

LETTING DATE

CRAWFORD COUNTY
CMP CULVERT WITH CONCRETE HEADWALLS
LHC40-24N

TRAFFIC CONTROL PLAN

THIS ROAD WILL BE CLOSED TO THROUGH TRAFFIC DURING CONSTRUCTION. LOCAL TRAFFIC TO ADJACENT PROPERTIES WILL BE MAINTAINED AS PROVIDED FOR IN ARTICLE 1107.08 OF THE CURRENT STANDARD SPECIFICATIONS. TRAFFIC CONTROL DEVICES, PROCEDURES AND LAYOUTS SHALL BE AS PER PART VI OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REVISION 3, DATED SEPTEMBER 3, 1993.

DRAWING APPROVAL

ALL SHOP DRAWINGS THAT REQUIRE APPROVAL SHALL BE APPROVED BY
SUNDQUIST ENGINEERING, P.C.

ADDRESS: 120 SOUTH MAIN, P.O. BOX 220
DENISON, IOWA 51442-0220
TELEPHONE: (712)263-8118

THESE SHOP DRAWINGS SHALL NOT BE SENT TO IOWA D.O.T. OFFICE OF BRIDGE DESIGN.



Iowa Department of Transportation Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

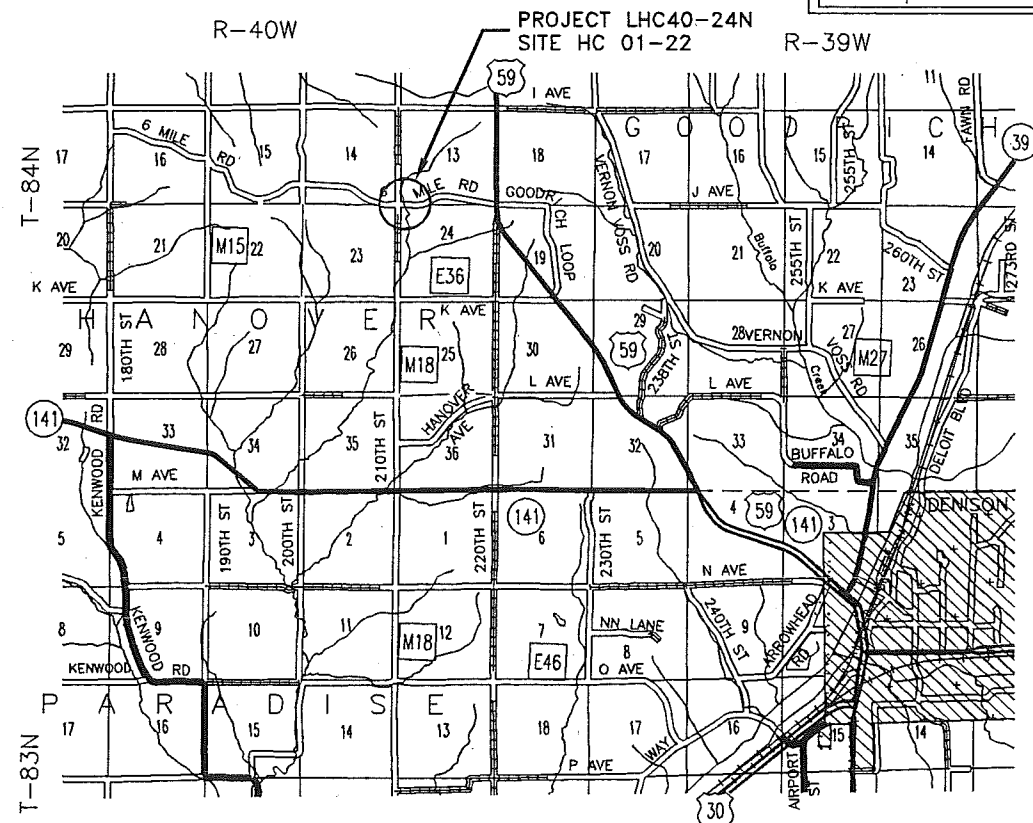
SECONDARY ROAD SYSTEM CRAWFORD COUNTY

PROJECT NO. LHC40-24N CMP CULVERT WITH CONCRETE HEADWALLS ON 6 MILE ROAD OVER UNNAMED CREEK

IN COOPERATION WITH LOESS HILLS DEVELOPMENT AND
CONSERVATION AUTHORITY - HUNGRY CANYONS ALLIANCE
SITE HC 01-22

SCALES: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, Series 2001, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.



ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS.

2. SPECIAL BACKFILL

SPECIAL BACKFILL MATERIAL SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL MEET THE REQUIREMENTS OF I.D.O.T. STANDARD SPECIFICATION 4132.02 CRUSHED STONE OR CRUSHED CONCRETE SPECIAL BACKFILL. REMOVAL OF UNSUITABLE OR UNSTABLE SOIL AND PLACEMENT OF SPECIAL BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH I.D.O.T. STANDARD SPECIFICATION 2402.04. NO ADJUSTMENT IN UNIT PRICE WILL BE ALLOWED FOR DEVIATION BETWEEN PLAN QUANTITY AND ACTUAL QUANTITY PLACED.

THE CRUSHED ROCK MATERIAL SHALL BE PLACED AND COMPACTED IN LAYERS OF NOT MORE THAN EIGHT (8) INCHES IN THICKNESS.

3. EXCAVATION, CLASS 10, ROADWAY & BORROW

INCLUDES 0 C.Y. CUT, 1226 C.Y. FILL + 35%, 1226 C.Y. BORROW. SUITABLE MATERIAL FROM CHANNEL EXCAVATION AND CLASS 20 EXCAVATION MAY BE USED FOR EMBANKMENT MATERIAL AS DIRECTED BY THE ENGINEER. ADDITIONAL NECESSARY BORROW SHALL BE PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. THE CONTRACTOR SELECTED BORROW SITE AND MATERIAL SHALL BE APPROVED BY THE ENGINEER. OVERHAUL IS INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

THE HAUL ROUTE DESIGNATION SHALL BE IN ACCORDANCE WITH SECTION 1105.13 OF THE SPECIFICATIONS EXCEPT THE CONTRACTOR SHALL SUBMIT THE HAUL ROAD REQUEST TO THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING WHICH POTENTIAL COUNTY HAUL ROADS ARE EMBARGOED AND WHEN THE EMBARGO IS IN EFFECT.

THE CONTRACTOR WILL BE REQUIRED TO OBTAIN ARCHAEOLOGICAL CLEARANCE FOR BORROW UPON WHICH NO PREVIOUS BORROW OPERATIONS HAVE OCCURRED. THE CONTRACTOR SHALL PROVIDE PROOF OF CLEARANCE TO THE ENGINEER PRIOR TO COMMENCING ANY BORROW OPERATIONS.

THE CONTRACTOR WILL NOT BE REQUIRED TO OBTAIN ARCHAEOLOGICAL CLEARANCE IF BORROW MATERIALS ARE OBTAINED FROM A SITE CURRENTLY IN OPERATION OR PREVIOUSLY USED FOR SUCH PURPOSES.

FILL MATERIALS SHALL CONTAIN NO SOD, BRUSH, ROOTS OR OTHER PERISHABLE MATERIALS. FILL SHALL NOT BE PLACED UPON A FROZEN SURFACE, NOR SHALL SNOW, ICE OR FROZEN MATERIAL BE INCORPORATED IN THE FILL.

FILL PLACEMENT SHALL TAKE PLACE ON NEAR HORIZONTAL SURFACES. THE EXISTING SURFACES SHALL BE BENCHED PRIOR TO PLACEMENT OF FILL UPON THEM. NEAR VERTICAL BENCHES AT 3 TO 5 FEET IN HEIGHT SHALL BE REQUIRED IN ORDER TO EFFECT A GOOD BOND BETWEEN THE FILL AND THE EXISTING SURFACES. NO SEPARATE PAYMENT WILL BE MADE FOR BENCHING OF THE EXISTING SURFACES. SUCH BENCHING SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

TYPE A COMPACTION SHALL BE REQUIRED AND SHALL BE IN ACCORDANCE WITH SECTION 2107 OF THE REFERENCE SPECIFICATIONS.

FILL ADJACENT TO STRUCTURES SHALL BE COMPACTED TO A DENSITY EQUIVALENT TO THAT OF THE SURROUNDING FILL BY MEANS OF HAND TAMPING OR MANUALLY DIRECTED POWER TAMPERS OR PLATE VIBRATORS. UNLESS OTHERWISE SPECIFIED, HEAVY EQUIPMENT INCLUDING BACKHOE MOUNTED POWERTAMPERS, OR VIBRATING COMPACTORS AND MANUALLY DIRECTED VIBRATING ROLLERS, SHALL NOT BE OPERATED WITHIN 2 FEET OF ANY STRUCTURE. TOWED OR SELF-PROPELLED VIBRATING ROLLERS SHALL NOT BE OPERATED WITHIN 5 FEET OF ANY STRUCTURE. COMPACTION BY MEANS OF DROP WEIGHTS OPERATING FROM A CRANE OR HOIST WILL NOT BE PERMITTED.

THE PASSAGE OF HEAVY EQUIPMENT WILL NOT BE ALLOWED OVER ANY TYPE OF CONDUIT UNTIL THE BACKFILL HAS BEEN PLACED ABOVE THE TOP SURFACE OF THE STRUCTURE TO A HEIGHT EQUAL TO ONE-HALF THE CLEAR SPAN WIDTH OF THE STRUCTURE OR PIPE OR 2 FEET, WHICHEVER IS GREATER.

HAND COMPACTED FILL, INCLUDING FILL COMPACTED BY MANUALLY DIRECTED POWER TAMPERS, SHALL BE PLACED IN LAYERS NOT MORE THAN 4 INCHES THICK BEFORE COMPACTION.

4. EXCAVATION, CLASS 10, CHANNEL

UNSUITABLE MATERIAL MAY BE WASTED IN A THIN LAYER ON THE ROADWAY FORESLOPE (TO PROMOTE SEED GROWTH).

INCLUDES PLACEMENT OF 119 CY (88 X 1.35) OF FILL IN THE CHANNEL AS SHOWN ON THE CHANNEL CROSS SECTIONS.

ESTIMATED PROJECT QUANTITIES

100-1A
07-15-97

ITEM NO.	ITEM CODE	ITEM	UNIT	DIV. 1	DIV. 2	TOTAL	AS BUILT QUAN.
1	2101-0850002	CLEARING AND GRUBBING	UNIT	133.5	0	133.5	
2	2102-0425070	SPECIAL BACKFILL	TON	264	0	264	
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	1226	0	1226	
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	50	670	720	
5	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1	0	1	
6	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	3373	0	3373	
7	2403-0100000	STRUCTURAL CONCRETE (MISCELLANEOUS)	CY	16.4	0	16.4	
8	2404-7775000	REINFORCING STEEL	LB	1197.4	0	1197.4	
9	2417-1060120	CULVERT, CORRUGATED METAL ROADWAY PIPE, 120 IN. DIA.	LF	127	0	127	
10	2501-5775000	PILES, STEEL SHEET	SF	332	0	332	
11	2507-3250005	ENGINEERING FABRIC	SY	0	276	276	
12	2507-4011100	CONCRETE GROUT FOR REVETMENT OR GABION	CY	0	33	33	
13	2507-6850053	REVETMENT, SPECIAL	TON	0	214	214	
14	2518-6910000	SAFETY CLOSURE	EACH	4	0	4	
15	2528-8445110	TRAFFIC CONTROL	LS	0.9	0.1	1	
16	2533-4980005	MOBILIZATION	LS	0.9	0.1	1	
17	2599-9999010	REMOVAL OF WATER	LS	0.9	0.1	1	
18	2601-2634100	MULCHING	ACRE	0.22	0.05	0.27	
19	2601-2636043	SEEDING AND FERTILIZING (RURAL)	ACRE	0.22	0.05	0.27	

5. REMOVAL OF EXISTING STRUCTURES

INCLUDES REMOVAL AND DISPOSAL OF EXISTING 8' X 8' X 76' RCB CULVERT AT STA. 102+84. CONTRACTOR SHALL DISPOSE OF BROKEN CONCRETE FROM REMOVAL OF RCB ON SITE AS DIRECTED BY THE ENGINEER. ALL STEEL SHALL BE TRIMMED SO THAT PROTRUSIONS ARE LESS THAN 1/2 INCH.

7. STRUCTURAL CONCRETE (MISCELLANEOUS)

MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 4000 PSI. TO BE CLASS C STRUCTURAL CONCRETE. QUANTITY INCLUDES ALL CONCRETE NECESSARY TO CONSTRUCT HEADWALLS AT STA. 103+10. REFER TO TABULATION ON SHEET U1 FOR CONCRETE PLACEMENT QUANTITIES.

8. REINFORCING STEEL

QUANTITY INCLUDES ALL REINFORCING STEEL NECESSARY TO CONSTRUCT HEADWALLS AT STA. 103+10. REFER TO TABULATION ON SHEET U1 FOR STEEL PLACEMENT QUANTITIES.

9. CULVERT, CORRUGATED METAL ROADWAY PIPE, 120 IN. DIA.

ALL CORRUGATED METAL PIPE ON THIS PROJECT SHALL BE RIVETED PIPE. NO "SPIRAL" PIPE WILL BE ALLOWED.

120 IN. DIA. ROADWAY CULVERT SHALL BE ELONGATED AND SHALL BE FABRICATED FROM 8 GAGE (0.168") SHEET METAL WITH 3"x1" CORRUGATIONS. ALL BANDS SHALL BE 36 IN. WIDE AND SHALL BE FABRICATED FROM 12 GAGE (0.109") SHEET METAL WITH 3"x1" CORRUGATIONS.

PRICE BID PER LINEAR FOOT SHALL INCLUDE COST OF FURNISHING AND INSTALLING HOOK BOLTS IN HEADWALLS.

10. PILES, STEEL SHEET

SHALL BE 8 GAGE STEEL SHEETING, MINIMUM SECTION MODULUS 2.6 CU. IN. PER FOOT OF LENGTH. REFER TO PLAN SHEET U1 FOR ADDITIONAL DETAILS.

11. ENGINEERING FABRIC

SEE DRAWING SHEET U2 DETAILS OF PLACEMENT OF ENGINEER FABRIC FOR INSTALLATION DETAILS. MATERIAL TO CONFORM TO IOWA DOT MATERIALS IM 496.01 APPENDIX A, EMBANKMENT EROSION CONTROL (SPECIFICATION 4196.01C).

12. CONCRETE GROUT FOR REVETMENT OR GABION

GROUTING OPERATION SHALL NOT BE PERFORMED EXCEPT IN THE PRESENCE OF THE ENGINEER.

THE AVERAGE RATE OF GROUT APPLICATION SHALL BE 5.4 CUBIC FEET OF GROUT PER SQUARE YARD OF SURFACE AREA.

THE GROUT SHALL BE CONSOLIDATED INTO THE VOIDS WITH THE USE OF A CONCRETE VIBRATOR.

METHOD OF MEASUREMENT: THE ENGINEER WILL COMPUTE TO THE NEAREST 0.1 CUBIC YARD THE VOLUME OF CONCRETE GROUT FOR REVETMENT OR GABION FURNISHED AND ACCEPTABLY PLACED WITHIN THE SPECIFIED LIMITS, FROM THE NOMINAL VOLUME OF EACH BATCH AND A COUNT OF BATCHES. GROUT UNUSED OR WASTED, INCLUDING ANY PARTIAL BATCH REMAINING AT THE COMPLETION OF THE OPERATION, WILL BE ESTIMATED AND DEDUCTED BY THE ENGINEER. METHOD OF MEASUREMENT IN THE CURRENT STANDARD SPECIFICATIONS SHALL NOT APPLY.

CONTINUED ON SHEET B2

GENERAL NOTES

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAKE ALL NECESSARY ARRANGEMENTS WITH ADJACENT PROPERTY OCCUPANTS FOR RESTRAINING LIVESTOCK FROM ENTERING THE RIGHT-OF-WAY.

CONTRACTOR IS TO USE DUE CAUTION IN WORKING OVER AND AROUND ALL TILE LINES. BREAKS IN THE TILE LINE DUE TO THE CONTRACTOR'S CARELESSNESS ARE TO BE REPLACED AT HIS EXPENSE WITHOUT COST TO THE COUNTY. ANY TILE LINES BROKEN OR DISTURBED BY CUT LINES WILL BE REPLACED AS DIRECTED BY THE ENGINEER IN CHARGE OF CONSTRUCTION AND AT THE COUNTY'S EXPENSE.

ALL BORROW AREAS, STOCKPILE AREAS, HAUL ROADS AND AREAS FOR MANEUVERING EQUIPMENT ON THIS PROJECT WILL REQUIRE SUBSOIL TILLAGE TO AN AVERAGE DEPTH OF 18 TO 24 INCHES. SUCH TILLAGE SHALL BE ACCOMPLISHED ON MAXIMUM OF THREE FOOT CENTERS. SUCH AREAS SHALL BE DESIGNATED BY THE COUNTY ENGINEER.

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

CONTRACTOR SHALL NOTIFY ONE-CALL (1-800-292-8989) FOR UTILITY LOCATES PRIOR TO COMMENCING WORK.

GRANULAR SURFACING OF ROADWAY WILL BE ACCOMPLISHED BY THE CONTRACTING AUTHORITY.

THE BACKFILLING AND ASSOCIATED EMBANKMENT CONSTRUCTION SHALL BE COMPLETED WITHIN 14 WORKING DAYS AFTER THE CURING PERIOD HAS EXPIRED FOR CONCRETE STRUCTURES.

213-1
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL (EXCAVATED MATERIAL OR BROKEN CONCRETE) WHICH IS NOT DESIRABLE TO BE INCORPORATED INTO THE WORK INVOLVED ON THIS PROJECT. THESE AREAS SHALL NOT IMPACT WETLANDS OR "WATERS OF THE U.S." NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES. NO MATERIAL SHALL BE PLACED WITHIN THE RIGHT-OF-WAY, UNLESS SPECIFICALLY STATED IN THE PLANS OR APPROVED BY THE ENGINEER.

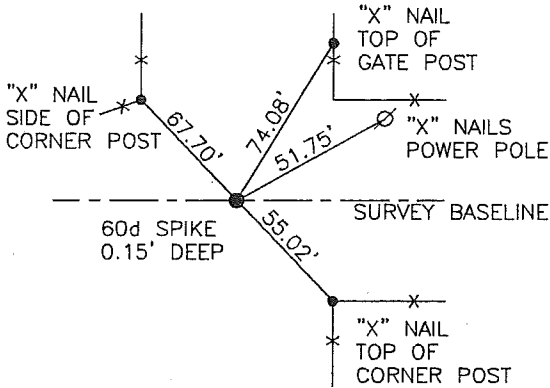
213-4
THE CONTRACTOR SHALL APPLY NECESSARY MOISTURE TO THE CONSTRUCTION AREA AND HAUL ROADS TO PREVENT THE SPREAD OF DUST. REFER TO ARTICLE 1107.07 OF THE CURRENT STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

251-1
THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ACCESS TO INDIVIDUAL PROPERTIES DURING CONSTRUCTION.

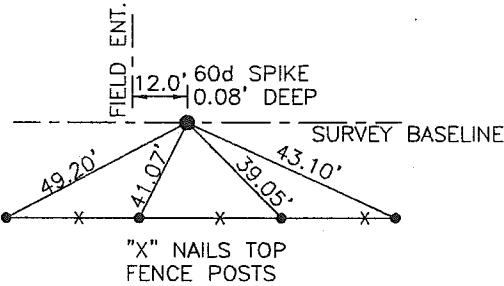
RELOCATED ACCESS SHALL BE COMPLETED TO INDIVIDUAL PROPERTIES PRIOR TO REMOVAL OF EXISTING ACCESS.

IF THE PERMANENT ACCESS CANNOT BE COMPLETED PRIOR TO REMOVAL OF THE EXISTING ACCESS, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN AN ALTERNATE ACCESS. TEMPORARY GRANULAR SURFACING WILL BE PAID FOR AS A CONTRACT ITEM OR BY EXTRA WORK.

TABULATION OF SAFETY CLOSURES			108-13A 10-28-97
Refer to Section 2518 of the St'd. Specifications			
STATION	CLOSURE TYPE		REMARKS
	Road Qty.	Hazard Qty.	
100+50	1	-	WEST END
102+00	-	1	WEST END
104+00	-	1	EAST END
105+50	1	-	EAST END



P.O.T STA. 100+00
DISTANCES SLOPE CHAINED



P.O.T STA. 106+68.60
DISTANCES SLOPE CHAINED

ESTIMATE REFERENCE INFORMATION (CONTINUED FROM SHEET B1)

13. REVETMENT, SPECIAL
SPECIAL REVETMENT SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATIONS SECTION 2507.03, CLASS B REVETMENT.

MATERIAL SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATIONS SECTION 4130 FOR CLASS B REVETMENT ON PRIMARY PROJECTS.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REMOVAL OF ALL REMNANTS OF RIPRAP STOCKPILES FROM FARM FIELDS UTILIZED BY CONTRACTOR IN THE PROJECT AREA. THIS WORK WILL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR THIS ITEM.

MATERIAL FOR SPECIAL REVETMENT SHALL BE MEASURED IN TONS TO THE NEAREST 0.1 TONS. ONLY MATERIAL PLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS WILL BE MEASURED.

FOR THE QUANTITY OF REVETMENT FURNISHED AND PLACED, THE CONTRACTOR WILL BE PAID THE CONTRACT UNIT PRICE PER TON.

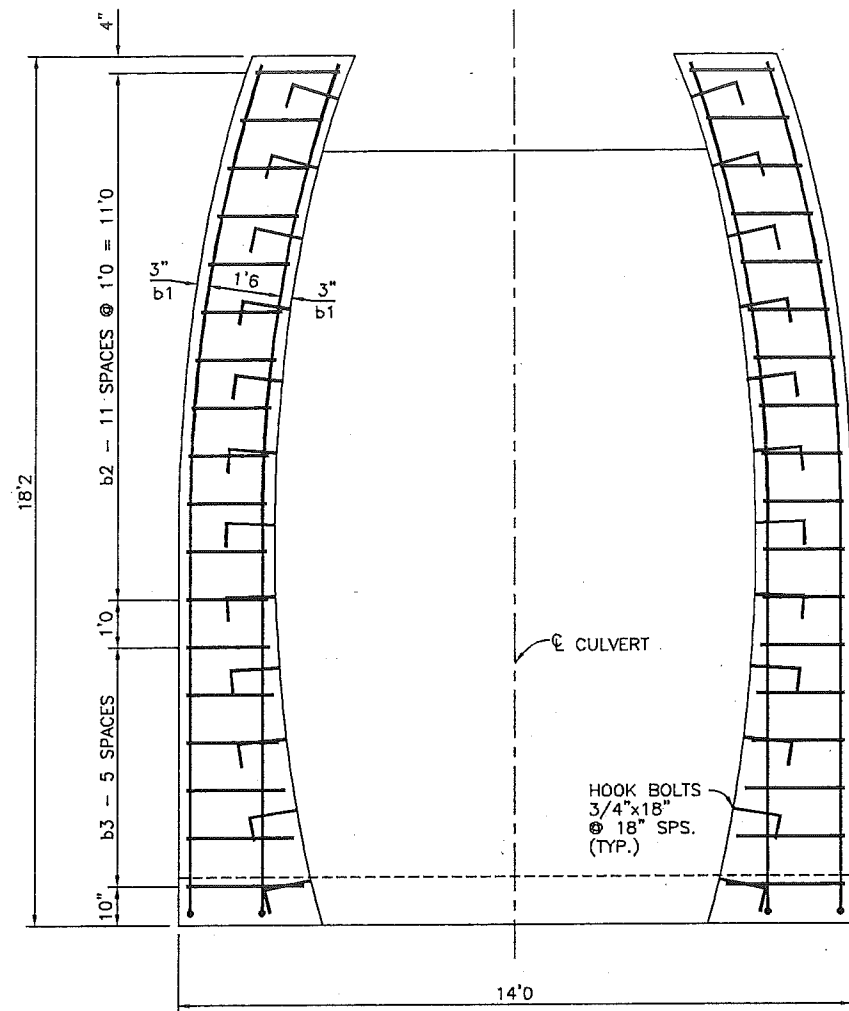
17. REMOVAL OF WATER

THIS ITEM CONSISTS OF DIVERTING SURFACE WATER AND DEWATERING THE SITE AS NEEDED FOR CONSTRUCTION. POLLUTION CONTROL SHALL BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THIS ITEM.

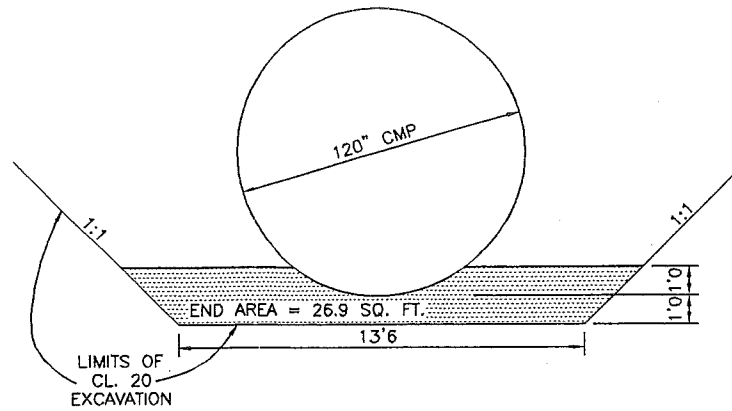
18. MULCHING

19. SEEDING AND FERTILIZING (RURAL)

INCLUDES RESTORING ALL DISTURBED AREAS IN ACCORDANCE WITH SECTION 2601 OF THE REFERENCE SPECIFICATIONS FOR PERMANENT SEEDING OF RURAL AREAS.



SECTION A-A



SPECIAL BACKFILL PLACEMENT
NOT TO SCALE

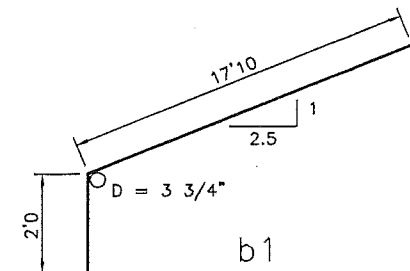
MARK	NO.	LENGTH
a1	36	5'9"
	4	5'1"
	4	4'4"
	4	3'11"
	4	3'9"

MARK	NO.	LENGTH
a2	8	25'8"
	4	11'0"
	4	9'4"
	4	8'9"

MARK	NO.	LENGTH
b3	4	2'5"
	4	2'3"
	4	2'1"
	4	1'11"
	4	1'10"
	4	1'9"

BILL OF REINFORCING ONE HEADWALL				
BAR	LENGTH	NO.	TOTAL LENGTH	WEIGHT
a1	varies	52	275'4"	183.9
a2	varies	20	321'8"	214.9
b1	19'10"	8	158'8"	106.0
b2	1'8"	48	80'2"	53.6
b3	varies	24	49'0"	32.7
qb1	8"	17	11'4"	7.6
REINFORCING STEEL LBS.				598.7

BENT BAR DETAILS



ESTIMATED QUANTITIES - ONE HEADWALL		
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE	C.Y.	8.2
REINFORCING STEEL	LBS.	598.7
30 HOOK BOLTS	NO.	30
STEEL SHEET PILING	SF	166

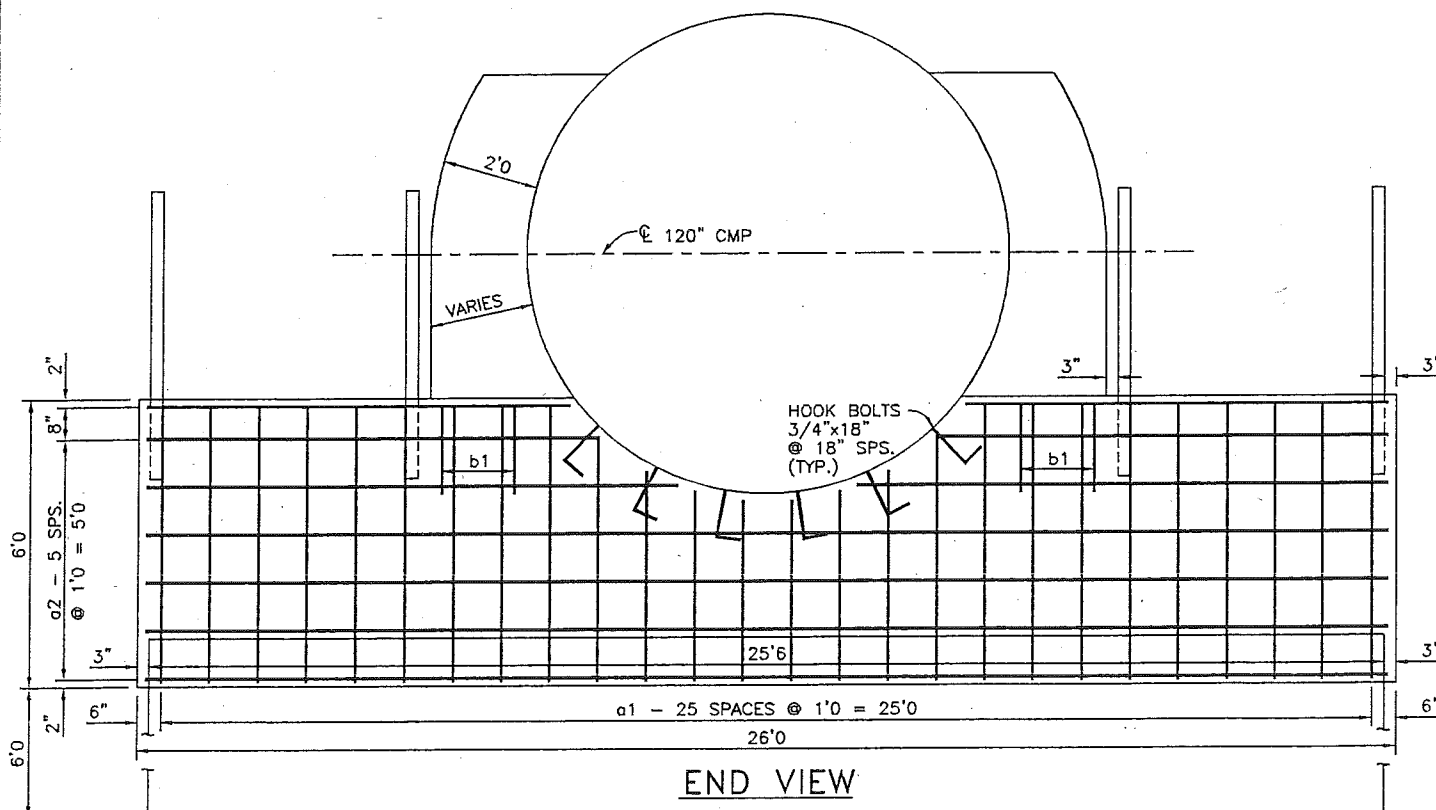
NOTE:
ALL REINFORCING STEEL BARS TO BE NO. 4.

ALL EXPOSED CORNERS 90° OR SHARPER TO BE FILLETED WITH A 3/4 INCH DRESSED BEVELED STRIP.

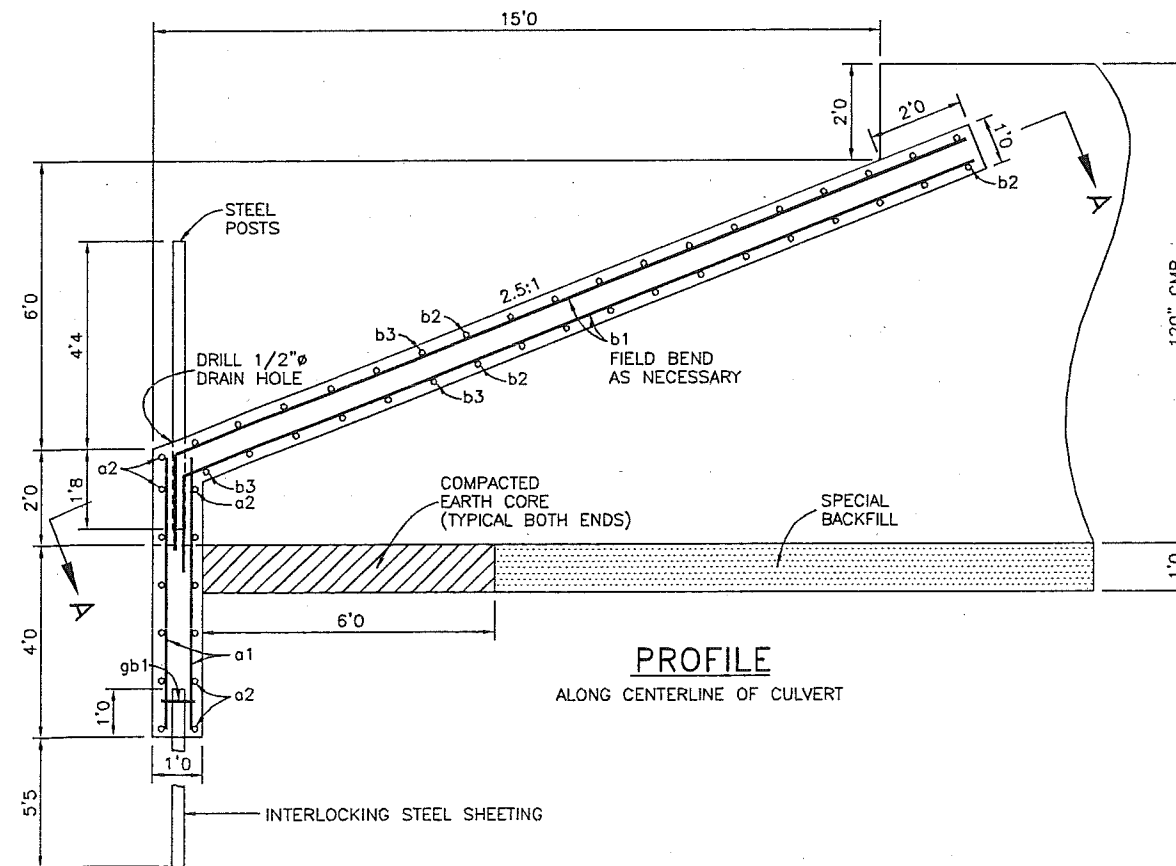
FURNISHING AND PLACING 4 - 3" ϕ x 6'0" STEEL POSTS SHALL BE CONSIDERED INCIDENTAL TO REINFORCING STEEL. ALL POSTS TO BE PAINTED GREEN.

FURNISHING AND PLACING HOOK BOLTS AND PUNCHING HOLES FOR SAME SHALL BE CONSIDERED INCIDENTAL TO FURNISHING AND PLACING 120 INCH ROADWAY PIPE CULVERT. HOOK BOLTS SHALL BE GALVANIZED AND SHALL INCLUDE 2 NUTS AND 2 WASHERS EACH.

A HOLE LOCATED 3 INCHES DOWN FROM THE TOP AND ON THE VERTICAL CENTERLINE OF THE STEEL SHEETING IS TO BE PUNCHED OR FIELD CUT IN EACH PIECE OF SHEETING AND IS TO BE LARGE ENOUGH TO ACCOMMODATE A qb1 BAR. THIS WORK TO BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR PILES, STEEL SHEET.

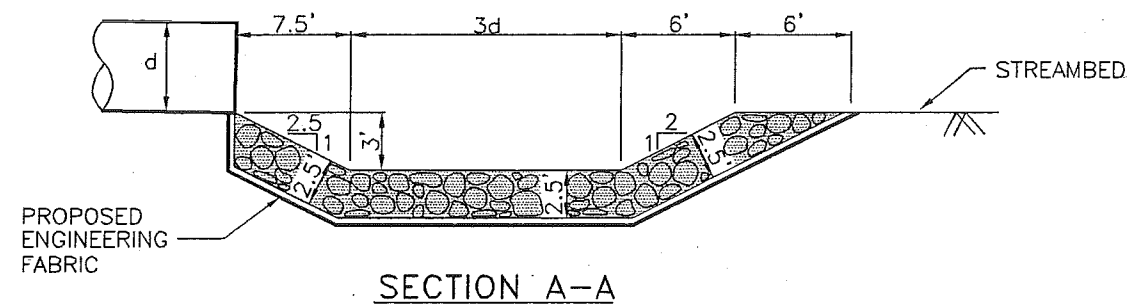
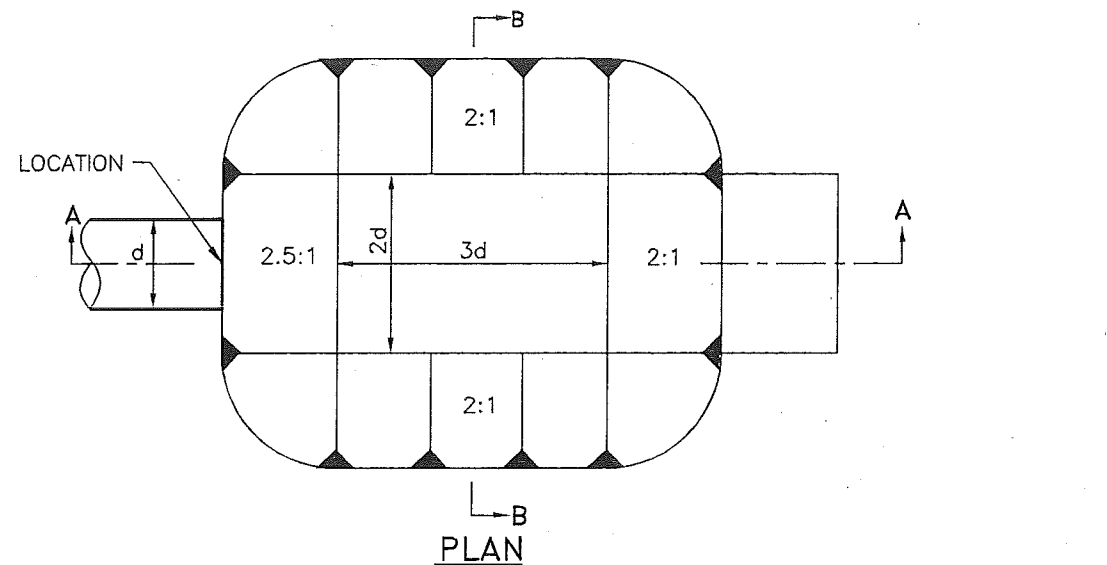


END VIEW

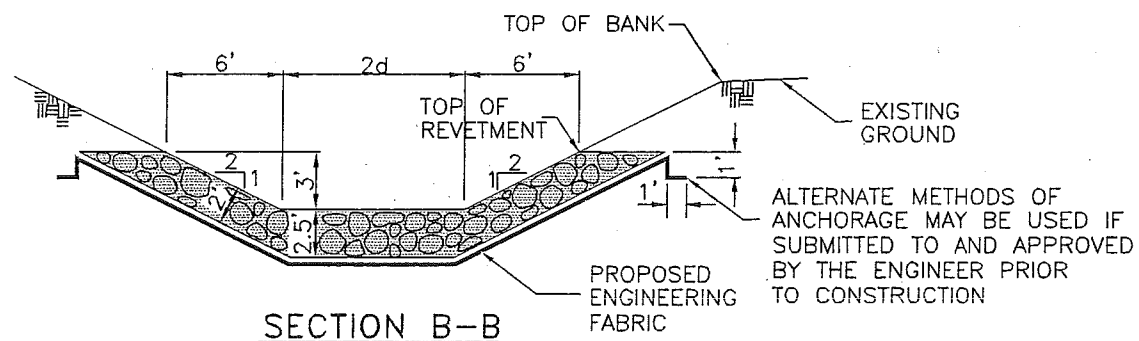


PROFILE
ALONG CENTERLINE OF CULVERT



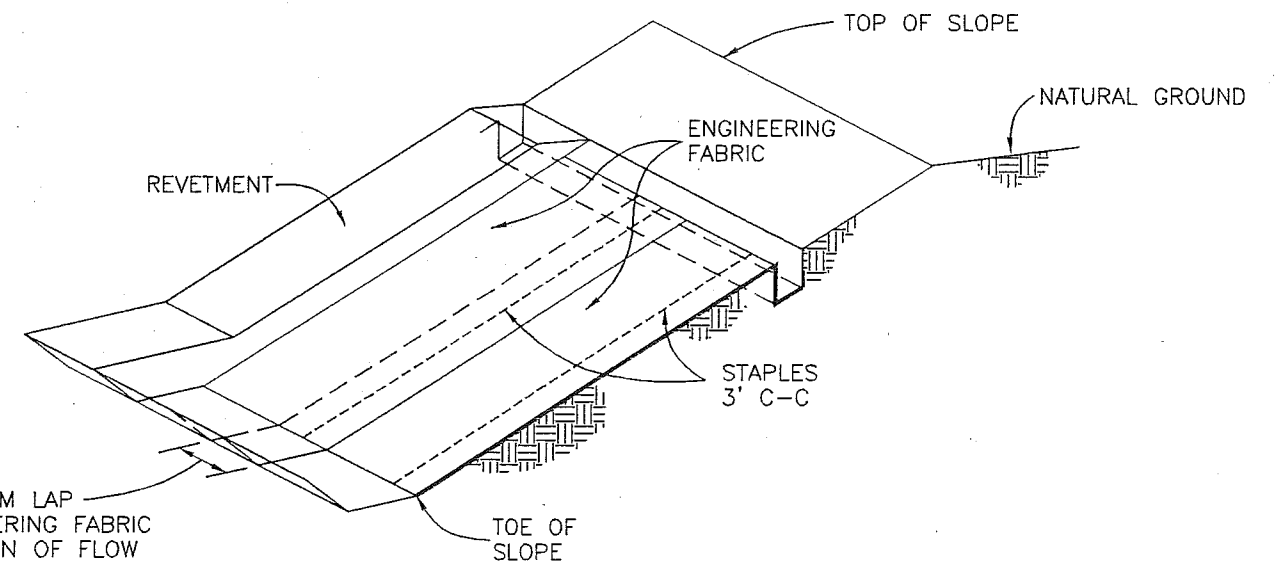
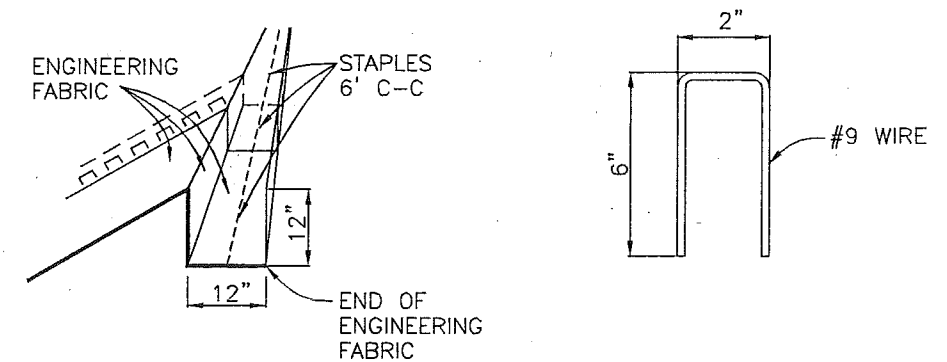


GROUTED REVETMENT



DETAILS OF PREFORMED SCOUR HOLE

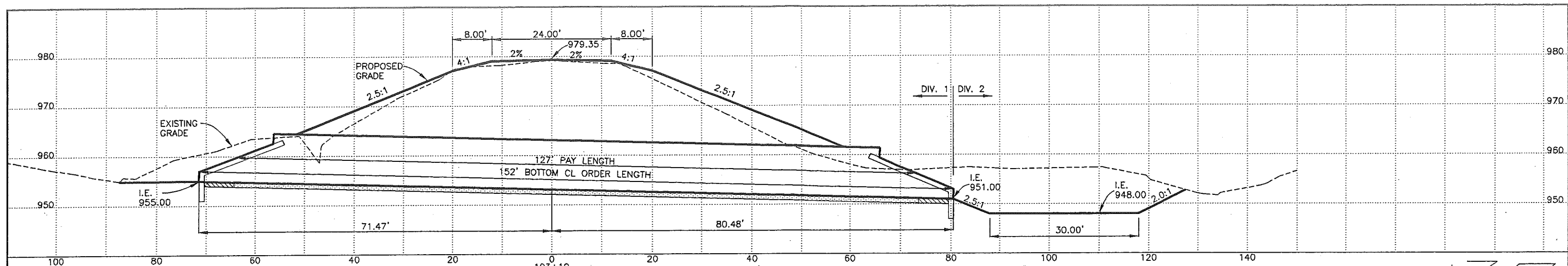
NO SCALE



EXCAVATE 12"x12" TRENCH ALONG TOP OF REVETMENT. PLACE END OF ENGINEERING FABRIC STRIPS INTO TRENCH WITH STAPLES AS SHOWN. BACKFILL WITH THE EXCAVATED MATERIAL AND COMPACT. THE ENGINEER MAY PERMIT THE USE OF THE WHEELS OF PNEUMATIC-TIRED EQUIPMENT FOR CONSOLIDATING THE TRENCH BACKFILL MATERIAL.

DETAILS OF PLACEMENT OF ENGINEERING FABRIC

NO SCALE



STA. 102+83.96, EXISTING 8'x8'x76' RCB CULVERT WITH FLARED WING HEADWALLS CONTR. REMOVE EXISTING STRUCTURE AND CONSTRUCT AT STA. 103+10 120"x152' CMP CULVERT, SKEW 0° DESIGN FILL = 16.2' D.A. = 769 ACRES

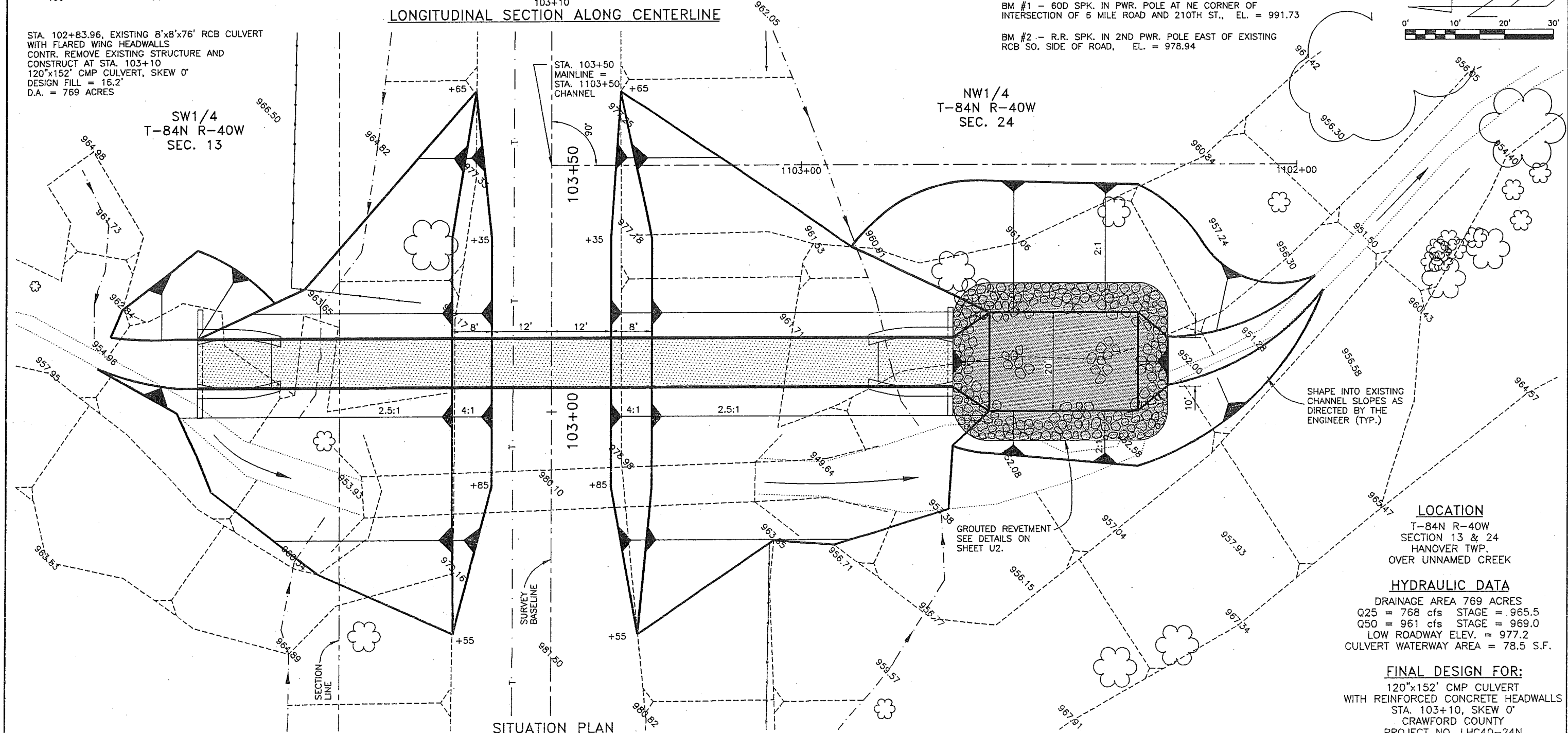
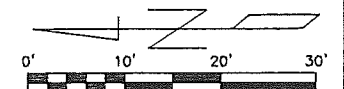
SW1/4
T-84N R-40W
SEC. 13

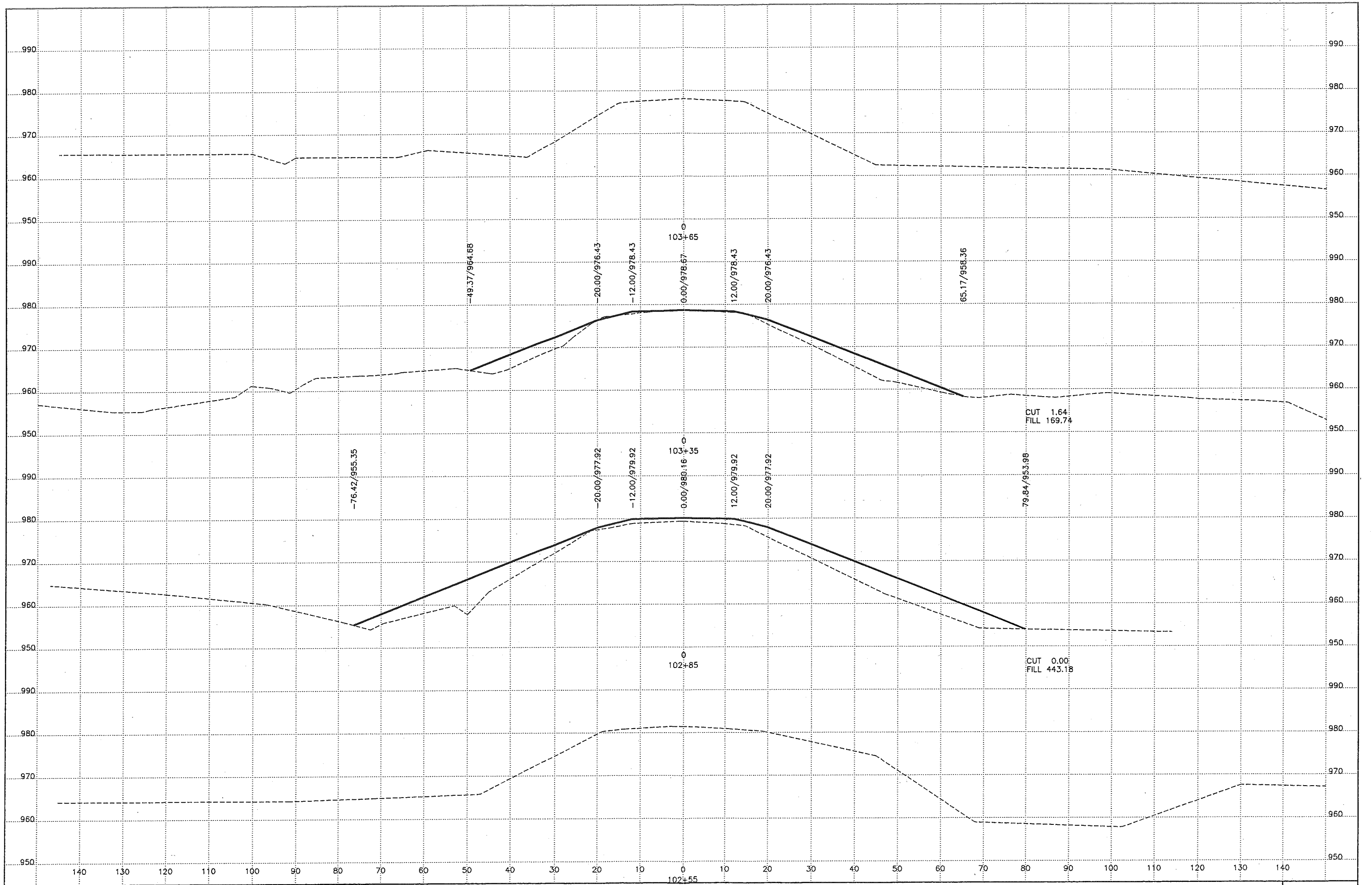
STA. 103+50
MAINLINE =
STA. 1103+50
CHANNEL

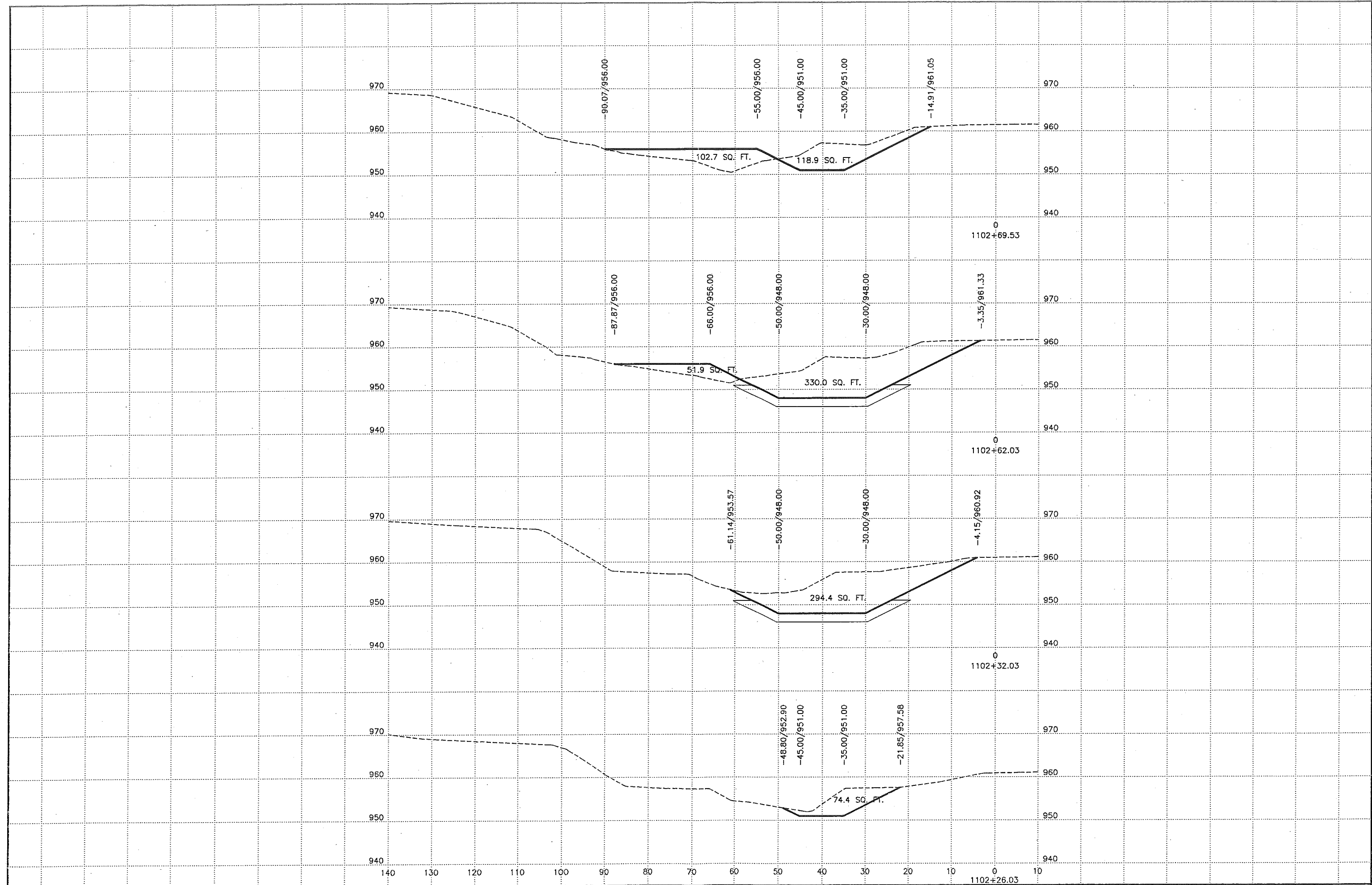
NW1/4
T-84N R-40W
SEC. 24

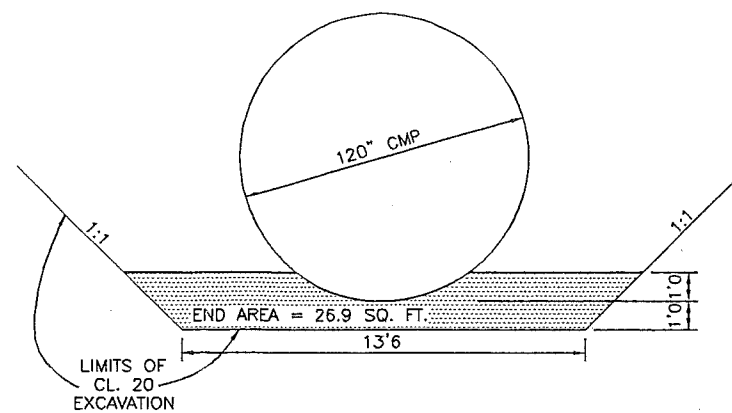
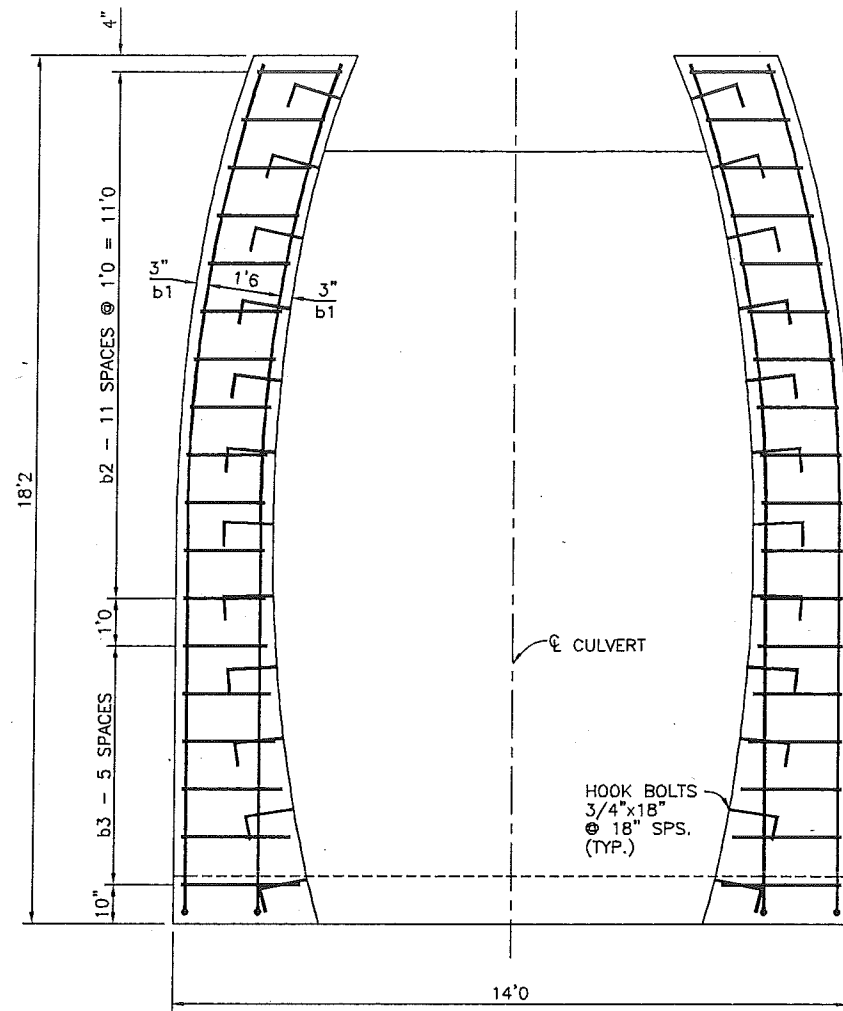
BM #1 - 60D SPK. IN PWR. POLE AT NE CORNER OF INTERSECTION OF 6 MILE ROAD AND 210TH ST., EL. = 991.73

BM #2 - R.R. SPK. IN 2ND PWR. POLE EAST OF EXISTING RCB SO. SIDE OF ROAD, EL. = 978.94









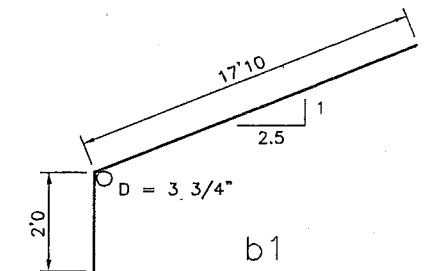
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b2	1'8"	48	80'2"	53.6
b3	varies	24	49'0"	32.7
gb1	8"	17	11'4"	7.6
REINFORCING STEEL LBS.				598.7

BENT BAR DETAILS



ESTIMATED QUANTITIES - ONE HEADWALL		
ITEM	UNIT	QUANTITY
STRUCTURAL CONCRETE	CY	8.2
REINFORCING STEEL	LB	598.7
HOOK BOLTS	EACH	30
STEEL SHEET PILING	SF	166

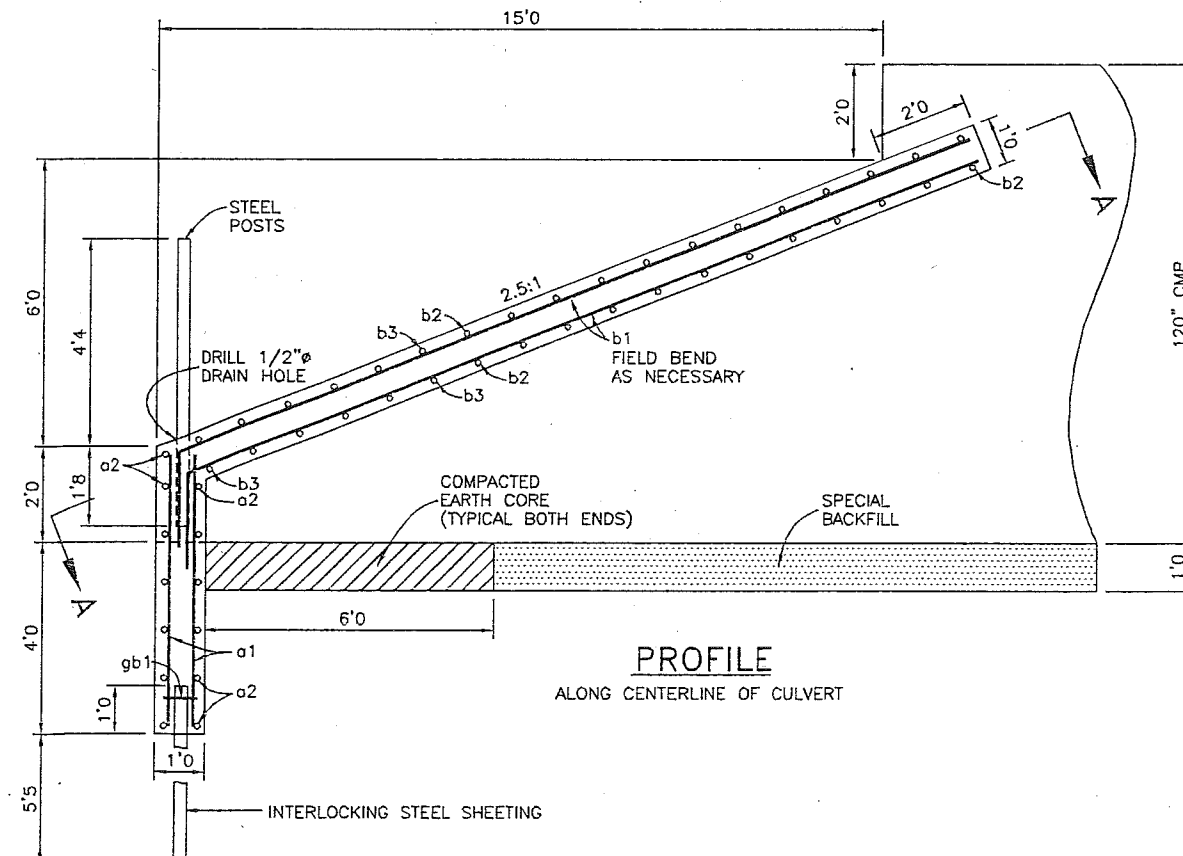
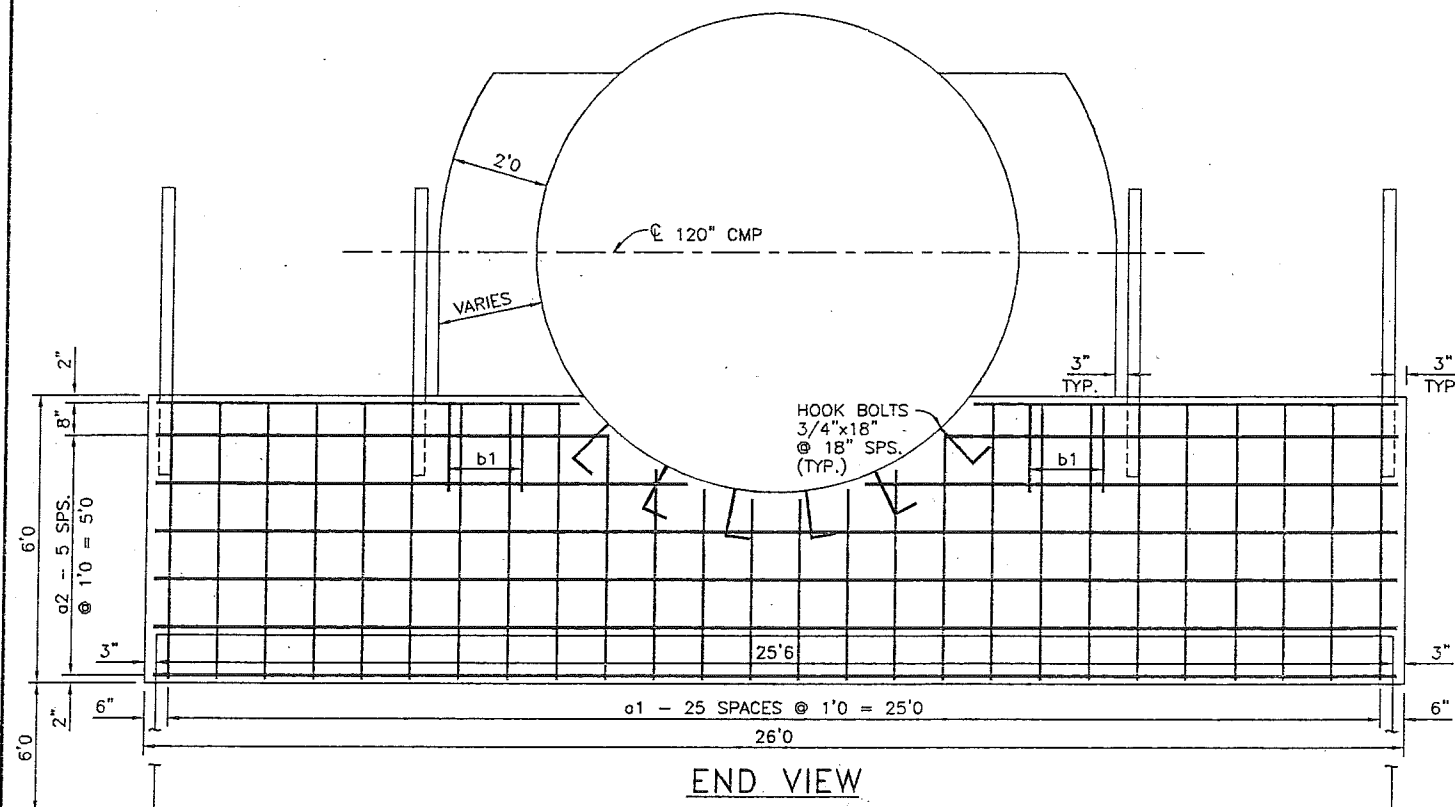
NOTE:
ALL REINFORCING STEEL BARS TO BE NO. 4.

ALL EXPOSED CORNERS 90° OR SHARPER TO BE FILLETED WITH A 3/4 INCH DRESSED BEVELED STRIP.

FURNISHING AND PLACING 4 - 3" Ø x 6'0" STEEL POSTS SHALL BE CONSIDERED INCIDENTAL TO REINFORCING STEEL. ALL POSTS TO BE PAINTED GREEN.

FURNISHING AND PLACING HOOK BOLTS AND PUNCHING HOLES FOR SAME SHALL BE CONSIDERED INCIDENTAL TO FURNISHING AND PLACING 120 INCH ROADWAY PIPE CULVERT. HOOK BOLTS SHALL BE GALVANIZED AND SHALL INCLUDE 2 NUTS AND 2 WASHERS EACH.

A HOLE LOCATED 3 INCHES DOWN FROM THE TOP AND ON THE VERTICAL CENTERLINE OF THE STEEL SHEETING IS TO BE PUNCHED OR FIELD CUT IN EACH PIECE OF SHEETING AND IS TO BE LARGE ENOUGH TO ACCOMMODATE A gb1 BAR. THIS WORK TO BE INCLUDED IN AND CONSIDERED INCIDENTAL TO THE PRICE BID FOR PILES, STEEL SHEET.



REV:

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SE PROJECT NO. 05701

DATE: 02/02

DRAWN BY: TTK

REVIEWED BY: SAS

APPROVED BY: TJG

DESIGN NO.

FILE NO.

CRAWFORD COUNTY

PROJECT NO. LHC40-24N

SHEET UI