NUMBER NHS-U-1945(409)--8G-77	PLAN FILE NO. 542-629	SHEET NUMBER W.133

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