

H-V

DESIGN DESIGNATION

CURRENT ADT (1995) = 11,425
 DESIGN YEAR ADT (2015) = 14,000
 DHV = 1,400
 D (DIRECTIONAL DISTRIBUTION) = 50%
 T (PERCENT B&C TRUCKS) = 2%
 V (DESIGN SPEED) = 40 MPH
 POSTED SPEED LIMIT = 35 MPH
 FUNCTIONAL CLASSIFICATION = MINOR ARTERIAL
 DESIGN EXCEPTION = % GRADE

AUG 28 1997

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
CUY-6-25.94
CHARDON ROAD
 CITY OF EUCLID
 CITY OF RICHMOND HEIGHTS
 CUYAHOGA COUNTY

CALC. BY: _____	CUY-6-25.94	OHIO	1 126
DATE: _____		F.H.W.A. REGION 5	
CHKD. BY: _____			
BY: _____			

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

STP

1995 SPECIFICATIONS

THE STANDARD 1995 SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

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

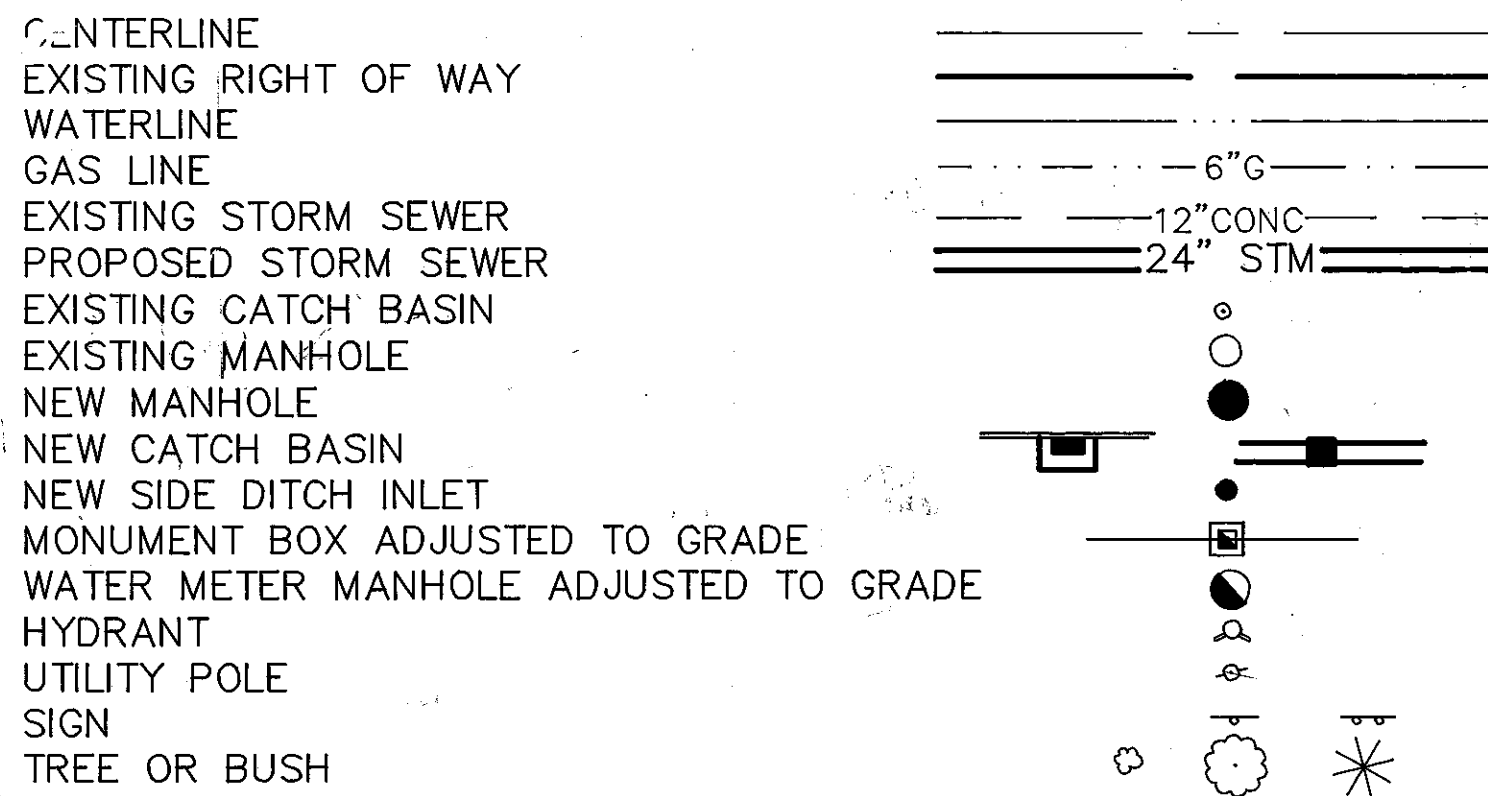
APPROVED _____
 DATE 7/13/95 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED _____
 DATE _____ ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED _____
 DATE 12-2-95 ADMINISTRATOR, OFFICE OF HIGHWAY MANAGEMENT

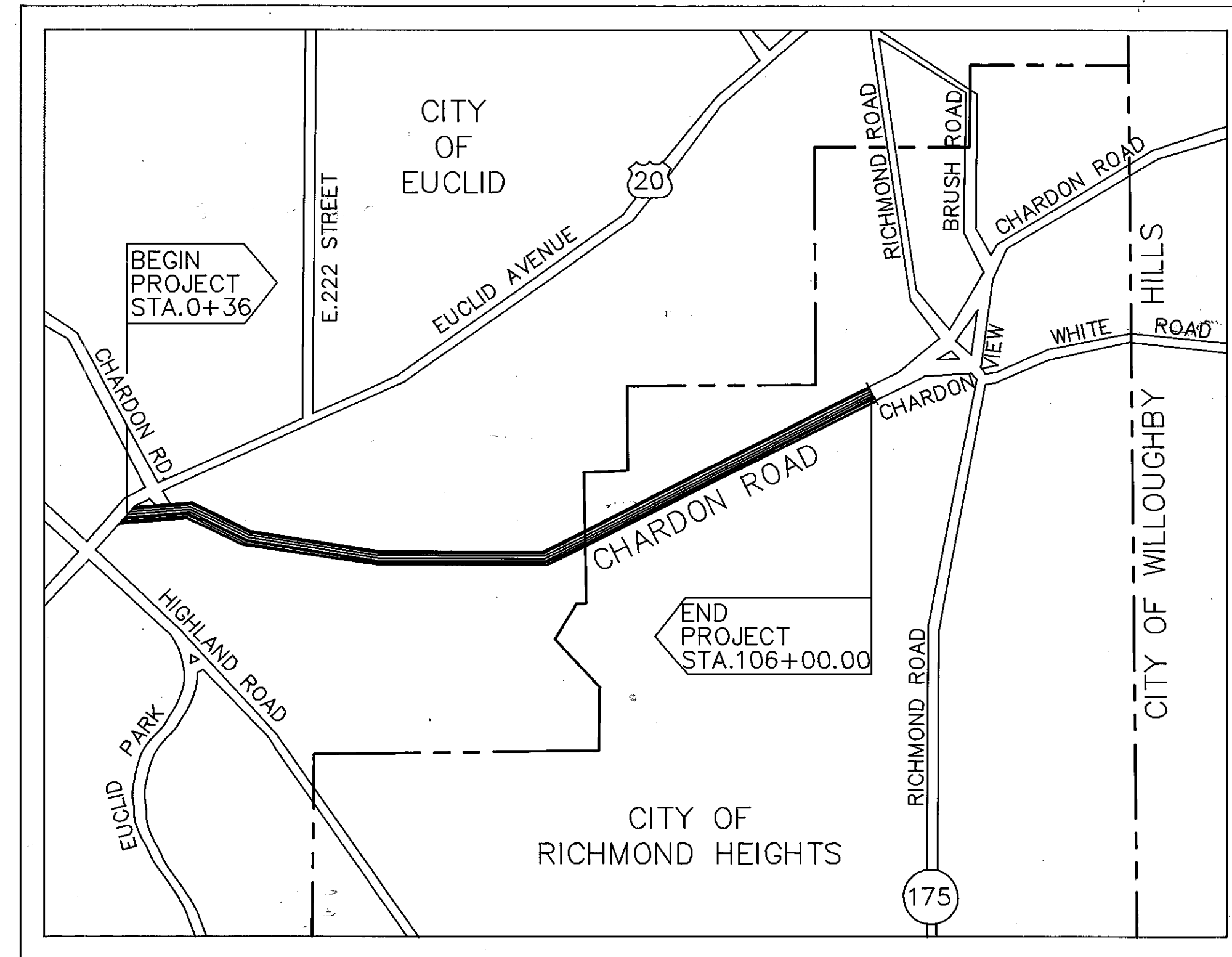
APPROVED _____
 DATE 12-7-95 DIRECTOR, DEPARTMENT OF TRANSPORTATION

CONVENTIONAL SIGNS

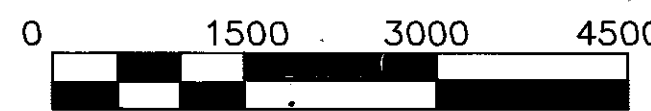


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LOCATION MAP



SUPPLEMENTAL SPECIFICATIONS	
NUMBER	DATE
931	7-17-95
944	3-23-95

UNDERGROUND UTILITIES

2 WORKING DAYS BEFORE YOU DIG

CALL: 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS MUST BE CALLED DIRECTLY

LINE DATA

BEGIN PROJECT: STA. 0+36
 END PROJECT: STA. 106+00.00
 BEGIN WORK: STA. 0+28
 END WORK: STA. 106+95.00

NET LENGTH OF PROJECT: 10,564.00 FT. OR 2.001 MILES
 NET LENGTH OF WORK: 10,659.00 FT. OR 2.019 MILES

PROJECT: CUY-6-25.94
 DATE OF LETTING _____ 19____ CONTRACT NO. _____

PREPARED BY
 STEPHEN HOVANCSEK & ASSOC., INC.
 CONSULTING ENGINEERS & PLANNERS

TWO MERIT DRIVE
 RICHMOND HEIGHTS, OHIO

PREPARED BY
 LAKE INC.
 ENGINEERS AND SURVEYORS

30601 EUCLID AVE.
 WICKLIFFE, OHIO

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

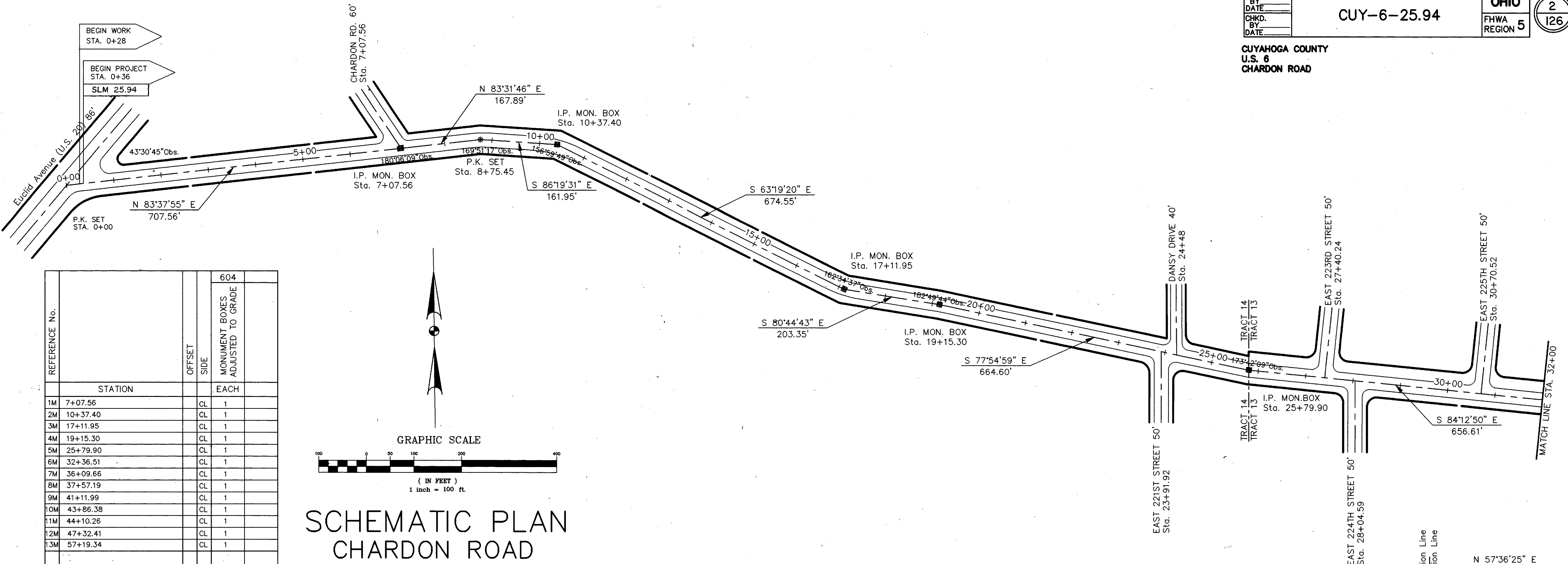
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
BP-1.1	2/21/92	HW-4B	4-1-80	MT-105.10	7-1-92
BP-2.1	10/28/94	I-1	12-18-84	MT-105.11	7/1/92
BP-2.2	10/28/94	MH-1	12-18-84	TC-4110	8/29/84
BP-2.5	2/21/94	MH-3	12-18-84	TC-41.20	6/21/94
BP-3.1	2/21/92	MH-5	6-12-75	TC-52.10	4/3/79
BP-5.1	10/28/94	MC-1	6-13-69	TC-52.20	4/3/79
BP-7.1	10/30/92	MC-4	7-26-76		
CB-2-2-A&B	5-1-79	MC-8	6-12-75		
CB-2-3&2-4	5-1-79	MC-11	8-1-78		
CB-2-5&2-6	5-1-79	MT-97.10	4-29-88		
CB-3	5-1-79	MT-97.11	10-4-89		
CB-3A	5-1-79	MT-99.10	11-14-86		
CB-458A	5-1-79	MT-99.20	4-29-88		

APPROVED: _____
 DIVISION ADMINISTRATOR _____ DATE _____

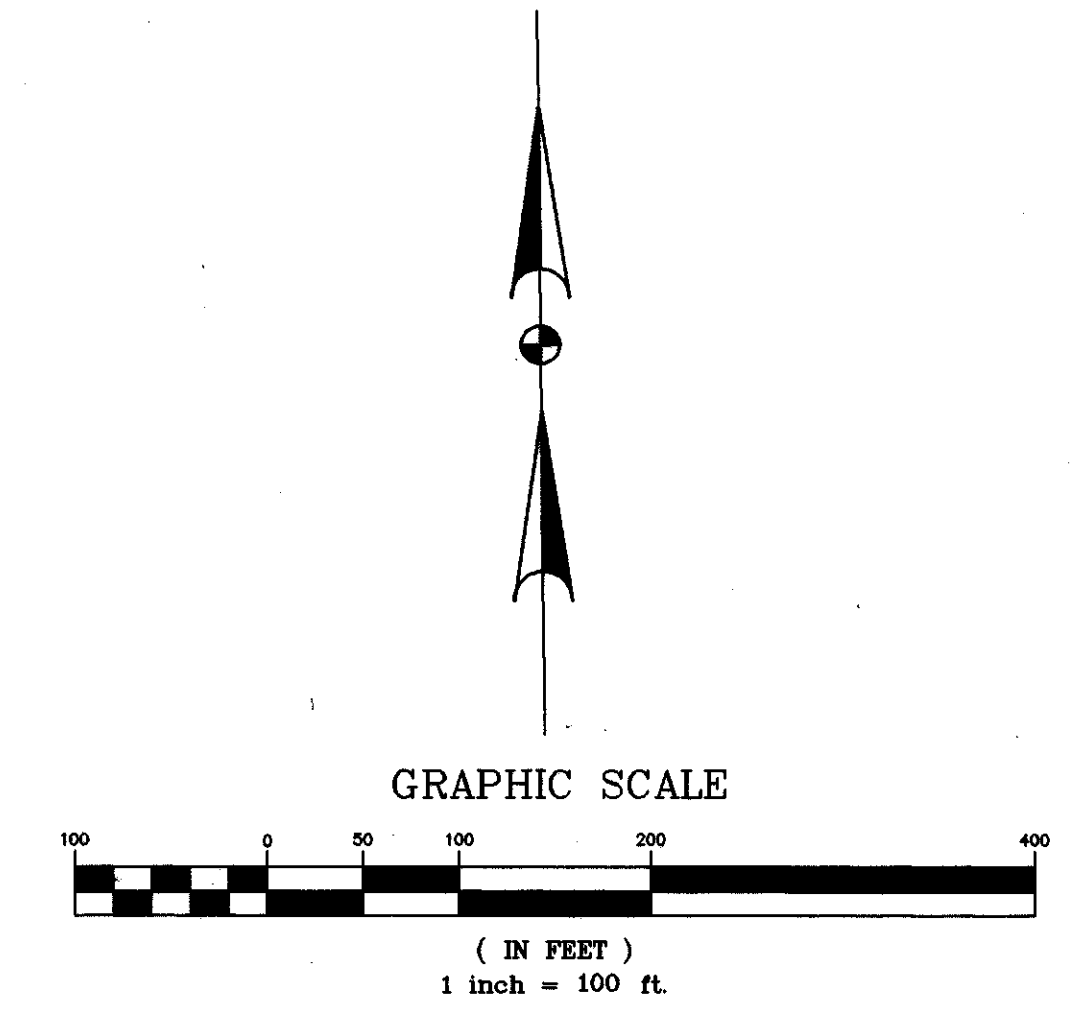
CUY-6-25.94
 960165
 126PGS
 03-13-96
 DIST. 12

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

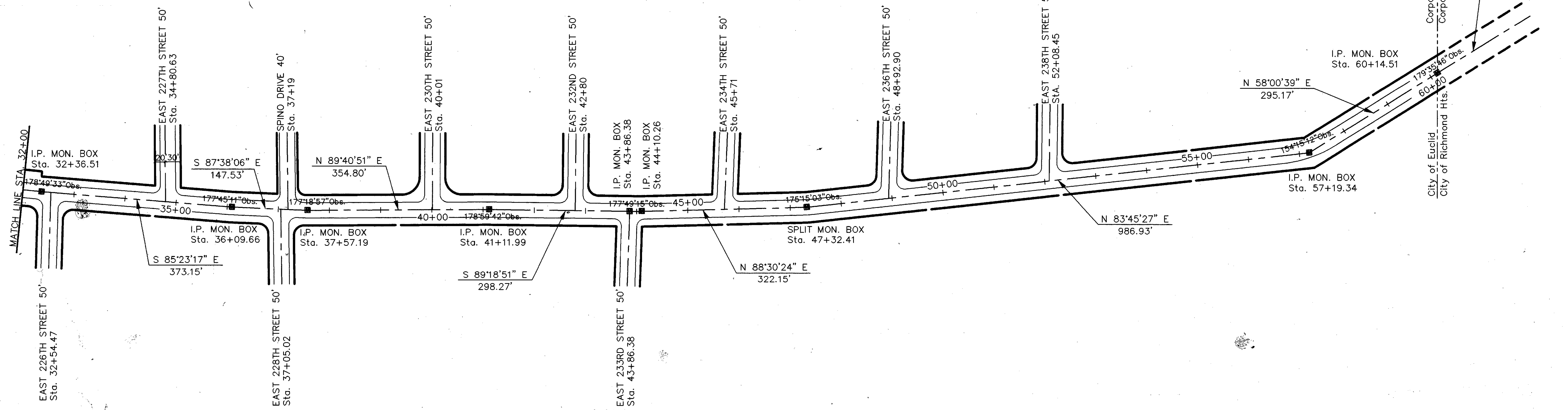


REFERENCE No.	STATION	OFFSET	SIDE	MONUMENT BOXES ADJUSTED TO GRADE	EACH	604
1M	7+07.56		CL	1		
2M	10+37.40		CL	1		
3M	17+11.95		CL	1		
4M	19+15.30		CL	1		
5M	25+79.90		CL	1		
6M	32+36.51		CL	1		
7M	36+09.66		CL	1		
8M	37+57.19		CL	1		
9M	41+11.99		CL	1		
10M	43+86.38		CL	1		
11M	44+10.26		CL	1		
12M	47+32.41		CL	1		
13M	57+19.34		CL	1		

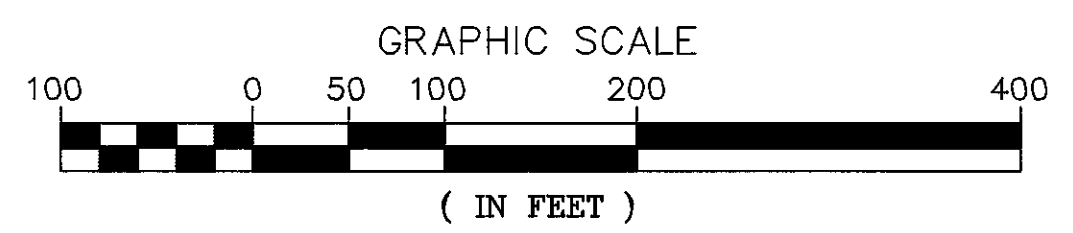


SCHEMATIC PLAN CHARDON ROAD

SEE SHT. 43 FOR PAY QTY.

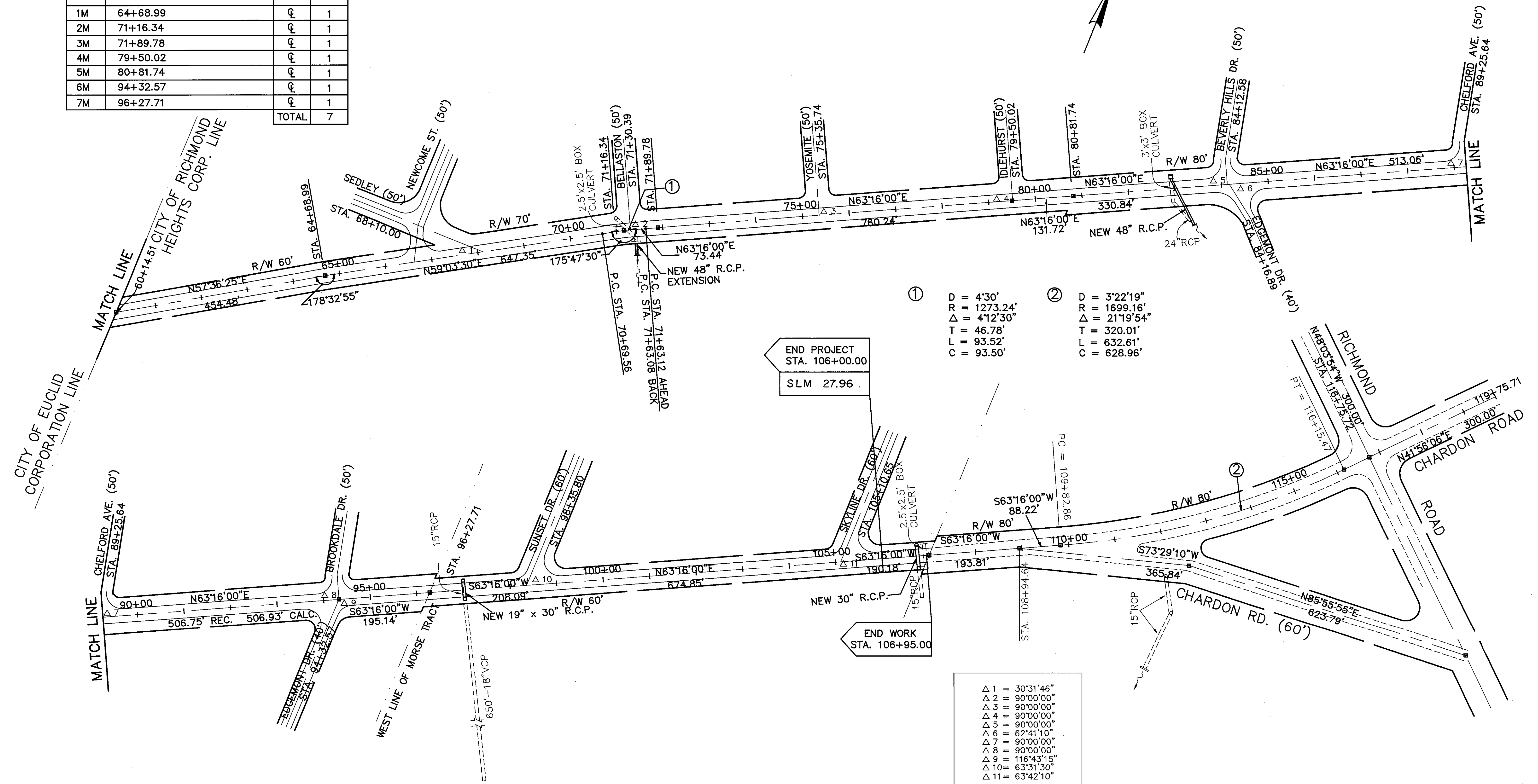


SCHEMATIC PLAN



CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

REF. NO.	STATION	SIDE	MONUMENT BOX ADJUSTED TO GRADE
1M	64+68.99	F	1
2M	71+16.34	F	1
3M	71+89.78	F	1
4M	79+50.02	F	1
5M	80+81.74	F	1
6M	94+32.57	F	1
7M	96+27.71	F	1
TOTAL			7



- ① D = 4'30"
R = 1273.24'
Δ = 4'12'30"
T = 46.78'
L = 93.52'
C = 93.50'
- ② D = 3'22'19"
R = 1699.16'
Δ = 21'19'54"
T = 320.01'
L = 632.61'
C = 628.96'

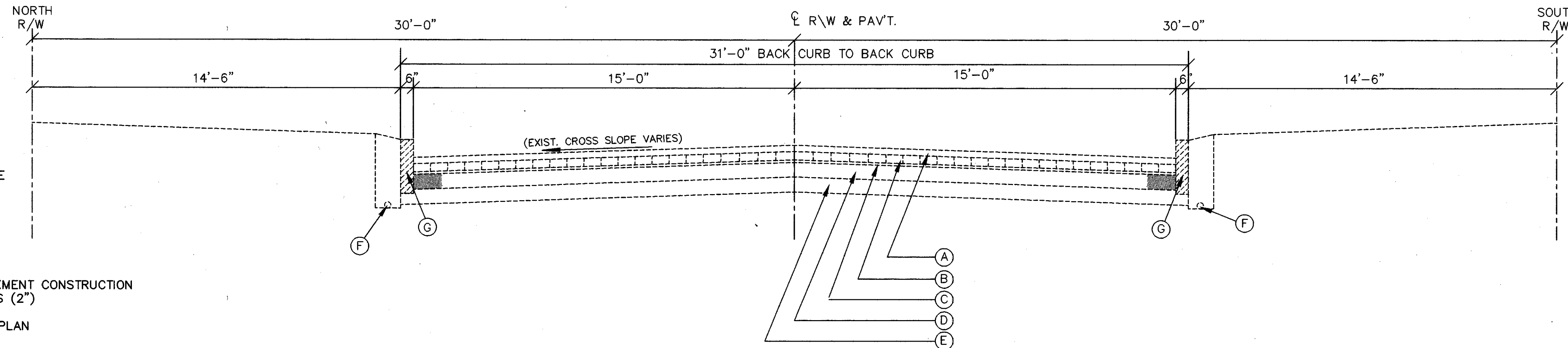
- Δ 1 = 30°31'46"
- Δ 2 = 90°00'00"
- Δ 3 = 90°00'00"
- Δ 4 = 90°00'00"
- Δ 5 = 90°00'00"
- Δ 6 = 62°41'10"
- Δ 7 = 90°00'00"
- Δ 8 = 90°00'00"
- Δ 9 = 116°43'15"
- Δ 10 = 63°31'30"
- Δ 11 = 63°42'10"

STEPHEN HOVANCSEK & ASSOC., INC.

TYPICAL SECTION TYPE 404

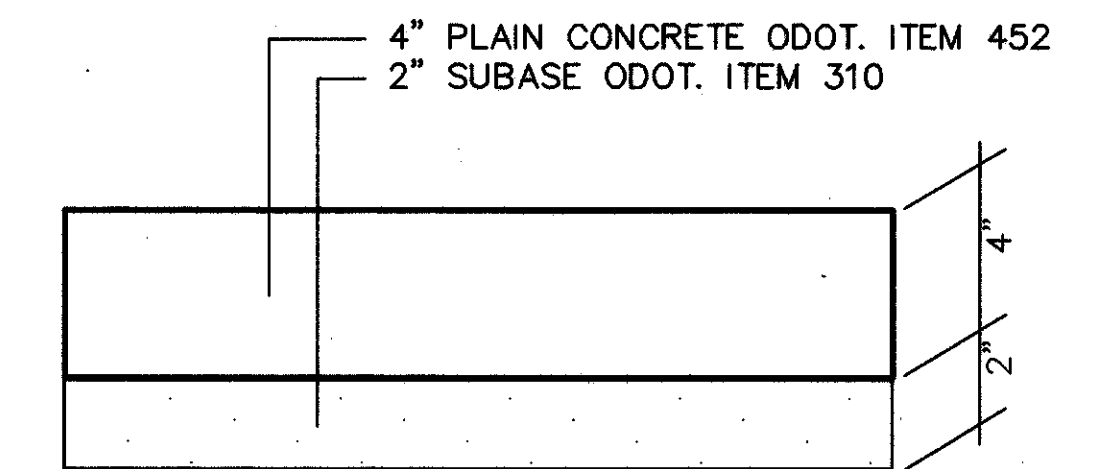
EXISTING TYPICAL SECTION #1

STA. 0+36± TO STA. 7+00±



LEGEND

- Ⓐ 2-3/4" TO 3-1/2" ASPHALTIC CONCRETE
- Ⓑ 4" BRICK
- Ⓒ 3/4" CEMENT SAND CUSHION
- Ⓓ 6" REINFORCED CONCRETE BASE
- Ⓔ 6" STONE BASE
- Ⓕ 4" CURB DRAIN
- Ⓖ 6" GRANITE CURB
- Ⓗ 4" 5' CONCRETE WALK
- ① ITEM 203 EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION
- ② ITEM 254 PAVEMENT PLANING BITUMINOUS (2")
- ③ ITEM 254 PATCHING PLANED SURFACE
- ④ ITEM 304 6" AGGREGATE BASE, AS PER PLAN
- ⑤ ITEM 305 11" CONCRETE BASE
- ⑥ ITEM 403 0" MIN. ASPHALT CONCRETE AC-20
- ⑦ ITEM 403 VARIABLE ASPHALT CONCRETE LEVELING COURSE AC-20
- ⑧ ITEM 404 1-1/4" ASPHALT CONCRETE AC-20
- ⑨ ITEM 407 TACK COAT
- ⑩ ITEM 605 6" SHALLOW PIPE UNDERDRAIN w/ FABRIC WRAP
- ⑪ ITEM 608 4" CONCRETE WALK, AS PER PLAN
- ⑫ ITEM 609 TYPE 2B CONCRETE CURB (Reveal varies 4" to 6")
- ⑬ ITEM 609 TYPE 6 CONCRETE CURB (Reveal varies 4" to 6")
- ⑭ ITEM 660 SODDING

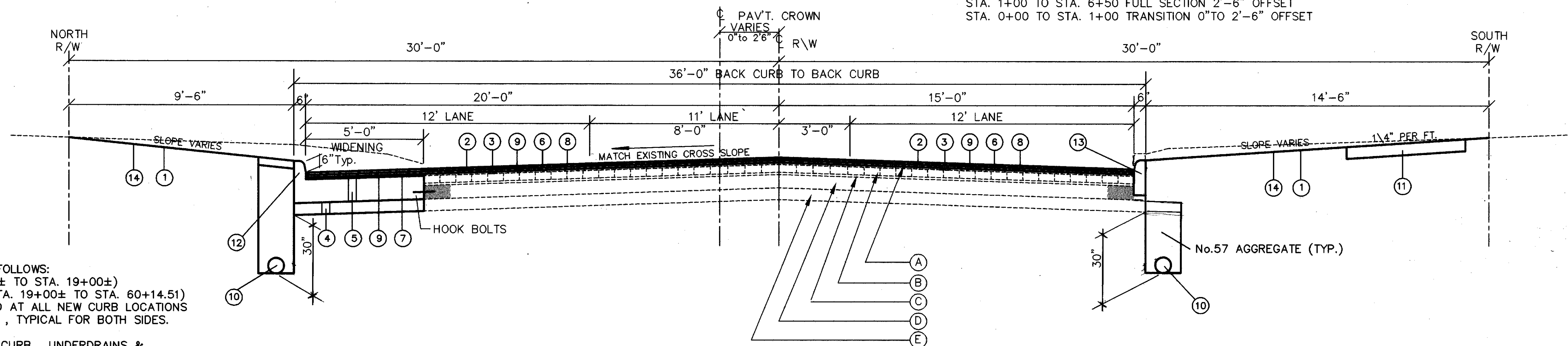


WIDENING & RESURFACING w/CURBING

PROPOSED TYPICAL SECTION #1

STA. 0+36± TO STA. 7+00±

CROWN TRANSITION
 STA. 6+50 TO STA. 7+00 TRANSITION 2'-6" TO 0" OFFSET
 STA. 1+00 TO STA. 6+50 FULL SECTION 2'-6" OFFSET
 STA. 0+00 TO STA. 1+00 TRANSITION 0" TO 2'-6" OFFSET



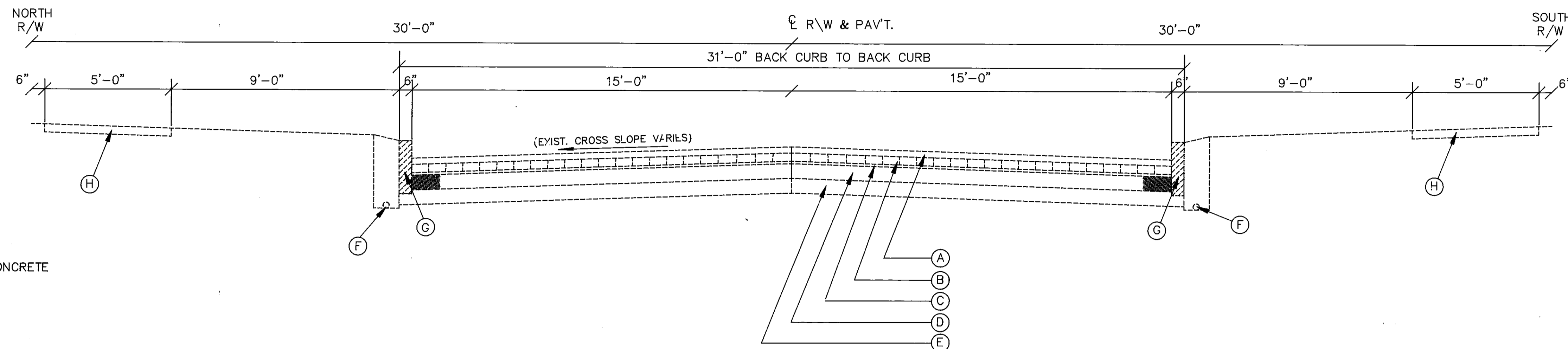
NOTES

1. PAVEMENT PLANING SHALL BE AS FOLLOWS:
 2" IN BRICK AREAS (STA. 0+36± TO STA. 19+00±)
 2" Min. IN CONCRETE AREAS (STA. 19+00± TO STA. 60+14.51)
2. LINEAR GRADING TO BE PERFORMED AT ALL NEW CURB LOCATIONS FOR THE ENTIRE TREE LAWN AREA, TYPICAL FOR BOTH SIDES. SLOPES WILL VARY.
3. SEE PLAN & PROFILE SHEETS FOR CURB, UNDERDRAINS & SIDEWALK REPLACEMENT LOCATIONS.
4. SEE PAVEMENT RERPAIR SHEET FOR ITEMS & DETAILS.

TYPICAL SECTION TYPE 404

EXISTING TYPICAL SECTION #2

STA. 7+00± TO STA. 19+00±



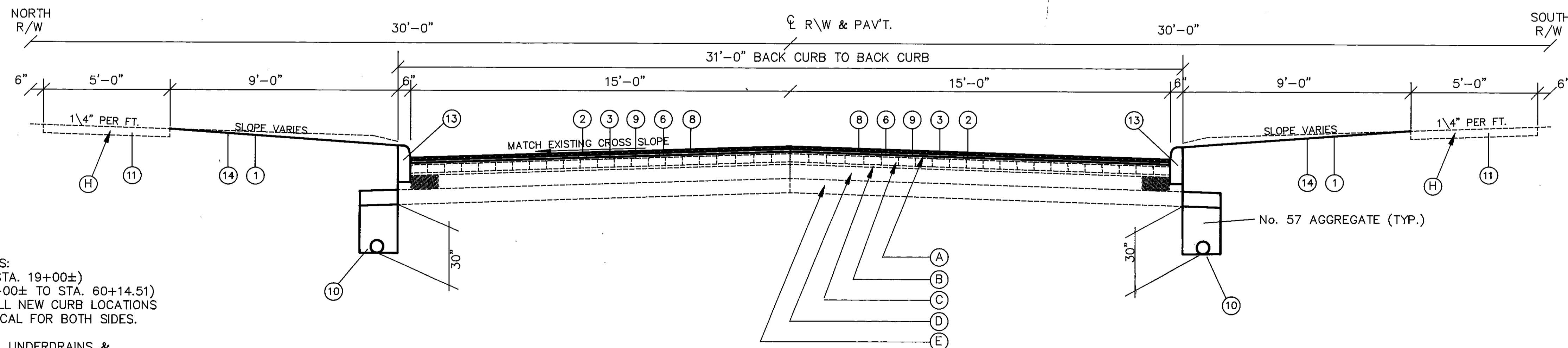
LEGEND

- Ⓐ 2-3/4" TO 3-1/2" ASPHALTIC CONCRETE
- Ⓑ 4" BRICK
- Ⓒ 3/4" CEMENT SAND CUSHION
- Ⓓ 6" REINFORCED CONCRETE BASE
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- Ⓖ 6" GRANITE CURB
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- ③ ITEM 254 PATCHING PLANED SURFACE
- ④ ITEM 304 6" AGGREGATE BASE, AS PER PLAN
- ⑤ ITEM 305 11" CONCRETE BASE
- ⑥ ITEM 403 0" MIN. ASPHALT CONCRETE AC-20
- ⑦ ITEM 403 VARIABLE ASPHALT CONCRETE LEVELING COURSE AC-20, AS PER PLAN
- ⑧ ITEM 404 1-1/4" ASPHALT CONCRETE AC-20
- ⑨ ITEM 407 TACK COAT
- ⑩ ITEM 605 6" SHALLOW PIPE UNDERDRAIN w/FABRIC WRAP
- ⑪ ITEM 608 4" CONCRETE WALK, AS PER PLAN
- ⑫ ITEM 609 TYPE 2B CONCRETE CURB (Reveal varies 4" to 6")
- ⑬ ITEM 609 TYPE 6 CONCRETE CURB (Reveal varies 4" to 6")
- ⑭ ITEM 660 SODDING

RESURFACING w/CURBING

PROPOSED TYPICAL SECTION #2

STA. 7+00± TO STA. 19+00±



NOTES

1. PAVEMENT PLANING SHALL BE AS FOLLOWS:
2" IN BRICK AREAS (STA. 0+36± TO STA. 19+00±)
2" Min. IN CONCRETE AREAS (STA. 19+00± TO STA. 60+14.51)
2. LINEAR GRADING TO BE PERFORMED AT ALL NEW CURB LOCATIONS FOR THE ENTIRE TREE LAWN AREA, TYPICAL FOR BOTH SIDES. SLOPES WILL VARY.
3. SEE PLAN & PROFILE SHEETS FOR CURB, UNDERDRAINS & SIDEWALK REPLACEMENT LOCATIONS.
4. SEE PAVEMENT REPAIR SHEET FOR ITEMS & DETAILS.

CALC.
BY
DATE
CHKD.
BY
DATE

CUY-6-25.94

OHIO
FHWA
REGION

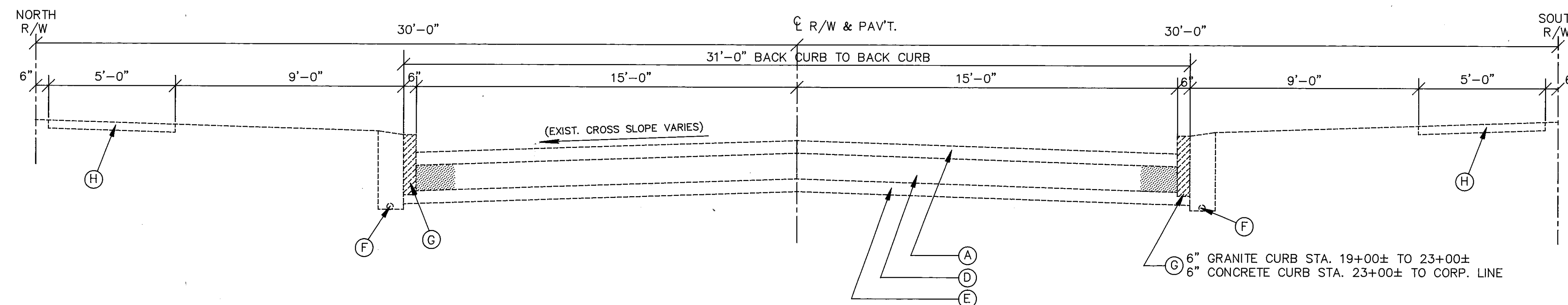
6
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

TYPICAL SECTION TYPE 404

EXISTING TYPICAL SECTION #3

STA. 19+00± TO STA. 44+58±
STA. 59+27± TO STA. 60+14.51 (Corp. Line)



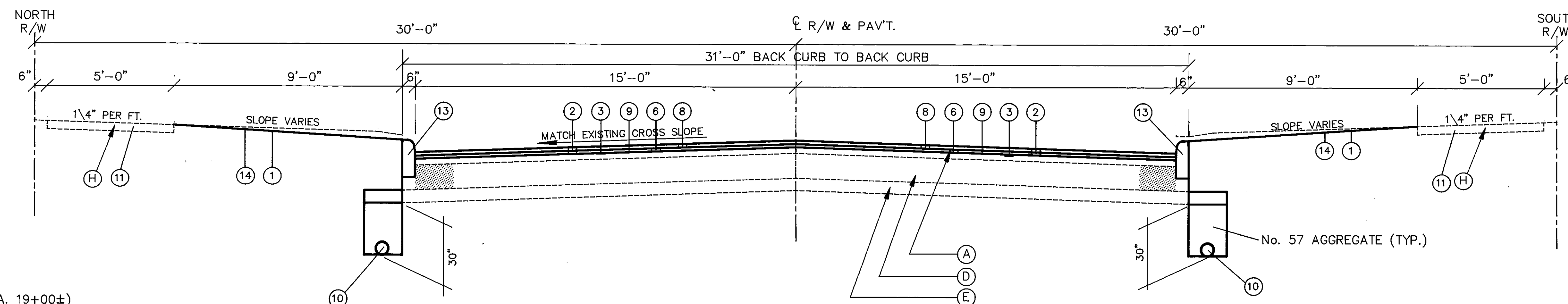
LEGEND

- Ⓐ 3" TO 7" ASPHALTIC CONCRETE
- Ⓑ 4" BRICK
- Ⓒ 3/4" CEMENT SAND CUSHION
- Ⓓ 6" REINFORCED CONCRETE BASE
- Ⓔ 6" STONE BASE
- Ⓕ 4" CURB DRAIN
- Ⓖ 6" GRANITE OR CONCRETE CURB
- Ⓗ 4" 5' CONCRETE WALK
- ① ITEM 203 EXCAVATION INCLUDING EMBANKMENT CONSTRUCTION
- ② ITEM 254 PAVEMENT PLANING BITUMINOUS (2" MIN.)
- ③ ITEM 254 PATCHING PLANED SURFACE
- ④ ITEM 304 6" AGGREGATE BASE, AS PER PLAN
- ⑤ ITEM 305 11" CONCRETE BASE
- ⑥ ITEM 403 0" MIN. ASPHALT CONCRETE AC-20
- ⑦ ITEM 403 VARIABLE ASPHALT CONCRETE LEVELING COURSE AC-20
- ⑧ ITEM 404 1-1/4" ASPHALT CONCRETE AC-20
- ⑨ ITEM 407 TACK COAT
- ⑩ ITEM 605 6" SHALLOW PIPE UNDERDRAIN w/ FABRIC WRAP
- ⑪ ITEM 608 4" CONCRETE WALK, AS PER PLAN
- ⑫ ITEM 609 TYPE 2B CONCRETE CURB (Reveal varies 4" to 6")
- ⑬ ITEM 609 TYPE 6 CONCRETE CURB (Reveal varies 4" to 6")
- ⑭ ITEM 660 SODDING, AS PER PLAN

RESURFACING w/CURBING

PROPOSED TYPICAL SECTION #3

(w/NO BRICK)
STA. 19+00± TO STA. 44+58±
STA. 59+27± TO STA. 60+14.51 (Corp. Line)



NOTES

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2. LINEAR GRADING TO BE PERFORMED AT ALL NEW CURB LOCATIONS FOR THE ENTIRE TREE LAWN AREA, TYPICAL FOR BOTH SIDES. SLOPES WILL VARY.
3. SEE PLAN & PROFILE SHEETS FOR CURB, UNDERDRAINS & SIDEWALK REPLACEMENT LOCATIONS.
4. SEE PAVEMENT REPAIR SHEET FOR ITEMS & DETAILS.

CALC.
BY
DATE
CHKD.
BY
DATE

CUY-6-25.94

OHIO
FHWA
REGION

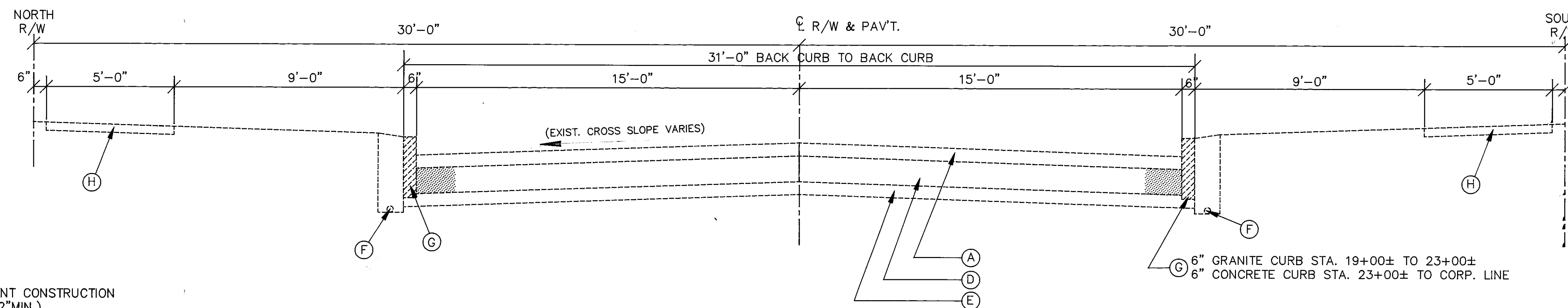
7
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

TYPICAL SECTION TYPE 404

EXISTING TYPICAL SECTION #4

STA. 44+58± TO STA. 59+27±



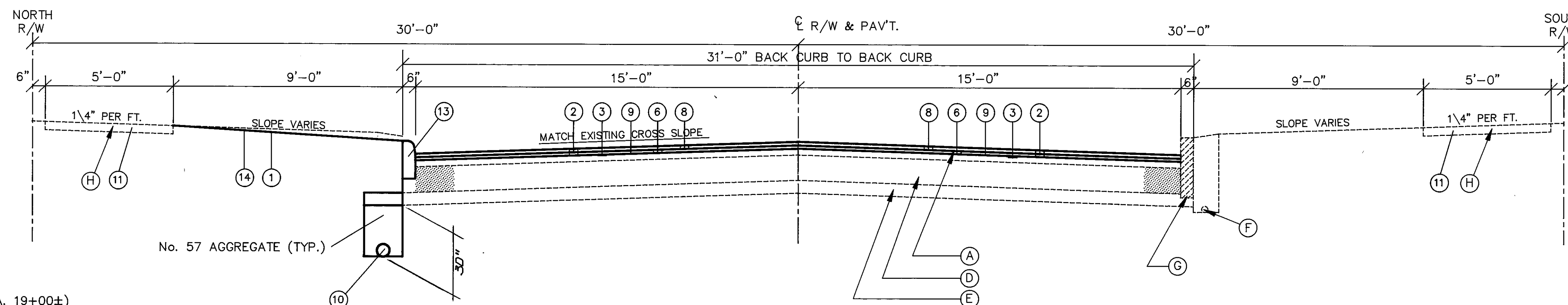
LEGEND

- Ⓐ 3" TO 7" ASPHALTIC CONCRETE
- Ⓑ 4" BRICK
- Ⓒ 3/4" CEMENT SAND CUSHION
- Ⓓ 6" REINFORCED CONCRETE BASE
- Ⓔ 6" STONE BASE
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- ⑫ ITEM 609 TYPE 2B CONCRETE CURB (Reveal varies 4" to 6")
- ⑬ ITEM 609 TYPE 6 CONCRETE CURB (Reveal varies 4" to 6")
- ⑭ ITEM 660 SODDING, AS PER PLAN

RESURFACING w/CURBING Northside Only

PROPOSED TYPICAL SECTION #4

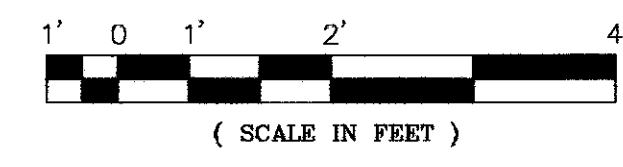
STA. 44+58± TO STA. 59+27±



NOTES

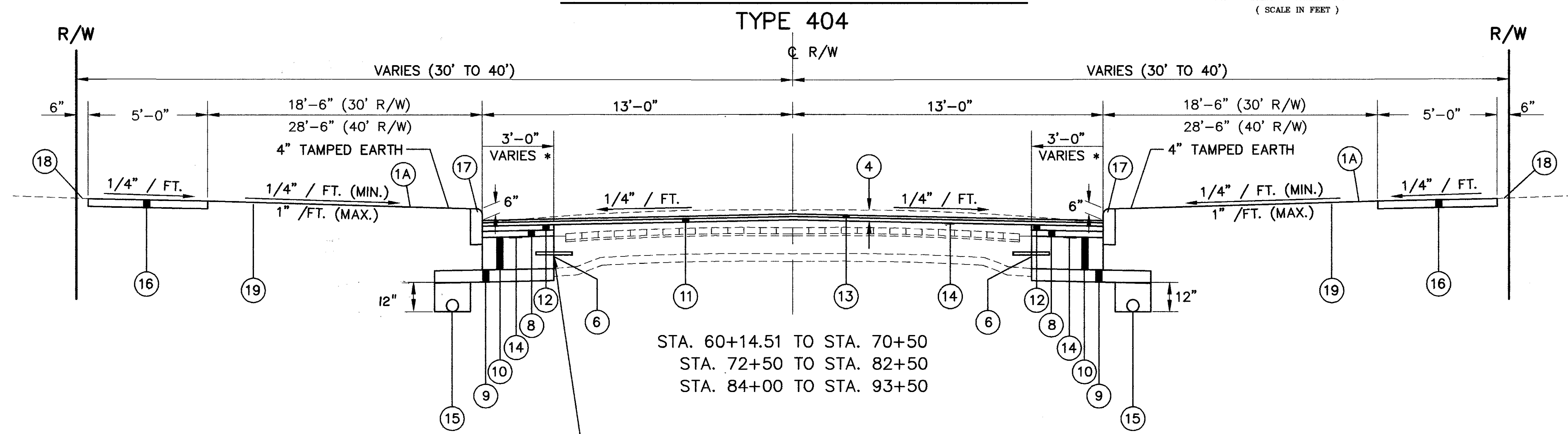
1. PAVEMENT PLANING SHALL BE AS FOLLOWS:
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3. SEE PLAN & PROFILE SHEETS FOR CURB, UNDERDRAINS & SIDEWALK REPLACEMENT LOCATIONS.
4. SEE PAVEMENT REPAIR SHEET FOR ITEMS & DETAILS.

TYPICAL SECTION

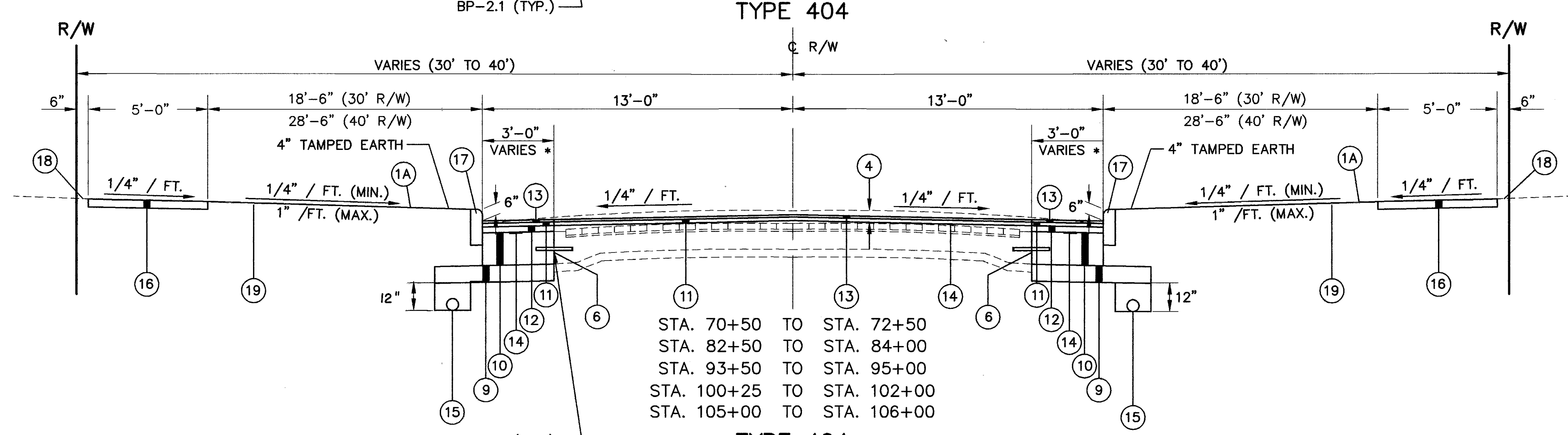


CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

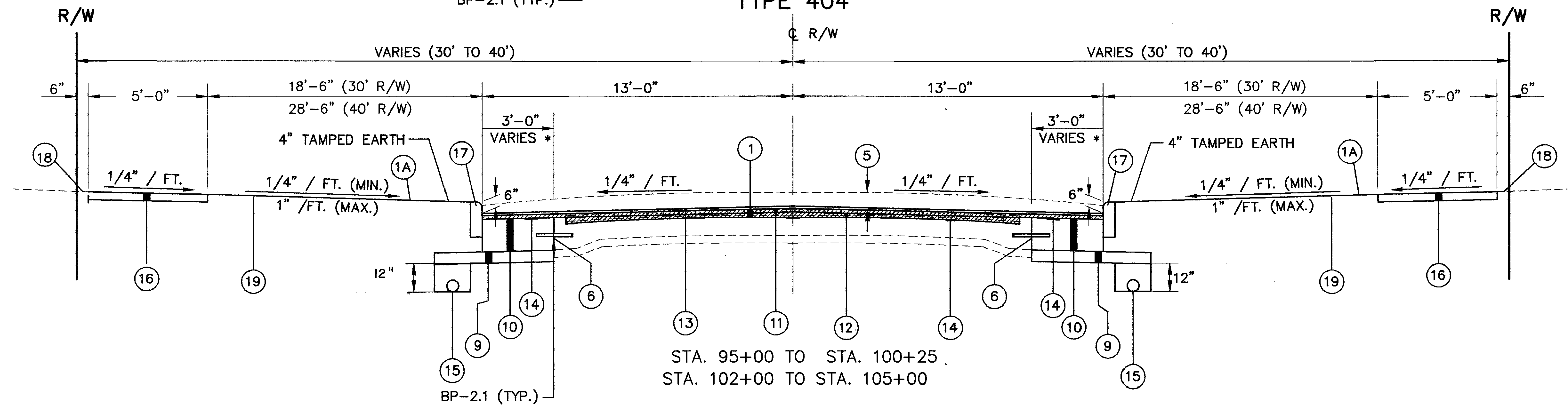


* WHERE THE EXISTING CENTERLINE OF PAVEMENT VARIES FROM THE CENTERLINE OF RIGHT-OF-WAY, THIS DIMENSION SHALL BE ADJUSTED. A MINIMUM DIMENSION OF 2'-0" IS REQUIRED. IF THE EDGE OF THE EXISTING CONCRETE BASE IS MORE THAN 11'-0" OFF THE ACTUAL CENTERLINE OF THE RIGHT-OF-WAY, THE EXISTING CONCRETE BASE SHALL BE SAWCUT FULL DEPTH AND REMOVED TO ALLOW FOR A MINIMUM OF 2'-0" OF 15" CONCRETE BASE. SEE WIDENING DETAIL SHEET 9



LEGEND

- ① ITEM 202 BRICK BASE REMOVED
- ①A ITEM 203 LINEAR GRADING
- ② ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR
- ③ ITEM 253 PAVEMENT REPAIR
- ④ ITEM 254 PAVEMENT PLANING, BITUMINOUS (4"-8" PLANING)
- ⑤ ITEM 254 PAVEMENT PLANING, BITUMINOUS (9" PLANING)
- ⑥ ITEM 255 FULL DEPTH PAVEMENT SAWING
- ⑦ ITEM 255 FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT
- ⑧ ITEM 301 3" BITUMINOUS AGGREGATE BASE
- ⑨ ITEM 304 6" AGGREGATE BASE, AS PER PLAN
- ⑩ ITEM 305 15" CONCRETE BASE, AS PER PLAN
- ⑪ ITEM 402 1 3/4" ASPHALT CONCRETE, AC-20
- ⑫ ITEM 403 0"-3" ASPHALT CONCRETE, AC-20
- ⑬ ITEM 404 1 1/4" ASPHALT CONCRETE, AC-20
- ⑭ ITEM 407 TACK COAT
- ⑮ ITEM 605 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
- ⑯ ITEM 608 4" CONCRETE WALK
- ⑰ ITEM 609 CURB, TYPE 6, AS PER PLAN
- ⑱ ITEM 659 SEEDING AND MULCHING
- ⑲ ITEM 660 SODDING, AS PER PLAN



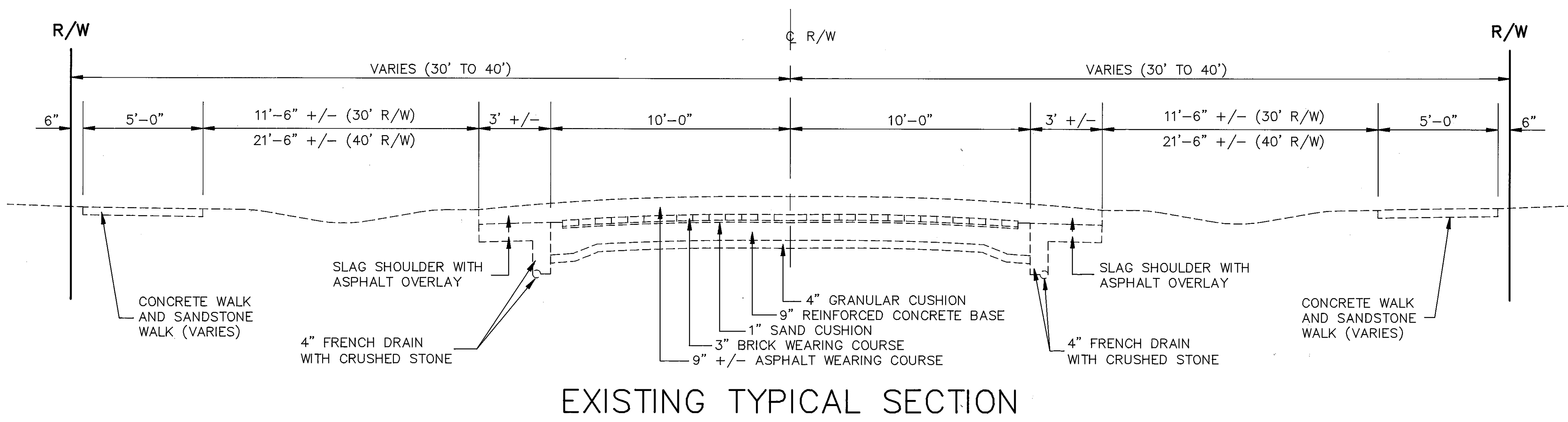
CHARDON ROAD

TYPICAL SECTION

CUY-6-25.94

LEGEND

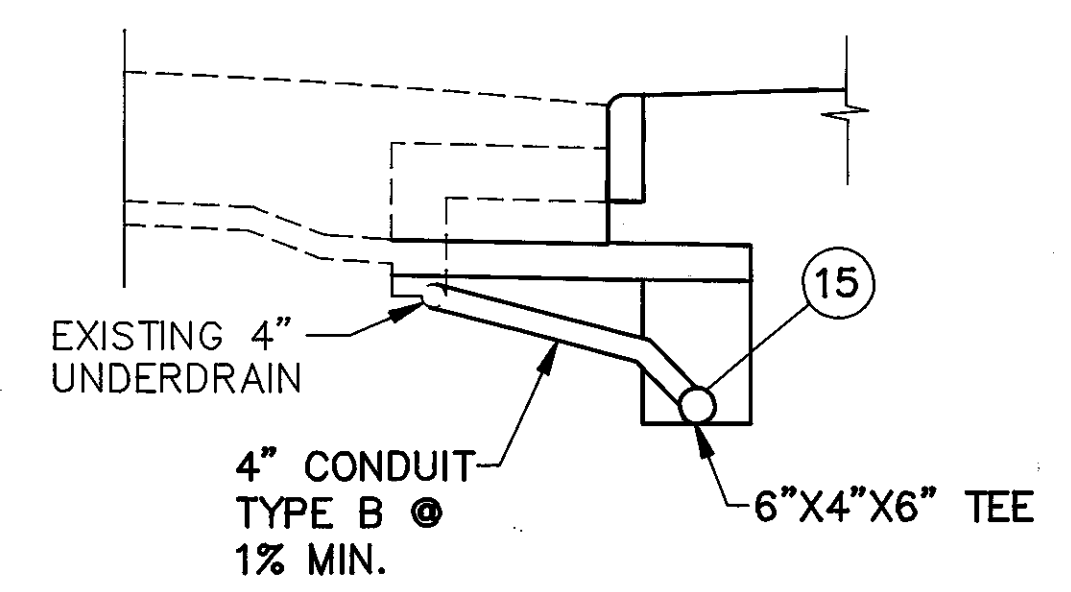
- ① ITEM 202 BRICK BASE REMOVED
- ①A ITEM 203 LINEAR GRADING
- ② ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR
- ③ ITEM 253 PAVEMENT REPAIR
- ④ ITEM 254 PAVEMENT PLANING, BITUMINOUS (4"-8" PLANING)
- ⑤ ITEM 254 PAVEMENT PLANING, BITUMINOUS (9" PLANING)
- ⑥ ITEM 255 FULL DEPTH PAVEMENT SAWING
- ⑦ ITEM 255 FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT
- ⑧ ITEM 301 3" BITUMINOUS AGGREGATE BASE
- ⑨ ITEM 304 6" AGGREGATE BASE, AS PER PLAN
- ⑩ ITEM 305 15" CONCRETE BASE, AS PER PLAN
- ⑪ ITEM 402 1 3/4" ASPHALT CONCRETE, AC-20
- ⑫ ITEM 403 0"-3" ASPHALT CONCRETE, AC-20
- ⑬ ITEM 404 1 1/4" ASPHALT CONCRETE, AC-20
- ⑭ ITEM 407 TACK COAT
- ⑮ ITEM 605 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
- ⑯ ITEM 608 4" CONCRETE WALK
- ⑰ ITEM 609 CURB, TYPE 6
- ⑱ ITEM 659 SEEDING AND MULCHING
- ⑲ ITEM 660 SODDING, AS PER PLAN



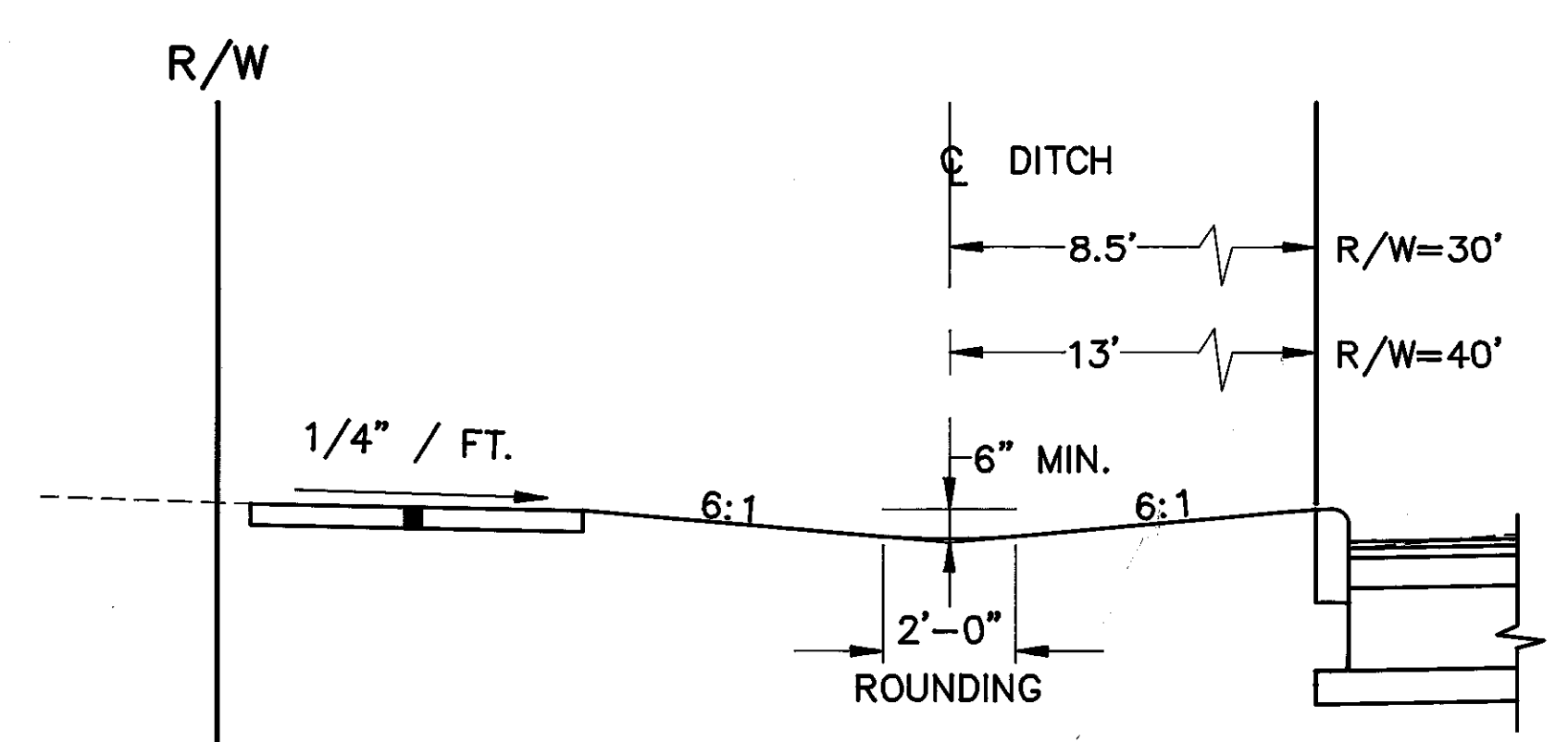
EXISTING TYPICAL SECTION

STA. 60+14.51 TO STA. 106+95
(MAY CHANGE IN SOME AREAS WITHOUT SIDEWALK)

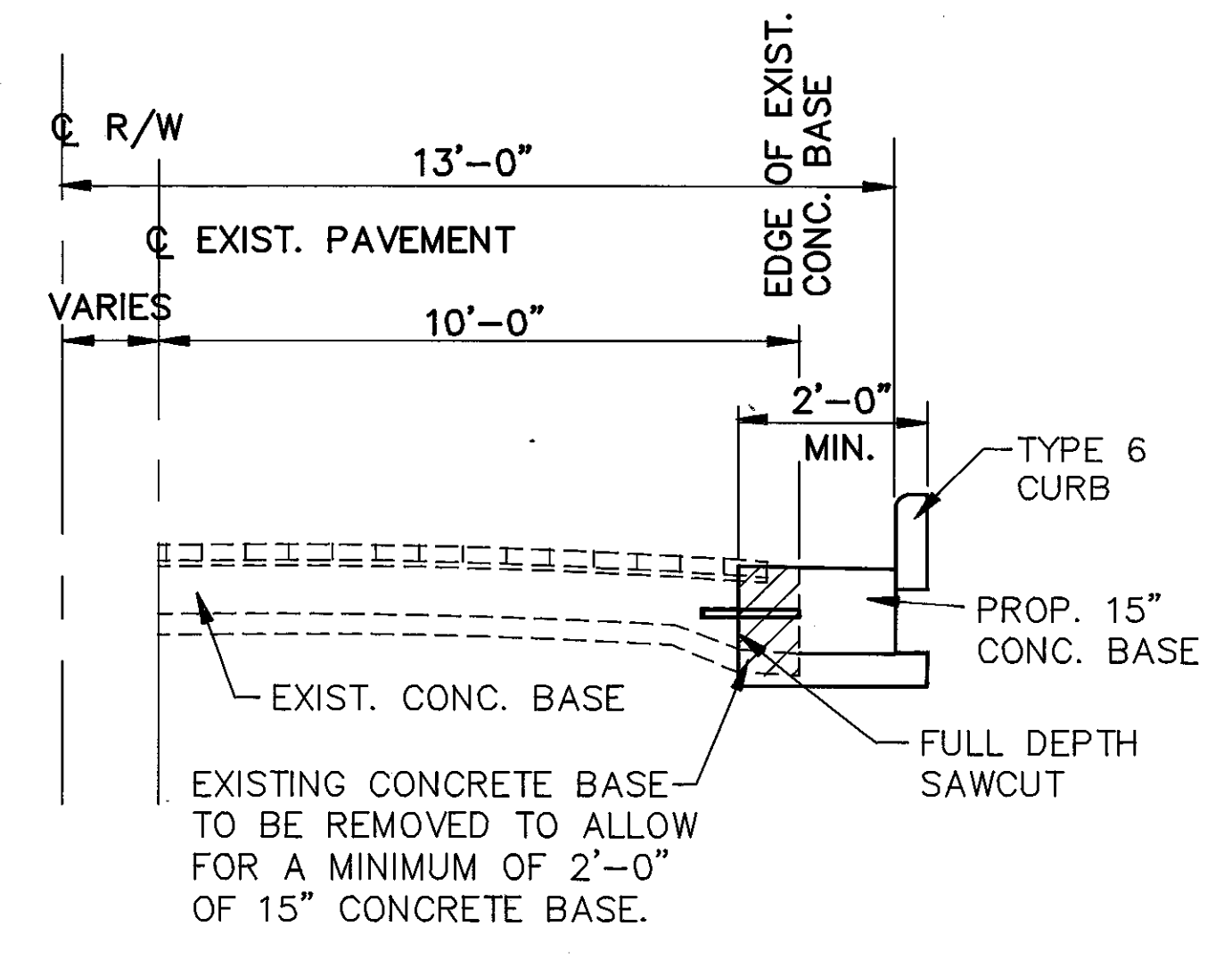
TYPICAL SECTION DETAILS



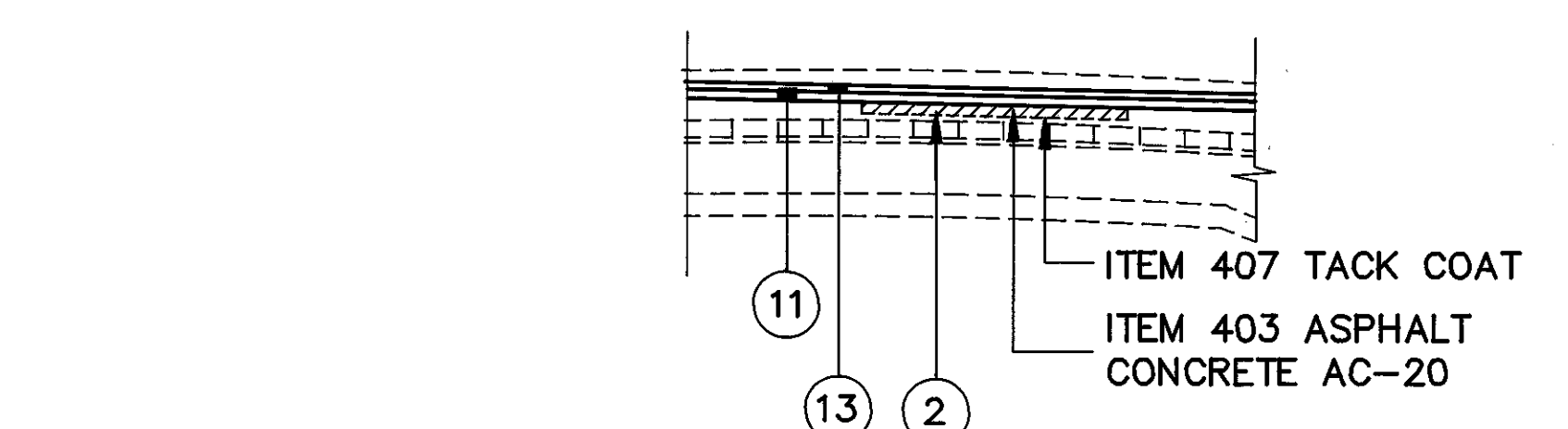
OUTLET FOR EXISTING UNDERDRAINS DETAIL



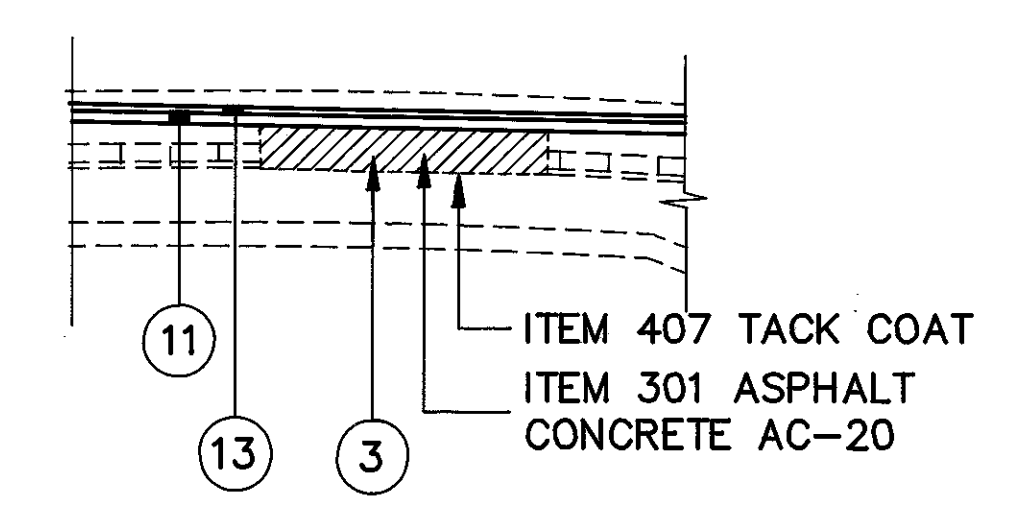
TYPICAL DITCH SECTION



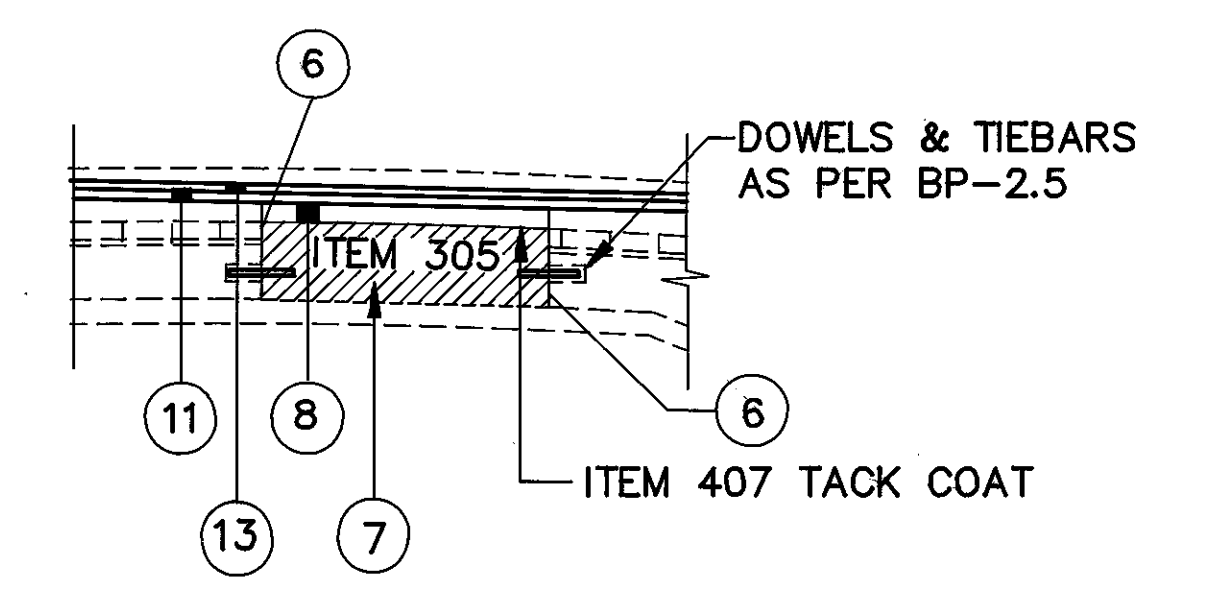
WIDENING DETAIL



ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR



ITEM 253 PAVEMENT REPAIR



ITEM 255 FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT

GENERAL NOTES

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

GENERAL

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN DEVELOPED FROM RECORD PLANS AND ARE BELIEVED TO REPRESENT THE WIDTH AND COMPOSITION OF THE EXISTING PAVEMENT, BUT THE CITY OF RICHMOND HEIGHTS AND THE CITY OF EUCLID DO NOT GUARANTEE THE ACCURACY OF THE SAME.

ROUNDING OF CORNERS

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

UTILITIES

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

CLEVELAND ELECTRIC ILLUMINATING CO. 55 PUBLIC SQUARE P.O. BOX 5000 CLEVELAND, OHIO 44101 ATTN: GLEN YOUNG PHONE: (216) 479-3452	CITY OF CLEVELAND DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER AND HEAT 1201 LAKESIDE AVENUE CLEVELAND, OHIO 44114 ATTN: DONALD L. TREBAR PHONE: (216) 664-3351
CABLEVISION ENGINEERING AND DESIGN DIVISION 14300 S. INDUSTRIAL PARKWAY MAPLE HEIGHTS, OHIO 44131 ATTN: RANDY WELLS PHONE: (216) 663-4004	EAST OHIO GAS COMPANY 1201 EAST 55TH STREET CLEVELAND, OHIO 44101-0759 ATTN: PAULA HIGALGO PHONE: (216) 736-6828

AMERITECH
1020 BOLIVAR ROAD - ROOM 332
CLEVELAND, OHIO 44115
ATTN: DAVE HARRIVEL
PHONE: (216) 476-6135
FAX: (216) 476-6013

CALL OHIO UTILITIES PROTECTION SERVICE TWO (2) WORKING DAYS BEFORE YOU DIG, TOLL FREE NO. 1-800-362-2764 (NON-MEMBERS MUST BE CALLED DIRECTLY).

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

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING THE COMPLETION OF THIS PROJECT.

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. DATUM.

STATIONING AND LOCATIONS

STATIONING AND LOCATIONS INDICATED ON THESE PLANS ARE APPROXIMATE. ALL LOCATIONS AND ITEMS CALLED OUT BY STATION ARE SUBJECT TO ADJUSTMENT IN THE FIELD AS DIRECTED BY THE ENGINEER.

ROADWAY

TREES OR STUMPS - REMOVED

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED UNDER THE UNIT PRICE BID FOR ITEM 201, TREE OR STUMP REMOVED. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED:

SIZES	NO. TREES	NO. STUMPS	TOTAL
18"	16	1	17
30"	5	0	5
48"	2	0	2
60"	0	0	0

ITEM 202 FENCE REMOVED, AS PER PLAN

THIS ITEM IS TO CONFORM TO SECTION 202.07 OF THE OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS EXCEPT AFTER FENCE IS CAREFULLY DISMANTLED IT SHALL BE STORED ON OWNERS' PROPERTY.

MONUMENTS

MONUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DETAILS AS SHOWN ON STANDARD CONSTRUCTION DRAWING MC-1.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM 604 - CUYAHOGA COUNTY ROADWAY MONUMENT ASSEMBLY 5 EACH

ITEM 203 - LINEAR GRADING

THIS ITEM SHALL CONSIST OF GRADING BETWEEN THE BACK OF CURB AND FACE OF SIDEWALK, BETWEEN THE BACK OF CURB AND RIGHT-OF-WAY WHERE NO SIDEWALK EXISTS OR TO THE LIMITS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THIS ITEM SHALL BE PERFORMED AS INDICATED ON THE TYPICAL SECTION (DETAIL) SHOWN ON SHEET NOS. 4-9 AND/OR AS OTHERWISE DIRECTED BY THE ENGINEER. NO DEDUCTIONS SHALL BE MADE FOR INTERSECTIONS OR DRIVES.

PAYMENTS FOR ALL LABOR, EQUIPMENT, AND INCIDENTAL COSTS NECESSARY TO COMPLETE THIS WORK (INCLUDING REMOVAL AND DISPOSAL OF MATERIALS DEEMED UNFIT FOR REUSE BY THE ENGINEER AND ADDITIONAL/REPLACEMENT EMBANKMENT MATERIAL, REGARDLESS OF THE SOURCE) SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID PER STATION. ONE STATION EQUALS 100 FEET MEASURED ALONG EACH SIDE OF PAVEMENT.
ITEM 203 - LINEAR GRADING

EXISTING UNDERGROUND SPRINKLERS

TWO WEEKS PRIOR TO THE PRE-CONSTRUCTION MEETING, THE CITY OF RICHMOND HEIGHTS AND THE CITY OF EUCLID SHALL CONTACT THE RESIDENTS ALONG THIS JOB BY LETTER INDICATING THAT WORK PROPOSED IN THE RIGHT-OF-WAY MAY EFFECT ANY EXISTING UNDERGROUND SPRINKLERS IN THIS AREA.

SPRINKLER SYSTEMS OR HEADS ENCOUNTERED WITHIN THE RIGHT-OF-WAY ARE THE RESPONSIBILITY OF THE OWNER TO EITHER RELOCATE OR REMOVE PRIOR TO CONSTRUCTION. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR DAMAGED OR DISCONNECTED SYSTEMS. ALL COSTS FOR REPAIR AND/OR REPLACEMENT SHALL BE BORNE BY THE OWNER/CITY. IF THE SPRINKLER SYSTEMS ARE LOCATED OUTSIDE THE RIGHT-OF-WAY ON PRIVATE PROPERTY AND THE CONTRACTOR DAMAGES THE SYSTEM, THE CONTRACTOR WILL BE RESPONSIBLE TO MAKE THE REPAIRS.

NON-RIGID PAVEMENT REMOVAL

THE REMOVAL AND DISPOSAL OF EXISTING NON-RIGID PAVEMENT, INCLUDING DRIVEWAYS, SHALL BE INCLUDED FOR PAYMENT IN ITEM 203, EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION UNLESS OTHERWISE SPECIFIED ON THE PLANS.

EROSION CONTROL

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY SOIL AND SEDIMENT CONTROL MEASURES.

ITEM 207 - TEMPORARY SEEDING AND MULCHING	2500 SQ. YDS.
ITEM 207 - STRAW OR HAY BALES	1342 EACH
ITEM 207 - FILTER FABRIC FENCE	5308 LIN. FT.
ITEM 601 - ROCK CHANNEL PROTECTION, TYPE C (WITH FILTER)	30 CU. YDS.
ITEM 616 - WATER	.6 M. GAL.
ITEM 659 - COMMERCIAL FERTILIZER	.20 TON

ITEM 660 - SODDING

THE PREPARATION OF SODDED AREAS SHALL INCLUDE TWO (2) INCHES OF TOPSOIL FURNISHED AND PLACED BEFORE SODDING IN ACCORDANCE WITH ITEM 653, EXCEPT IGNITION TESTING LISTED IN ITEM 653.02 IS NOT REQUIRED.*

PAYMENT FOR PREPARING AND PLACING SODDED AREAS WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR ITEM 660 - SODDING.

SODDING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, FROM THE BACK OF CURB TO THE FACE OF SIDEWALK. QUANTITY CALCULATIONS FOR ITEM 660 SODDING (SEE SHEET 460) ARE BASED ON THESE LIMITS.

EROSION CONTROL

ITEM 660 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THIS ITEM, AND TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE THIS ITEM. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

DRAINAGE

ITEM 202 - PIPE REMOVED, AS PER PLAN

ITEM 603 - CONDUIT, AS PER PLAN

ITEM 604 - MANHOLE, NO. 3, AS PER PLAN A

ITEM 605 - 6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN

THE ABOVE MENTIONED ITEMS SHALL CONFORM TO THEIR RESPECTIVE ITEM SPECIFICATION NUMBERS EXCEPT FOR GRANULAR MATERIAL FURNISHED FOR BEDDING AND/OR BACKFILL OPERATIONS. THIS GRANULAR MATERIAL SHALL BE LIMITED TO CRUSHED STONE, NO SLAG SHALL BE PERMITTED.

603.02 MATERIAL

SLAG SHALL NOT BE PERMITTED FOR USE AS GRANULAR MATERIAL FOR PIPE BEDDING AND BACKFILL.

ITEM 604 - MANHOLE, NO. 3, AS PER PLAN - B

THIS ITEM SHALL CONFORM TO ITEM 604 - MANHOLE, NO. 3, AS PER PLAN - A, EXCEPT THAT THE CASTING FURNISHED SHALL BE A NEENAH R-1786 WITH OPEN GRATE OR EAST JORDAN 1460 WITH TYPE M GRATE OR EQUAL.

ITEM 604 - CATCH BASIN, NO. 3 WITH V GRATE, AS PER PLAN

ITEM 604 - CATCH BASIN, NO. 3A WITH V GRATE, AS PER PLAN

ITEM 604 - CATCH BASIN, NO. 6, AS PER PLAN

ITEM 604 - CATCH BASIN, NO. 2-2B, AS PER PLAN

ITEM 604 - CATCH BASIN, NO. 2-3, AS PER PLAN

ITEM 604 - CATCH BASIN, NO. 2-6, AS PER PLAN

ITEM 604 - I-1 INLET, AS PER PLAN

THESE ITEMS SHALL CONFORM TO ITEM 604, EXCEPT NO SLAG SHALL BE PERMITTED AS BEDDING OR BACKFILL MATERIAL.

STEPS SHALL BE PROVIDED FOR CATCH BASINS WHICH ARE GREATER THAN FIVE (5) FEET DEEP. STEP SPACING SHALL BE FROM 12" TO 16" C/C AND STEPS SHALL CONFORM TO STANDARD DRAWING MH-1.

ITEM 604 - CATCH BASIN, NO. 5A, AS PER PLAN

THIS ITEM SHALL CONFORM TO ITEM 604, EXCEPT NO SLAG SHALL BE PERMITTED AS BEDDING AND BACKFILL MATERIAL.

DIMENSIONS ARE TO BE MODIFIED AS SHOWN ON SHEET NO. 109.

CASTING SHALL BE NEENAH R-3356-A FRAME AND GRATE, OR EQUAL.

ITEM 604 - CATCH BASIN, CUYAHOGA COUNTY CB-3C, AS PER PLAN

THIS ITEM SHALL BE USED IN THE CITY OF EUCLID ONLY AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH CUYAHOGA COUNTY CATCH BASIN CB-3C WITH SUMP

THIS ITEM SHALL CONFORM TO ITEM 604, EXCEPT NO SLAG SHALL BE PERMITTED AS BEDDING AND BACKFILL MATERIAL.

ALL DESIGNATED CB- A.P.P. ON PLAN & PROFILE SHEETS (EUCLID SECTION ONLY) SHALL NOW BE CONSTRUCTED AS CATCH BASIN, CUYAHOGA COUNTY, 3C, AS PER PLAN.

* PAYMENT FOR ACCEPTED QUANTITIES FOR TOPSOIL WILL BE MADE AT CONTRACT UNIT PRICE BID PER CUBIC YARD FOR:
ITEM 653 - TOPSOIL FURNISHED AND PLACED (870 ± CU. YDS.)

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

GENERAL NOTES

DRAINAGE (CONT'D)

CROSSING AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEM.

TRAPPED WATER

DURING CONSTRUCTION OF THE PROJECT, AREAS MAY BE FOUND IN WHICH WATER IS TRAPPED BEHIND THE CURB. AREAS SUCH AS THESE WILL BE DETERMINED BY THE ENGINEER. TO ALLOW FOR DRAINAGE OF THESE AREAS, AN ESTIMATED QUANTITY OF THE FOLLOWING HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DETERMINED BY THE ENGINEER.

ITEM 604 - INLET, 1-1, AS PER PLAN	16 EACH
ITEM 604 - CATCH BASIN, 2-2B, AS PER PLAN	8 EACH
ITEM 603 - 8" CONDUIT, TYPE B, 706.08 E.S. OR 707.19, P.S. 46 MIN., AS PER PLAN	400 L.F.
ITEM 603 - 12" CONDUIT, TYPE C, 706.01 CL.3, 706.02, OR 706.08 E.S., AS PER PLAN	200 L.F.

FARM DRAINS

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING MC-4, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603 - 6" CONDUIT, TYPE B, 706.08 ES OR 707.19, P.S. 46 MIN., AS PER PLAN	100 LIN. FT.
ITEM 603 - 6" CONDUIT, TYPE E, 707.19, P.S. 46 MIN., AS PER PLAN	100 LIN. FT.
ITEM 603 - 6" CONDUIT, TYPE F, 707.19, P.S. 46 MIN., AS PER PLAN	100 LIN. FT.

TREATED SEPTIC CONNECTIONS

TREATED SEPTIC FLOW MAY BE DISCHARGED INTO THE HIGHWAY DRAINAGE SYSTEM PROVIDED THE OWNER HAS ACQUIRED AN OFFICIAL PERMIT FROM THE CUYAHOGA COUNTY BOARD OF HEALTH IN EACH CASE WHERE A PERMIT HAS BEEN ISSUED FOR MAKING A TREATED SEPTIC CONNECTION INTO A HIGHWAY DRAINAGE CONDUIT, AN INSPECTION WELL SHALL BE PROVIDED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MC-8.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN MAKING THE ABOVE CONNECTIONS:

ITEM 603 - 6" CONDUIT, TYPE B, 706.08 E.S. OR 707.19, P.S. 46 MIN., AS PER PLAN	300 L.F.
ITEM 603 - 6" CONDUIT, TYPE C, 706.08 E.S. OR 707.19, P.S. 46 MIN., AS PER PLAN	300 L.F.
ITEM 604 - INSPECTION WELL	10 EA.

REVIEW OF DRAINAGE FACILITIES

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

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

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

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS OR YARD DRAINS, DISTURBED BY THE WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.19 PS46 MIN, 707.17 ASTM 3034 SDR 35 NON-PERFORATED, OR SS931 OR SS 944.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 603 - 6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	1,000 L.F.
ITEM 603 - 6" CONDUIT, TYPE C, FOR DRAINAGE CONNECTION	1,000 L.F.

MANHOLES, CATCH BASINS AND INLETS REMOVED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY CITY OF EUCLID OR CITY OF RICHMOND HEIGHTS FORCES.

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

STRUCTURES ADJUSTED TO GRADE OR STRUCTURES

RECONSTRUCTED TO GRADE, AS PER PLAN

ALL ADJUSTMENT OR RECONSTRUCTION WORK, EXCEPT FOR THOSE STRUCTURES OWNED BY PRIVATE COMPANIES, SHALL BE PERFORMED BY THE CONTRACTOR.

CASTINGS SHALL BE ADJUSTED TO GRADE IN ACCORDANCE WITH 604.03(d). NO ADJUSTING RINGS OR CASTINGS ARE PERMITTED.

ALL EXISTING CASTINGS FOR STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE FIELD CHECKED AT THE TIME OF CONSTRUCTION AND MARKED SUITABLE FOR SALVAGE AND REUSE OR REPLACED AS DIRECTED BY THE ENGINEER.

UNLESS OTHERWISE INDICATED ON THE PLAN, REPLACEMENT CASTINGS ARE PAID UNDER ITEM SPECIAL - MISCELLANEOUS METAL.

ITEM SPECIAL - MISCELLANEOUS METAL

EXISTING CASTINGS MAY PROVE TO BE UNSUITABLE FOR REUSE, AS DETERMINED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE CASTINGS OF THE REQUIRED TYPE, SIZE AND STRENGTH (HEAVY OR LIGHT DUTY) FOR THE PARTICULAR STRUCTURE IN QUESTION. ALL MATERIALS SHALL MEET ITEM 604 OF THE SPECIFICATIONS AND SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL - MISCELLANEOUS METAL	15,000 LBS.
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THE CONTRACTOR IS CAUTIONED TO USE EXTREME CARE IN THE REMOVAL, STORAGE AND REPLACEMENT OF ALL EXISTING CASTINGS. CASTINGS DAMAGED BY THE NEGLIGENCE OF THE CONTRACTOR, AS DETERMINED BY THE ENGINEER, SHALL BE REPLACED WITH THE PROPER NEW CASTINGS AT THE EXPENSE OF THE CONTRACTOR.

EXISTING 4" FRENCH DRAIN CONNECTIONS TO NEW CATCH BASINS

EXISTING 4" FRENCH DRAINS (UNDERDRAINS) SHALL BE TIED INTO THE NEW CATCH BASINS AS DETERMINED BY THE ENGINEER DURING CONSTRUCTION, SEE DETAIL ON SHEET 9. ALL EXISTING FRENCH DRAINS REMOVED DURING LATERAL CONSTRUCTION SHALL BE REPLACED BY SPANNING THE SEWER TRENCH TO MAINTAIN POSITIVE DRAINAGE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK OUTLINED ABOVE:

ITEM 603 - 4" CONDUIT, TYPE B, 706.08 E.S. OR 707.19 P.S. 46 MIN., AS PER PLAN	1,000 L.F.
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PIPE CONNECTIONS TO CORRUGATED METAL STRUCTURES

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

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

THE FIELD WELDED JOINT, IF USED, SHALL BE THOROUGHLY CLEANED AND REGALVANIZED OR OTHERWISE SUITABLY REPAIRED. WELDING SHALL MEET THE REQUIREMENTS OF 513.17.

A MASONRY COLLAR, AS PER STANDARD DRAWING MC-4, WILL BE REQUIRED TO CONNECT THE LONGITUDINAL DRAINAGE TO THE STUB, WHEN PIPE OTHER THAN CORRUGATED METAL IS PROVIDED FOR THE LONGITUDINAL DRAINAGE.

PAYMENT FOR CUTTING INTO THE STRUCTURE AND PROVIDING THE CONNECTION DESCRIBED, SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 603.

GENERAL NOTES

CALC. BY: _____	CUY-6-25.94	OHIO	12 126
DATE: _____		F.H.W.A. REGION 5	
CHKD. BY: _____			
DATE: _____			

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

DRAINAGE (CONT'D)

CONDUIT CONNECTION TO EXISTING CULVERT

WHERE NEW CONDUIT IS TO BE CONNECTED DIRECTLY TO AN EXISTING CULVERT, AS SHOWN IN THE PLANS, THE CONNECTION SHALL BE RADIAL TO THE EXISTING CULVERT. A MECHANICAL CORING OF THE EXISTING CONDUIT SHALL BE PERFORMED TO LEAVE A HOLE NOT TO EXCEED 2 INCHES GREATER IN DIAMETER THAN THE OUTSIDE DIAMETER OF THE CONNECTING CONDUIT. POWER HAMMERING OR IMPACT CHISELING WILL NOT BE PERMISSIBLE.

ALL DRILLING DEBRIS SHALL BE REMOVED FROM INSIDE THE EXISTING CULVERT AND CONDUIT. THE CONNECTING CONDUIT SHALL PROTRUDE INTO THE EXISTING CULVERT NO MORE THAN 2 INCHES AT ANY POINT. A CONCRETE COLLAR OF 6 INCHES MINIMUM THICKNESS SHALL SURROUND THE CONNECTION, WITH PRECAUTION TAKEN TO EXCLUDE CONCRETE FROM THE INTERIORS OF THE CONDUIT AND CULVERT.

THE COST OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RESPECTIVE CONDUIT.

PAVEMENT

ITEM 304 - AGGREGATE BASE, AS PER PLAN

THE ONLY SLAG MATERIALS PERMITTED FOR THIS ITEM SHALL BE CRUSHED AIR-COOLED BLAST FURNACE SLAG, A MIXTURE OF CRUSHED AND GRANULATED SLAGS, OR OPEN HEARTH SLAG FROM APPROVED SOURCES ON FILE AT THE LABORATORY. ALL MATERIALS OR BLENDED MATERIALS SHALL MEET THE GRADATION REQUIREMENTS OF 304.02. ANY GRANULATED SLAG MATERIAL USED SHALL MEET THESE GRADATION REQUIREMENTS IN LIEU OF 703.08.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, CONTRACTION JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE SO AS TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

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

ITEM 407, TACK COAT

THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF 0.1 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM 451 - REINFORCED CONCRETE PAVEMENT, AS PER PLAN

WHEN THE ABOVE ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 451, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY, EXCEPT AS MODIFIED HEREIN.

451.02 MATERIAL

CURING MATERIAL SHALL BE 705.07, TYPE 2, CLASS "B", APPLIED AT THE RATE SPECIFIED UNDER 305.01. SURFACE TEXTURE AND SMOOTHNESS SHALL BE IN ACCORDANCE WITH 305.01. REINFORCING MESH FABRIC SHALL BE 6"x12" (W8.5xW4) CONFORMING TO 709.40 AND STANDARD CONSTRUCTION DRAWING BP1.1.

AT THE CONTRACTOR'S OPTION AND WHERE PERMITTED BY THE ENGINEER, APPROVED ADMIXTURES SUCH AS SUPER-PLASTICIZERS, SET RETARDERS, ACCELERATORS, WATER REDUCERS, OR COMBINATIONS THEREOF, ALL MEETING THE REQUIREMENTS OF ASTM C-494, MAY BE UTILIZED TO MORE READILY OBTAIN THE INTENDED RESULTS. NO EXTRA PAYMENT SHALL BE PROVIDED FOR SAID ADMIXTURES OR FOR ANY ADDITIONAL COMPONENT MATERIALS APPROVED AND SO UTILIZED, AT THE CONTRACTOR'S OPTION, IN ACCORDANCE WITH 499.

451.02 - JOINTS

(B) LOAD TRANSFER DEVICES: ALL DOWELS AND DOWEL BASKETS SHALL BE EPOXY COATED AS PER 709.13.

(D) CONTRACTION JOINT

UNLESS OTHERWISE SHOWN ON THE PLANS, CONTRACTION JOINTS SHALL BE TYPICALLY CONSTRUCTED AT 20'-0" CENTERS, IN NO CASE SHALL THE SPACINGS EXCEED 21'-0". THE WIDTH OF CONTRACTION JOINTS SHALL BE 5/16" ± 1/16" AND THE MINIMUM DEPTH SHALL BE THE SLAB THICKNESS DIVIDED BY 4. SEALING SHALL BE PER 305.01 C.

(G) SAWING TRANSVERSE JOINTS - DEPTHS AND WIDTHS OF SAW CUTS FOR CONTRACTION AND HINGE JOINTS SHALL BE AS INDICATED ON STANDARD CONSTRUCTION DRAWING BP-2.2.

451.101 - PROTECTION AGAINST RAIN

IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED AGAINST THE EFFECTS OF RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED, THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE UNHARDENED CONCRETE SURFACE. SUCH PROTECTIVE MATERIALS SHALL CONSIST OF STANDARD COVERING MATERIAL SUCH AS BURLAP OR COTTON MATS, CURING PAPER OR PLASTIC SHEETING MATERIAL FOR THE PROTECTION OF THE PAVEMENT SURFACE. WHEN RAIN APPEARS IMMINENT, ALL PAVING OPERATIONS SHALL STOP, AND ALL AVAILABLE PERSONNEL SHALL BEGIN COVERING THE SURFACE OF UNHARDENED CONCRETE WITH THE PROTECTIVE COVERING.

451.12 - SURFACE SMOOTHNESS

ALL SECTIONS OF PAVEMENT THAT HAVE BEEN GROUND, REPAIRED, OR REPLACED BY THE CONTRACTOR TO PROVIDE THE REQUIRED SURFACE SMOOTHNESS SHALL BE GIVEN A PROTECTIVE APPLICATION OF THE SPECIFIED CURING COMPOUND.

SIDEWALK REPLACEMENT AT DRIVEWAYS

SIDEWALK THAT IS BEING REPLACED ACROSS DRIVEWAYS SHALL BE THE THICKNESS OF THE DRIVE AND PAID FOR UNDER ITEM 452 PLAIN CONCRETE PAVEMENT.

ITEM 608 - 4" CONCRETE WALK, AS PER PLAN

ALL SIDEWALKS, DRIVE APRONS AND RAMPS, IN THE CITY OF EUCLID, SHALL BE CONSTRUCTED SO THAT THE TOP SURFACE SHALL BE MAGNESIUM FLOAT FINISH WITH A HAND TROWEL TO PRODUCE A SWIRL PATTERN SO AS TO PREVENT THE SURFACE FROM BEING SLIPPERY WHEN COVERED WITH MOISTURE. SAID FINISH SHALL BE OF SUCH CHARACTER AS, IN THE JUDGEMENT OF THE ENGINEER, WILL EFFECTUALLY PREVENT AT ANY TIME THE SLIPPERY CONDITION OF SUCH SIDEWALKS, DRIVE APRONS AND RAMPS.

ALL OUTSIDE EDGES AND JOINTS SHALL BE EDGED WITH A ONE-QUARTER INCH RADIUS TOOL. ALL JOINTS ON THE SIDEWALKS, DRIVE APRONS AND RAMPS (TRANSVERSE OR LONGITUDINAL) SHALL BE FORMED BY SCORING WITH THE TOOL TO A DEPTH OF NOT LESS THAN ONE-FOURTH THE THICKNESS OF THE CONCRETE SLAB AND SHALL BE APPROXIMATELY ONE-EIGHTH OF AN INCH WIDE. EXPANSION JOINT FILLER ONE-HALF INCH THICK SHALL BE INSTALLED BETWEEN THE WALK, DRIVE APRON AND RAMP AND ANY FIXED STRUCTURE, EXTENDING THE FULL DEPTH OF THE WALK, DRIVE APRON AND RAMP. THE EXPANSION JOINT FILLER SHALL BE ONE INCH THICK WHERE THE WALK, DRIVE APRON AND RAMP ARE INSTALLED AGAINST THE BACK OF THE CURB.

ITEM 608 - 4 1/2" CONCRETE WALK, AS PER PLAN

ALL CONCRETE WALK IN THE CITY OF RICHMOND HEIGHTS SHALL BE A MINIMUM OF 4-1/2" THICK, BROOM FINISHED AND HAVE A 2" COMPACTED SCREENINGS BED WHICH MEETS THE REQUIREMENTS OF 703.10 EXCEPT THAT THE MINIMUM TOTAL PERCENT PASSING THE NO.100 SIEVE SHALL BE FIVE (5) PERCENT. WHERE THE WALK CROSSES A DRIVEWAY, THE THICKNESS SHALL BE INCREASED TO MATCH THE DRIVEWAY THICKNESS. THE COST FOR FURNISHINGS AND PLACING THE 2" COMPACTED SCREENINGS BED AND FOR THE THICKENING AT DRIVES SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 608 - 4 1/2" CONCRETE WALK, AS PER PLAN.

TRANSVERSE EXPANSION JOINTS SHALL CONSIST OF 1/2" WIDE, 705.03 PREFORMED FILLER. EXPANSION JOINTS SHALL BE CONSTRUCTED AT INTERVALS OF NOT MORE THAN 25 FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THEY SHALL BE PLACED AT THE GROOVED DIVISION LINES AND SHALL BE TRULY NORMAL TO THE GRADE. THE COST OF THE MATERIAL AND LABOR ASSOCIATED WITH THIS WORK IS INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 608 - 4-1/2" CONCRETE WALK, AS PER PLAN.

WATERWORK NOTES

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BY _____
DATE _____
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BY _____
DATE _____

CUY-6-25.94

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ITEM SPECIAL - MISCELLANEOUS METAL WORK WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OR THESE SPECIFICATIONS.

(B) IN GENERAL, THE WORK SHALL INCLUDE THE REPLACEMENT OF ANY VALVE BOXES, COVERS, MANHOLE RINGS AND COVERS, WATER SERVICE STOP BOXES, BRONZE BOLTS, MANHOLE STEPS, EXTENSION STEMS AND BRACE STRUCTURAL MEMBERS AND OTHER SIMILAR ITEMS DETERMINED BY THE ENGINEER AS BEING UNSUITABLE.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATIONS A 36. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO THE U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL-FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIAL.

ALUMINUM, EXCEPT OTHERWISE REQUIRED, SHALL BE ALUMINUM ALLOY EQUIVALENT TO SPECIFICATION 5063, RIVETS AND SCREWS SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 2017 ALLOY; ALUMINUM PLATE AND STRUCTURAL SHAPES SHALL BE 6061-16 AND EXTRUDED SHAPES SHALL BE 6063-T5; ALL AS MANUFACTURED BY THE ALUMINUM COMPANY OF AMERICA, OR EQUAL.

BRASS SHALL BE A COMMERCIAL GRADE CONFORMING TO THE "STANDARD SPECIFICATIONS FOR BRASS PLATE, SHEER, STRIP AND ROLLED BAR" ASTM DESIGNATION B 36-7L, ALLOY NO. 3.

COPPER-SILICON ALLOY OR "EVERDUR" SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR COPPER-SILICON ALLOY PLANT, SHEET, STRIP AND ROLLED BAR FOR GENERAL PURPOSES"; ASTM DESIGNATION B97-70, TYPE B.

STAINLESS STEEL AND FASTENERS SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR HOT ROLLED AND COLD-FINISHED STAINLESS AND HEAT RESISTANT BARS", ASTM DESIGNATION A 276-72, TYPE 304. ALL WROUGHT IRON SHALL MEET THE REQUIREMENTS OF THE "SPECIFICATIONS FOR WROUGHT IRON PLATES", ASTM DESIGNATION A42-66.

CAST IRON VALVE BOXES AND COVERS SHALL BE GRAY IRON CASTINGS, WHICH IN APPEARANCE AND DIMENSION TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH IS NOT A PRIMARY OR MAJOR CONSIDERATION. VALVE BOXES AND COVERS SHALL BE ASTM DESIGNATION A-48 WITH NO SPECIFIC REQUIREMENT AS TO CLASS. CHEMICAL COMPOSITION SHALL NOT BE CONSIDERED, BUT THE MATERIAL SHALL BE GOOD QUALITY AND OF SUCH CHARACTER AS SHALL MAKE THE METAL OF THE CASTING STRONG, TOUGH AND OF EVEN GRAIN. THE METAL SHALL BE MADE WITHOUT ANY ADMIXTURE OF CINDER IRON OR OTHER INFERIOR METAL.

WORKMANSHIP AND FINISH SHALL CONFORM SUBSTANTIALLY TO THE DIMENSIONS ON THE CONTRACT DRAWINGS OR FURNISHED DRAWINGS. THE CASTINGS SHALL BE FREE FROM INJURIOUS DEFECTS, CRACKS, GAS HOLES, FLAWS AND EXCESSIVE SHRINKAGE. ADDITIONAL INSPECTION MAY BE MADE AT THE PROJECT OR WORK SITE. INSPECTION SHALL BE VISUAL INSPECTION FOR APPEARANCE AND SURFACE SMOOTHNESS IN COMPARISON WITH SAMPLES ACCEPTED AS STANDARD.

SAMPLE CASTINGS FROM EACH PATTERN, WHEN REQUIRED BY THE ENGINEER, SHALL BE SUBMITTED BY THE MANUFACTURER FOR THE PURPOSE OF ESTABLISHING STANDARDS OF APPEARANCE AND DIMENSIONAL TOLERANCES. THE MANUFACTURER SHALL CERTIFY THAT HIS PRODUCT CONFORMS TO THESE SPECIFICATIONS. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST.

NO CASTING SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH COATING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUTSIDE IN ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATION - 77-V-51A OR JOINT ARMY-NAVY SPECIFICATION JAN-P-450. OTHER METHODS OF COATING AND TYPES OF COATING MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. IN ADDITION TO THE SHOP COAT, THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, AND ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS SHALL BE BUILT INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES INDICATED ON THE DRAWINGS.

RIMS AND COVERS

(A) ALL CAST IRON MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAIL SHOWN ON THE CONTRACT DRAWINGS SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

(B) THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OF POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATIONS AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURE OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OF FINISHED METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF ANY WORK TO BE FURNISHED UNDER THIS ITEM IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAT TAR PITCH, USING INTERTOL 50 OR BITUMASTIC 50, OR APPROVED EQUAL.

MEASUREMENT

THE MISCELLANEOUS METAL WORK SHALL BE METAL WORK ACTUALLY FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE DETAILED DRAWINGS APPROVED BY THE DIRECTOR. IN COMPUTING THE WEIGHTS, IF NOT DETERMINED BY WEIGHING, ONE (1) CUBIC FOOT OF CAST IRON SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND FIFTY (450) POUNDS, AND ONE (1) CUBIC FOOT OF STEEL SHALL BE ASSUMED TO WEIGH FOUR HUNDRED AND NINETY (490) POUNDS. THE WEIGHT OF CAST IRON SHALL BE USED FOR CAST IRON VALVE BOXES AND COVERS AND ANY CAST IRON SECTIONS OF VALVE BOXES AND COVERS. WHERE PLASTIC PIPE IS USED AS THE EXTENSION, THE PIPE SHALL BE INCLUDED IN THE CAST IRON WEIGHT WITH NO SEPARATE ALLOWANCE FOR LENGTH OR WEIGHT.

PAYMENT

THE UNIT PRICE STIPULATED PER POUND FOR MISCELLANEOUS METAL WORK SHALL INCLUDE THE FURNISHING, ERECTING, MACHINING, ADJUSTING, BOLTING, CLEANING AND PAINTING OF ALL MISCELLANEOUS METAL WORK, AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. THE FOLLOWING ESTIMATED QUANTITIES ARE INCLUDED IN THE GENERAL SUMMARY FOR THIS WORK:

ITEM SPECIAL - MISCELLANEOUS METAL WORK 5000 LBS.

CONSTRUCTION NOTES: CLEVELAND WATER DEPARTMENT STANDARDS

1. WATER MAIN TO BE INSTALLED IN ACCORDANCE WITH THE CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF CLEVELAND WATER DEPARTMENT ALL PIPE SHALL BE MINIMUM CLASS 52 CEMENT LINED AND HAVE SOCKET BY PLAIN AND RUBBER-GASKET PUSH-ON JOINTS WITH RADIALLY COMPRESSED LOCKED IN PLACE RUBBER RING GASKETS. ALL FITTINGS SHALL HAVE BELL OR PLAIN END JOINTS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH PIPE OR FITTING PLAIN AND SEALING GASKETS AND BOLTED FOLLOWER GLAND. ALL JOINTS ON BENDS, TEES CROSSES, VALVE SPECIAL FITTINGS AND PIPE BETWEEN OFFSETS OR BENDS SHALL HAVE RETAINED MECHANICAL JOINTS. ALL VALVES AND TEES SHALL HAVE BELL JOINTS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE. ON HYDRANTS BRANCHES ALL JOINTS, INCLUDING THE TEE OUTLET, HYDRANT ELBOW AND BRANCH VALVE SHALL HAVE RETAINED MECHANICAL JOINTS. ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS INCLUDING THOSE USED ON THE RETAINED TYPE SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMATIC PAINTING. ALL MECHANICAL JOINTS SHALL THEN BE POLYETHYLENE ENCASED IN ACCORDANCE WITH AWWA C-105/A21.82, CLASS "C" METHOD "C". WHERE SHOWN ON THE PLANS OR DIRECTLY SPECIFIED, PIPE AND FITTINGS HAVING APPROVED BOLTLSS RESTRAINED SLIP-ON JOINTS SHALL BE FURNISHED TO THE LIMITS INDICATED.
2. ALL HYDRANT ASSEMBLIES INCLUDING VALVE BRANCH TEE OUTLET, PIPE, ANY NECESSARY OFFSETS AND APPROVED HYDRANT SHALL BE NOMINAL SIX INCH (6") SIZE.
3. MINIMUM DEPTH OF WATER MAIN COVER SHALL BE SIX FEET (6') BELOW ESTABLISHED GRADE EXCEPT WHERE CROSSING OVER OBSTRUCTION, WHERE MINIMUM COVER SHALL BE FIVE FEET (5') UNLESS OTHERWISE SHOWN OR NOTED.
4. ALL WATER MAIN TRENCHES AND EXCAVATIONS UNDER EXISTING OR FUTURE PAVEMENT, SIDEWALKS OR DRIVES SHALL BE BACKFILLED WITH LIMESTONE SCREENINGS AS SPECIFIED PER ODOT 304.
5. PRESSURE TESTING OF WATER MAINS, WHERE THEY ARE CONNECTED TO AN EXISTING WATER MAIN TO TEST, RESULTING IN FAILURE OF TEST OR ANY DAMAGE TO EXISTING WATER MAIN FACILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE PROVISIONS RELATED TO PUBLIC IMPROVEMENTS IN SECTION 163.64 OF THE OHIO REVISED CODE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING OHIO UTILITIES PROTECTION SERVICE (O.U.P.S.) AT 1-800-362-2764 AND THOSE OWNERS OF UNDERGROUND UTILITIES IN THE VICINITY OF ANY WORK.
7. CONTRACTOR SHALL PROVIDE TAPS FOR DISINFECTION BY CHLORINATION. THE DIVISION OF WATER WILL DETERMINE LOCATIONS AND NUMBER OF TAPS. THE CONTRACTOR SHALL PROVIDE A SIX FOOT (6') SQUARE SHEETED AND SHORED PIT AT LOCATIONS OF CHLORINATION TAPS.
8. THE CONTRACTOR SHALL ARRANGE WITH THE DIVISION OF WATER FOR ANY TAPS FOR DISINFECTION AND ALL SERVICE CONNECTIONS. THE CONTRACTOR SHALL PAY THE DIVISION OF WATER BEFORE THE WORK IS PERFORMED. THE AMOUNT OF CHARGES CAN BE OBTAINED FROM THE PERMITS AND SALES SECTION, DIVISION OF WATER.
9. ALL WATER SERVICE CONNECTIONS SHALL BE LAID NOT LESS THAN SIX FEET (6') BELOW ESTABLISHED STREET GRADE AND NOT LESS THAN FIVE AND ONE-HALF FEET (5-1/2') BELOW GROUND SURFACE.
10. HYDRANT INSTALLATION: THE CONTRACTOR IS RESPONSIBLE TO FACE ALL HYDRANT STEAMER NOZZLES TOWARD THE PAVEMENT, PRIOR TO TESTING AND CHLORINATION OF WATER MAINS.
11. THE MUNICIPALITY SHALL REQUIRE THAT THE PROFESSIONAL ENGINEER SHALL TAKE ACTUAL FIELD MEASUREMENTS OF THE MAIN DURING INSTALLATION AND SHALL FURNISH THE COMMISSIONER OR HIS AUTHORIZED AGENT WITH THE RECORD PRINTS OF THE SAME. THE CITY OF CLEVELAND WILL REQUIRE THE DELIVERY OF SUCH RECORD (AS BUILT) PRINTS BEFORE FINAL TEST OF THE MAIN. THIS PRECLUDES THE USE OF THE WATER MAIN UNTIL STERILIZED AND THE WATER PRONOUNCED FIT FOR HUMAN CONSUMPTION.

WATERWORK NOTES

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PAYMENT

12. AS PER THE CITY OF CLEVELAND WATER DEPARTMENT, IT IS STIPULATED THAT OPERATION OF ANY VALVE OR ALTERATIONS OF ANY PART OF THE WATER SYSTEM BY CONTRACTORS OR THEIR EMPLOYEES BE PROHIBITED, CALL MR. RICHARD KMETZ AT 664-2342 TO HAVE THE VALVES OPERATED.
13. ALL WATER SERVING CORPORATION BOXES, METER VAULTS, ETC. WILL BE INSTALLED IN GRASS AREAS.
14. THE BUILDER/DEVELOPER/OR AGENT IS HEREBY NOTIFIED TO FURNISH SPACE AND ACCESS FOR WATER METER INSTALLATION IN BASEMENT OR LOWEST LEVEL OF SAID PREMISES. PIPING AND METER INSTALLATION WILL BE PER CLEVELAND WATER DEPARTMENT STANDARDS.
15. WATER FOR BUILDING PURPOSES WILL BE AVAILABLE AT FIRE HYDRANTS. PERMITS TO USE HYDRANTS WILL BE OBTAINED FROM THE PERMITS AND SALES UNIT AT 664-2444 (EXT 5201).
16. WIRE FOR READOMATIC INSTALLATION MUST BE RUN BY THE BUILDER/DEVELOPER. WIRE CAN BE SECURED BY CONTACTING 271-4027.
17. IN THOSE AREAS WHERE IT IS REQUIRED TO LOWER THE WATER MAIN TO CLEAR AN OBSTACLE AND THE COVER WILL BE GREATER THAN 8', IT SHALL BE REQUIRED THAT BENDS BE INSTALLED TO BRING THE WATER MAIN UP TO THE STANDARD 6' OF COVER.
18. WHEN A WATER SERVICE CONNECTION IS DISTURBED OR DISCONNECTED DURING TRENCH OR SHEETING EXCAVATION, THE CONTRACTOR WILL REPLACE THE WATER CONNECTION WITH ALL NEW MATERIAL FROM THE CORPORATION SHUT-OFF TO THE CURB SHUT-OFF VALVE.
19. USE SUITABLE BACKFILL MATERIAL AND COMPACT SUFFICIENTLY IN THOSE AREAS WHERE MAINS AND WATER SERVICE CONNECTIONS ARE EXPOSED.
20. ALL WATER WORK REQUIRED WILL BE AT THE EXPENSE OF THE PROJECT AND SHALL CONFORM TO CLEVELAND WATER DEPARTMENT STANDARDS.
21. THE INFORMATION SHOWN ON CLEVELAND WATER DEPARTMENT'S LETTER AND STRIP MAPS ARE TAKEN FROM EXISTING AVAILABLE RECORDS.
22. A TWO YEAR WARRANT ON ALL WATER SERVICE CONNECTIONS IN THE SEWER EXCAVATION AREAS WOULD BE THE RESPONSIBILITY OF THE CONTRACTOR SHOULD ANY LEAKS OR REPAIRS BE NEEDED.
23. CONTACT MR. RICHARD KMETZ, SUPERVISOR OF THE INSPECTION AND ENFORCEMENT UNIT OF THIS DIVISION AT 664-2342 THREE DAYS PRIOR TO THE START OF THE PROJECT.
24. PRESENTLY REQUIRED BEHIND ALL TEES, HORIZONTAL BENDS, AND HYDRANT ELBOWS, THE CONTRACTOR SHALL INSTALL A CONCRETE THRUST BLOCK BEHIND ALL BRANCH SLEEVES IN WHICH THE NOMINAL TAP SIZE IS ONE-HALF OR GREATER THAN THE NOMINAL DIAMETER OF THE PIPE TO BE TAPPED. THE CONCRETE PIER SHALL BE IN PLACE AND CURED PRIOR TO THE HYDROSTATIC TESTING OF THE CONNECTING MAINS. THE CONCRETE PIER BEHIND THE TAPPING SLEEVE, AS HEREIN STATED, IS REQUIRED ON ALL CONNECTING MAINS AND SERVICE CONNECTIONS.

ITEM 638 - VALVE BOX ADJUSTED TO GRADE WORK INCLUDED

THE CONTRACTOR SHALL ADJUST THE EXISTING VALVE BOX TO FIT THE REVISED GRADE BY EXCAVATION AROUND THE BOX AND RAISING OR LOWERING THE EXISTING EXTENSION SECTION OR, IF REQUIRED BY THE ENGINEER, A NEW EXTENSION SECTION (PAID FOR AS MISCELLANEOUS METAL). BACKFILL SHALL BE TAMPED UNDER THE ADJUSTED VALVE BOX TO ENSURE THE BOX HAS A FIRM FOOTING.

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM 814 "VALVE BOX ADJUSTED TO GRADE", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE VALVE BOX, EXCAVATION, TAMPING EARTH UNDER VALVE BOX, BACKFILL, SEEDING, AND ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

ITEM 604 - MANHOLE ADJUSTED TO GRADE, AS PER PLAN WORK INCLUDED

THE CONTRACTOR SHALL ADJUST THE EXISTING MANHOLE FRAME AND COVER TO FIT THE REVISED GRADE BY EXCAVATING AROUND THE FRAME AND RAISING OR LOWERING THE FRAME AND COVER BY ADDING TO OR REMOVING THE EXISTING BRICKS AND MORTAR. USE OF ADJUSTING RINGS SHALL NOT BE PERMITTED. IF REQUIRED BY THE ENGINEER, NEW FRAMES AND/OR COVERS WILL BE PAID FOR UNDER "MISCELLANEOUS METAL".

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM 604 "MANHOLE ADJUSTED TO GRADE, AS PER PLAN" WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE MANHOLE FRAME AND COVER, EXCAVATION, TAMPING EARTH, BRICK AND MASONRY MATERIAL, AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

ITEM 638 - SERVICE BOX ADJUSTED TO GRADE WORK INCLUDED

THE CONTRACTOR SHALL ADJUST THE EXISTING SERVICE STOP BOX TO FIT THE REVISED GRADE BY EXCAVATING AROUND THE BOX AND RAISING OR LOWERING THE EXISTING SECTION. IF REQUIRED BY THE ENGINEER, A NEW SECTION WILL BE PAID FOR UNDER "MISCELLANEOUS METAL WORK". BACKFILL SHALL BE TAMPED UNDER THE ADJUSTED SERVICE STOP BOX TO ENSURE THE BOX HAS A FIRM FOOTING.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH ITEM 814 "SERVICE BOX ADJUSTED TO GRADE", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR ADJUSTING THE SERVICE STOP BOX, EXCAVATION, TAMPING, BACKFILL, SEEDING, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

ITEM SPECIAL - FURNISHING AND SETTING 6" HYDRANT COMPLETE

THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING NEW 6" HYDRANT ASSEMBLIES TO GRADE AS DETAILED ON SHEET NO. 107A AND AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, INCLUDING EXCAVATION, REMOVING OF EXISTING HYDRANTS AND APPURTENANCES, INSTALLING NEW 6" ASSEMBLIES, SHEETING AND BRACING, BACKFILL, LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO MAKE THIS A COMPLETE ITEM OF WORK.

SETTING

(A) GENERAL LOCATION: THE HYDRANT SHALL BE LOCATED IN A MANNER TO PROVIDE COMPLETE ACCESSIBILITY, AND IN SUCH A MANNER THAT THE POSSIBILITY OF DAMAGE FROM VEHICLES OR INJURY TO PEDESTRIANS WILL BE MINIMIZED.

(B) LOCATION REGARDING CURB LINES: WHEN PLACED BEHIND CURB THE HYDRANT SHALL BE SET SO THAT THERE IS A MINIMUM OF TWO (2) FEET OF CLEARANCE FROM THE FACE OF THE CURB TO THE CLOSEST PORTION OF THE HYDRANT.

(C) LOCATION REGARDING SIDEWALK: WHEN SET IN THE LAWN SPACE BETWEEN THE CURB AND THE SIDEWALK OR BETWEEN THE SIDEWALK AND THE PROPERTY LINE, NO PORTION OF THE HYDRANT OR NOZZLE CAP SHALL BE WITHIN 6 INCHES OF THE SIDEWALK.

(D) WHERE VERTICAL DEFLECTION BY USE OF VERTICAL BENDS OR OFFSETS CANNOT BE ACHIEVED DUE TO OBSTRUCTION, THE NEW HYDRANT BRANCH TEE MAY BE RELOCATED DOWNWARD TO ALLOW PROPER DEFLECTION AND CLEARANCE OF OBSTRUCTION. RETAINED MECHANICAL JOINT FITTINGS SHALL BE USED TO BRING RELOCATED HYDRANT TO PROPER GRADE AFTER CROSSING OBSTRUCTION.

(E) POSITION OF NOZZLE: THE HYDRANT SHALL STAND PLUMB WITH THE NOZZLES POINTING TOWARD THE ROAD AT ANGLE OF 45 DEGREES THEREFROM. WHERE THE HYDRANT BRANCHING IS PARALLEL WITH OR NOT AT RIGHT ANGLES TO THE CURB, THE CONTRACTOR SHALL RELEASE SWIVEL HEAD BOLTS AND ADJUST THE HYDRANT NOZZLES TO FACE THE ROAD AT THE PROPER ANGLE. A HYDRANT WITHOUT SWIVEL HEADS WILL BE ADJUSTED BY THE CITY OF CLEVELAND WHERE NECESSARY TO CORRECT THE ANGLE OF THE NOZZLES. THE ELEVATION SHALL CONFORM TO THE ESTABLISHED GRADE WITH TOPS OF FROST CASING AT LEAST FOUR INCHES ABOVE GRADE.

(F) DRAINAGE AT HYDRANT: DRAINAGE SHALL BE PROVIDED AT THE BASE OF THE HYDRANT BY FILLING AROUND THE ELBOW WITH COURSE GRAVEL OR CRUSHED STONE TO AT LEAST 6 INCHES ABOVE THE WASTE OPENING. WHEREVER A HYDRANT IS SET IN ROCK, CLAY OR OTHER IMPERVIOUS SOIL, THE TRENCH SHALL BE WIDENED AND DEEPEMED ON EACH SIDE OF THE HYDRANT BASE AND THE SPACE SHALL BE FILLED COMPACTLY WITH COURSE GRAVEL OR BROKEN STONE MIXED WITH COURSE SAND OF SUFFICIENT QUANTITY TO ABSORB ALL WATER TO BE DRAINED FROM THE HYDRANT WHEN THE VALVE IS CLOSED.

(G) ANCHORAGE FOR HYDRANT: THE HYDRANT SHALL BE SET ON A STONE SLAB OR SIMILAR FOUNDATION AND THE BASE OF THE HYDRANT AND THE HYDRANT TEE SHALL BE WELL BRACED AGAINST UNEXCAVATED EARTH AT THE END OF THE TRENCH WITH CONCRETE BACKING AND IT SHALL BE TIED TO THE PIPE WITH SUITABLE RODS OR CLAMPS AS DIRECTED BY THE ENGINEER.

(H) CLEANING: THE HYDRANT SHALL BE THOROUGHLY CLEANED OF DIRT AND FOREIGN MATERIAL BEFORE SETTING.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - FURNISHING AND SETTING 6" HYDRANT COMPLETE" SHALL INCLUDE ALL EXCAVATION, SHEETING, REMOVING EXISTING HYDRANT, INSTALLING NEW 6" HYDRANT ASSEMBLY, TESTING, PAINTING, BACKFILLING AND FURNISHING ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN PLACE.

WATERWORK NOTES

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BY: _____
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CUYAHOGA COUNTY
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CHARDON ROAD

ITEM SPECIAL - WATER SERVICE CONNECTION

GENERAL

ALL NEW AND UNUSED MATERIALS SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED IN THE WATER SERVICE CONNECTION WORK AS HEREIN STIPULATED.

1. WHERE A SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING OR LOCATED BETWEEN THE WATER MAIN AT THE "CORPORATION SHUT-OFF VALVE" (AT THE MAIN) AND THE "CURB SHUT-OFF VALVE" OR WHERE A SERVICE CONNECTION IS DISTURBED OR DISCONNECTED DURING THE SHEETING OR TRENCH OR SHEETING EXCAVATION THE SERVICE CONNECTION SHALL BE TOTALLY REPLACED WITH NEW AND UNUSED MATERIALS FROM THE "CORPORATION SHUT-OFF VALVE" (AT THE MAIN) AND THE "CURB SHUT-OFF VALVE".

2. WHERE A SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING OR EXTENDING ON THE "PROPERTY SIDE" OF THE CURB SHUT-OFF VALVE ALL OF THE SERVICE CONNECTION PIPING MATERIALS AND FITTINGS SHALL BE TOTALLY REPLACED FROM THE EXISTING CURB SHUT-OFF VALVE TO THE NEW CURB SHUT-OFF VALVE, INCLUDING THE VALVE BOX, AS A RESULT OF THE WATER SERVICE CONNECTION "EXTENSION".

3. WHERE AN EXISTING WATER SERVICE IS DISTURBED, BROKEN, OR NEEDS TO BE LOWERED, RAISED, AND/OR EXTENDED AND THAT SERVICE CONNECTION IS OF GALVANIZED OR LEAD PIPING MATERIAL THE SERVICE CONNECTION SHALL BE TOTALLY REPLACED WITH NEW AND UNUSED COPPER, TYPE "K", FROM THE "CORPORATION SHUT-OFF" (AT THE MAIN) AND "CURB SHUT-OFF VALVE".

4. WHERE A WATER SERVICE CONNECTION IS DISTURBED FOR LOWERING, RAISING AND/OR EXTENDING, IT SHALL BE EXTENDED IN A STRAIGHT PROLONGATION OF THE SERVICE CONNECTION. WHERE THE "PROPERTY SIDE" OF THE SERVICE CONNECTION PIPING IS NOT IMMEDIATELY CONTIGUOUS TO THE WATER SERVICE CONNECTION CURB SHUT-OFF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO RECONNECT THE WATER SERVICE CONNECTION SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO INSTALL THE MATERIAL AND COMPLETE THE RECONNECTION TO RESTORE SERVICE; HOWEVER, ANY RECONNECTION OF THE WATER SERVICE CONNECTION WHERE "PROPERTY SIDE" OF THE SERVICE CONNECTION IS NOT IMMEDIATELY CONTIGUOUS TO THE CURB SHUT-OFF VALVE MUST BE MADE PARALLEL WITH THE STREET CENTERLINE OR STREET RIGHT-OF-WAY FROM THE CURB SHUT-OFF VALVE. IF UPON INSPECTION OF THE "PROPERTY SIDE" PIPING, IT IS FOUND THAT THE EXISTING PIPING IS UNSUITABLE FOR SUCH RECONNECTION, THE CONNECTION SHALL NOT BE DISTURBED UNTIL SUCH TIME AS THE MUNICIPALITY HAS ARRANGED FOR REPLACEMENT OF THE SERVICE CONNECTION.

5. WHERE A CONNECTION IS INADVERTANTLY DAMAGED OR BROKEN AND SUCH WATER SERVICE CONNECTION WAS NOT ORIGINALLY NEEDED TO BE DISTURBED ONLY THAT DAMAGED PORTION NEEDS TO BE REPLACED EXCEPT IF THAT CONNECTION IS FOUND TO BE GALVANIZED OR LEAD PIPING MATERIAL IN SUCH CASE THAT THE WATER SERVICE CONNECTION SHALL BE TOTALLY REPLACED AS INDICATED IN NOTE (3) ABOVE.

6. WHERE WATER SERVICE CONNECTION MUST BE LOWERED TO PROVIDE THE REQUIRED ONE (1) FOOT CLEARANCE BETWEEN THE SEWER OR CULVERT STRUCTURE IS 12" OR LARGER THE LOWERED WATER SERVICE CONNECTION SHALL INCLUDE A MINIMUM ONE (1) FOOT THICK FROSTPROOF INSULATION ENVELOPE EQUAL TO MITCOLITE OR GILSULATE 500xr.

7. WHERE WATER SERVICE CONNECTION WORK IS REQUIRED BETWEEN THE "CORPORATION SHUT-OFF VALVE" (AT THE MAIN) AND THE "CURB SHUT-OFF VALVE" THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, SHEETING, BACKFILLING, PAVEMENT REPLACEMENT, SIDEWALK REPLACEMENT, AND SEEDING OR SODDING AS REQUIRED. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS REQUIRED FOR THE CONNECTION WORK BUT THE DIVISION OF WATER WILL MAKE THE CONNECTION CHANGES. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENT FOR AND ALL PAYMENT FOR DIVISION OF WATER LABOR INCURRED IN THE WATER SERVICE CONNECTION WORK. DIVISION OF WATER LABOR CHARGES FOR WATER SERVICE CONNECTION LOWERING, RAISING, AND/OR EXTENDING MAY BE OBTAINED FROM THE DIVISION OF WATER, PERMITS AND SALES SECTION, PHONE:(664-2444)

8. WHERE A WATER SERVICE CONNECTION IS DISTURBED OR DISCONNECTED DURING TRENCH OR SHEETING EXCAVATION FOR WATER MAIN WORK OR ANY OTHER KINDS OF CONSTRUCTION EITHER FOR THE CONTRACTORS CONVENIENCE OR OTHERWISE THE SERVICE CONNECTION SHALL BE TOTALLY REPLACED WITH NEW AND UNUSED COPPER, TYPE "K", FROM THE "CORPORATION SHUT-OFF VALVE" (AT THE MAIN) AND THE "CURB SHUT-OFF VALVE".

9. SUITABLE BACKFILL MATERIAL SHALL BE PROVIDED WHERE WATER MAINS OR WATER SERVICE CONNECTIONS HAVE BEEN EXPOSED. ALL BACKFILL OVER THE WATER SERVICE CONNECTION SHALL BE SUFFICIENTLY COMPACTED WITHOUT INJURING THE SAME.

10. ALL EXPENSE RESULTING FROM ANY AND ALL WATERWORK IN THE PROJECT SHALL BE INCLUDED IN THE PROJECT AND SHALL BE THE RESPONSIBILITY OF THE MUNICIPALITY OR CONTRACTOR PERFORMING THE WORK.

11. A TWO (2) YEAR WARRANTY ON ALL WATER SERVICE CONNECTION WORK SHALL BE PROVIDED EITHER THE MUNICIPALITY OR THE CONTRACTOR AND WILL BE THE RESPONSIBILITY OF THE MUNICIPALITY OR CONTRACTOR PERFORMING THE WORK.

12. CONTACT FRANK MALETESTA, SUPERVISOR OF THE INSPECTION AND ENFORCEMENT UNIT OF THE DIVISION OF WATER, AT LEAST THREE (3) DAYS BEFORE BEGINNING WORK. (664-2444)

PAYMENT

THE FOLLOWING PAY ITEMS ARE LISTED IN THE GENERAL SUMMARY FOR WATER SERVICE CONNECTION WORK:

ITEM SPECIAL - COPPER WATER TUBING 2000 L.F.

THE CONTRACT UNIT PRICE BID FOR EACH ITEM SPECIAL, CLASSIFIED BY SIZE, SHALL INCLUDE THE EXCAVATION, BACKFILLING, TAPPING AND FURNISHING OF ALL LABOR, TOOLS, NEW MATERIAL, AND EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN PLACE AS SHOWN. SEEDING, SODDING AND REPAVING SHALL ALSO BE INCLUDED IF NOT PAID FOR SEPARATELY IN THE PLANS.

IF NEW CURB BOXES ARE REQUIRED, AS DETERMINED BY THE ENGINEER, THEY SHALL BE FURNISHED AND PAID FOR UNDER "ITEM SPECIAL - MISCELLANEOUS METAL WORK".

WATERWORK NOTES

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ITEM SPECIAL- DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

(A) THE CONTRACTOR SHALL UNDER THIS ITEM, FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, AND BACKFILLING. ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. IN GENERAL THIS WORK SHALL INCLUDE THE FURNISHING, LAYING, CONNECTING, PAINTING AND TESTING OF PIPE AND FITTINGS, THE EXCAVATION, SHEETING AND SHORING, AND BACKFILLING. IF SO NOTED ON THE CONTRACT DRAWINGS, THE CUTTING INTO, REMOVAL AND STORAGE OF EXISTING MAINS AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED, SHOWN OR ORDERED.

(B) IN MAKING THE CONNECTION TO EXISTING MAINS WHERE BRANCH SLEEVES CAN BE USED, THE CONTRACTOR SHALL SUPPLY THE SAME. THE DIVISION OF WATER WILL INSTALL THE BRANCH SLEEVE AND MAKE THE PRESSURE TAP IN ACCORDANCE WITH "WORK TO BE DONE BY THE CITY". IF THE INSTALLATION OF BRANCH SLEEVES AND VALVES CANNOT BE ACCOMPLISHED, THE CONTRACTOR WILL BE REQUIRED TO USE TEES AND SLEEVES TO COMPLETE THE CONNECTION. THE CONTRACTOR WILL BE REQUIRED TO MAKE THE NECESSARY EXCAVATION, BACKFILL AND REPAVING (IF NOT PAID FOR SEPARATELY AS PART OF THE PLANS).

DUCTILE-IRON PIPE AND FITTINGS

(A) ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN ALL RESPECTS IN ACCORDANCE WITH, AND SHALL MEET THE REQUIREMENTS OF THE LATEST "AMERICAN NATIONAL STANDARD" SPECIFICATIONS FOR DUCTILE-IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS OR SANDLINED MOLDS, AND DUCTILE IRON FITTINGS FOR WATER AND OTHER LIQUIDS, ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION; WHICH STANDARDS EXCEPT AS HEREIN MODIFIED ARE MADE A PART OF THESE SPECIFICATIONS. PIPE UP TO AND INCLUDING 20 INCHES SHALL HAVE RETAINED MECHANICAL JOINT PIPE AND FITTINGS. BOLTLESS RESTRAINED PIPE AND FITTINGS SHALL BE USED WHERE CALLED FOR ON THE CONTRACT DRAWINGS. PIPE 24-INCH AND LARGER SHALL HAVE BOLTLESS RESTRAINED SLIP-ON JOINTS WITHIN "RESTRAINED DISTANCE" SHOWN ON THE CONTRACT DRAWINGS.

(B) ALL PIPE AND FITTINGS SHALL BE CEMENT LINED AND OF THE SIZE AND THICKNESS AND PRESSURE CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWING OR DIRECTLY SPECIFIED. ALL FITTINGS ON PIPE SIZES UP TO AND INCLUDING 12-INCHES SHALL BE OF THE SHORT BODIED TYPE.

(C) THE CONTRACTOR SHALL FURNISH CENTRIFUGAL CAST DUCTILE-IRON CEMENT LINED PIPE. DUCTILE-IRON METAL SHALL HAVE A MINIMUM TENSILE STRENGTH OF 60,000 PSI, MINIMUM YIELD STRENGTH OF 42,000 PSI AND MINIMUM ELONGATION OF 10 PERCENT AND SHALL BE FOR THE THICKNESS CLASS NOTED ON THE CONTRACT DRAWINGS OR DIRECTLY SPECIFIED. PIPE MAY BE FURNISHED IN 18 OR 20 FOOT NOMINAL LAYING LENGTHS. THE CENTRIFUGALLY CAST DUCTILE SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD ANSI A21.51-1976/AWWA C151-76 AND ALL SUBSEQUENT AMENDMENTS THERETO. PIPE ON STRAIGHT RUNS SHALL HAVE PUSH-ON SINGLE RUBBER-GASKET COMPRESSION JOINTS, ALL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER-GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS. ALL PIPE SHALL BE CEMENT LINED. FOR PIPE SIZES UP TO AND INCLUDING 20-INCHES, RETAINED MECHANICAL JOINTS SHALL BE FURNISHED AT BENDS, TEES, CROSSES, SPECIAL FITTINGS AND BETWEEN VERTICAL OFFSETS OR BENDS, ON HYDRANT BRANCHES AND SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH E, "RETAINED MECHANICAL JOINTS" OF THE "JOINTS" SUBSECTION.

(D) THE CONTRACTOR SHALL FURNISH DUCTILE-IRON CEMENT LINED FITTINGS. ALL DUCTILE-IRON FITTINGS ON PIPE SIZES 16" AND LARGER SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.10-82/AWWA C110-82 AND ALL SUBSEQUENT AMENDMENTS THERETO. METAL FOR FITTINGS SHALL CONFORM TO AMERICAN NATIONAL STANDARD ANSI A21.10-82. ALL FITTINGS SHALL BE OF THE SHORT BODIED TYPE IN ACCORDANCE WITH ANSI/AWWA C153/A21.53-84 AND ALL SUBSEQUENT AMENDMENTS THERETO.

(E) STANDARD THICKNESS AND PIPE CLASS TABLES

THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE SHALL CONFORM TO THE FOLLOWING TABLE:

STANDARD THICKNESS OF CENTRIFUGALLY CAST,
DUCTILE IRON PIPE

WORKING SIZE		STANDARD THICKNESS				FITTINGS CLASS
		CLASSES	52	53	54	
SIZE	PRESSURE	52	53	54	56	PSI
4"	350	.29	.32	.35	.41	350
6"	350	.31	.34	.37	.43	350
8"	350	.33	.36	.39	.45	350
10"	350	.35	.38	.41	.47	350
12"	350	.37	.40	.43	.49	350
16"	350	.40	.43	.46	.52	350
20"	350	.42	.45	.48	.54	350
24"	350	.44	.47	.50	.56	350
30"	350	.47	.51	.55	.63	250
36"	350	.53	.58	.63	.73	250
42"	350	.59	.65	.71	.83	250
48"	350	.65	.72	.79	.93	250

(F) ALL FITTINGS, UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS, SUCH AS BENDS, TEES, CROSSES, HYDRANT BRANCHES, ETC. SHALL HAVE BELL AND BELL, BELL AND PLAIN ENDS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH PIPE OR FITTING PLAIN END SEALING GASKET AND BOLTED FOLLOWER GLAND. MECHANICAL JOINT FITTINGS SHALL BE THE MECHANICAL JOINTED BOLTED STUFFING-BOX TYPE IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER-GASKET JOINTS FOR DUCTILE IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS. ALL FITTINGS SHALL BE CEMENT LINED. ALL MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH E: "RETAINED MECHANICAL JOINTS" OF THE JOINTS SUBSECTION. PIPE AND FITTINGS WITHIN "RESTRAINED DISTANCE" ON PIPE SIZES 24-INCH AND LARGER SHALL BE FURNISHED WITH BOLTLESS RESTRAINED SLIP-ON JOINTS.

(G) WHERE "RESTRAINED DISTANCES" ARE SHOWN ON THE PLANS OR DIRECTLY SPECIFIED, PIPE AND FITTINGS HAVING APPROVED SLIPON SINGLE RUBBER-GASKET BOLTLESS RESTRAINED TYPE JOINTS SHALL BE FURNISHED.

(H) GLANDS FOR ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL BE DUCTILE-IRON. BOLTS AND NUTS SHALL BE CORROSION RESISTANT, HIGH-STRENGTH, LOW ALLOY STEEL IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI A21.11-80/AWWA C111-80 RUBBER GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS.

GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF GASKET.

(I) WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACKING THEREON SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE DUCTILE IRON PIPE RESEARCH ASSOCIATION "HANDBOOK OF DUCTILE IRON PIPE" OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(J) WHEREVER CHANGES IN LINES AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED THE MANUFACTURER'S MAXIMUM SUGGESTED JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(K) ON NEW OR EXTENDED WATER MAINS, UP TO AND INCLUDING 20-INCH DIAMETER WHERE WATER MAINS END OR TERMINATE AND ARE NOT CONNECTED TO EXISTING MAINS, RETAINED MECHANICAL BELL JOINT PLUGS ARE TO BE INSTALLED. ON MAINS 24" AND LARGER AN APPROVED TYPE RESTRAINED CAP/PLUG SHALL BE FURNISHED AND INSTALLED. PLUGS CAPS SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2")-INCH TAPS FOR DRAIN AND AIR RELIEF CONNECTIONS.

(L) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID SHORT PATTERN SLEEVES HAVING MECHANICAL BELL JOINTS. MECHANICAL BELL JOINT SLEEVES SHALL BE OF THE RETAINED TYPE AS SPECIFIED IN PARAGRAPH E, "RETAINED MECHANICAL JOINTS", OF THE "JOINTS" SUBSECTION.

(M) TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED IN ACCORDANCE WITH THESE SPECIFICATIONS.

(N) BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

CEMENT LINING

ALL PIPE AND FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD A21.4-1980 (AWWA C104-80) AND ALL SUBSEQUENT AMENDMENTS THERETO.

MARKING

ALL PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT AND OTHER ELEMENTS OF IDENTIFICATION.

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO ANSI B16.1, 125 LB. DRILLING, UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED.

LAYING

(A) PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPE AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING AND FITTINGS FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF THE PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER, BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE LAID, SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK, AND WHEN LAID, SHALL CONFORM TO THE LINES AND GRADES. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION.

(C) PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST AMERICAN NATIONAL STANDARD ANSI/AWWA C600-77, INSTALLATION OF GRAY AND DUCTILE CAST IRON WATER MAINS AND APPURTENANCES AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION.

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

JOINTS

(A) FLANGED JOINTS

(1) FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINED FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO ANSI B16.1, 125 LBS. EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO (2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS.

(2) ALL BOLTS AND NUTS USED IN THE FINISHED WORK FOR FLANGES SHALL BE MADE OF SILICON BRONZE (ASTM B 98-74A, ALLOY A) OR STAINLESS STEEL (ASTM A 276-75, TYPE 302). THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COARSE THREAD (N.C.). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVY. BOLTS AND NUTS SHALL BE DELIVERED TO THE FIELD FREE FROM GREASE, RUST AND DIRT AND SHALL BE PROPERLY PROTECTED FROM MOISTURE AND DIRT IN THE FIELD. GASKETS FOR FLANGED PIPE SHALL BE 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(3) ALL FLANGES SHALL BE ACCURATELY FACED AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH A SEALANT IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED AND TAPPED FOR STUD BOLTS.

(B) SLIP-ON JOINTS

ALL PIPE UNLESS OTHERWISE REQUIRED, SHOWN ON CONTRACT DRAWING, DIRECTLY SPECIFIED OR CONNECTED TO FITTINGS, VALVES AND HYDRANTS SHALL HAVE SOCKET BY PLAIN END RUBBER-GASKET PUSH-ON JOINTS WITH RADIALLY COMPRESSED LOCKED IN PLACE RUBBER RING GASKETS APPROVED BY THE COMMISSIONER OF WATER AND HEAT. SLIP-ON COMPRESSION JOINTS SHALL CONFORM TO THE REGULAR AND SPECIAL REQUIREMENT FOR PUSH-ON JOINTS IN AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS.

(C) MECHANICAL JOINTS

ALL FITTINGS AND PIPE BELL ENDS CONNECTED TO FITTINGS, UNLESS OTHERWISE REQUIRED, SHOWN ON CONTRACT DRAWINGS, OR DIRECTLY SPECIFIED SHALL HAVE BELL OR PLAIN END JOINTS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH SEALING GASKET AND BOLTED DUCTILE-IRON FOLLOWER GLAND AND, WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, BE OF THE SPECIFIED RETAINED TYPE. BOLTS AND NUTS FOR MECHANICAL JOINTS SHALL BE CORROSION RESISTANT, HIGH STRENGTH, LOW ALLOY STEEL. MECHANICAL JOINTS SHALL CONFORM TO THE REGULAR AND SPECIAL REQUIREMENT THAT ALL GLANDS SHALL BE DUCTILE-IRON WITH JOINT DIMENSIONS AND TOLERANCES, BOLT HOLES AND SLOTS, GASKETS, RUBBER, QUALITY CONTROL, BOLTS AND NUTS AND MARKING BE IN CONFORMANCE WITH AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS. WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH E, "RETAINED MECHANICAL JOINTS". ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH G, "POLYETHYLENE ENCASEMENT."

(D) VICTAULIC TYPE COUPLINGS

(1) WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED, THE CONTRACTOR SHALL FURNISH AND INSTALL VICTAULIC TYPE COUPLINGS FOR CONNECTION OF DUCTILE IRON REDUCERS TO VALVES, CONCRETE PIPE OR STEEL PIPE. STEEL PIPE ENDS SHALL BE FABRICATED AND GROOVED AS INDICATED ON THE DRAWINGS. THE COUPLINGS SHALL BE ADAPTED FOR INSTALLATION ON SHOULDERED END CAST IRON SPACERS, REDUCERS AND FITTINGS AND DESIGNED FOR NOT LESS THAN THE WORKING PRESSURE NOTED ON THE CONTRACT DRAWINGS. COUPLINGS SHALL BE COMPOSED OF MALLEABLE IRON HOUSINGS HELD TOGETHER WITH STEEL BOLTS HEAT TREATED AND "HOT-DIP" GALVANIZED AND WITH A CONTINUOUS HOLLOW, MOLDED RUBBER SEALING RING, OF SUCH TYPE THAT THE SEAL BECOMES TIGHT AS THE PRESSURE WITHIN THE PIPE INCREASES. THE JOINTS SHALL BE CONSTRUCTED AND INSTALLED AND BE EQUAL IN ALL RESPECTS TO THOSE MANUFACTURED BY THE VICTAULIC COMPANY OF AMERICA. MALLEABLE HOUSINGS SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR MALLEABLE IRON CASTINGS ASTM DESIGNATION A 47-68". BOLTS SHALL BE MANUFACTURED BY THE COUPLING MANUFACTURER AND SHALL BE HEAT TREATED STEEL BOLTS HAVING 100,000 PSI. TENSILE STRENGTH. ALL BOLTS AND NUTS SHALL BE ZINC COATED BY THE "HOT-DIP" METHOD ACCORDING TO ASTM DESIGNATION A123.

WATERWORK NOTES

(2) ALL METAL PARTS OF THE COUPLINGS SHALL BE COATED AT THE SHOP WITH ONE COAT OF BITUMINOUS PRIMER FURNISHED BY THE SAME MANUFACTURER WHO FURNISHES THE COATINGS AS SPECIFIED UNDER "COATING".

(E) RETAINED MECHANICAL JOINTS

ON ALL PIPE AND FITTINGS AT BENDS, TEES, CROSSES, SPECIAL FITTINGS, BETWEEN VERTICAL OFFSETS OR BENDS, ON HYDRANT BRANCHES, ON VALVES AND HYDRANT BASE ELBOWS UP TO AND INCLUDING 20-INCH SIZE WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED BY "RESTRAINED DISTANCE", THE CONTRACTOR SHALL FURNISH AND INSTALL RETAINED TYPE MECHANICAL JOINTS. PIPE AND FITTING BELL JOINT AND GASKETS SHALL BE FURNISHED AS SPECIFIED. GLANDS FOR RETAINED MECHANICAL JOINTS SHALL BE BOLTED TYPE OF DUCTILE-IRON MATERIAL CONFORMING TO AMERICAN NATIONAL STANDARD ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS AND/OR CONFORMING WITH ASTM A 536-80 WITH THE ADDITIONAL REQUIREMENT THAT ALL SUCH GLANDS SHALL BE OF THE DUCTILE-IRON GRADE 60-42-10 MINIMUM REQUIREMENTS OF CENTRIFUGALLY CAST DUCTILE-IRON PIPE. RETAINED MECHANICAL JOINTS SHALL BE EQUIPPED WITH CUPPED END SQUARE HEAD CORROSION RESISTANT ALLOY STEEL OR COPPER-BEARING DUCTILE IRON SET SCREWS THREADED THROUGH TAPPED AND THREADED HOLES IN THE GLAND LIP. GLAND FLANGE SHALL BE THICKENED AND GLAND LIP SHALL BE EXTENDED TO PROVIDE FOR GLAND STRENGTH AND SET SCREW SIZE. NO SPLIT RETAINER GLANDS SHALL BE USED. LONGER BOLTS FOR JOINT ASSEMBLY SHALL BE FURNISHED WITH RETAINER GLANDS. SET SCREWS SHALL BE MINIMUM FIVE-EIGHTHS INCH (5/8") SIZE. NUMBER OF PERPENDICULAR SET SCREWS PER RETAINED JOINT SHALL BE: 4 FOR 4" PIPE, 6 FOR 6" PIPE, MINIMUM OF 8 FOR 8" PIPE, MINIMUM OF 12 FOR 10" PIPE, 16 FOR 12" PIPE, 24 FOR 16" PIPE, AND 28 FOR 20" PIPE. WEDGE ACTION TYPE RETAINED MECHANICAL JOINTS HAVING TWIST-OFF NUTS MAY BE USED IF APPROVED BY THE COMMISSIONER OF WATER AND HEAT AS TO SIZE, NUMBER AND BOLT SIZE. WHERE JOINT DEFLECTION IS NECESSARY FOR ALIGNMENT SUCH DEFLECTION SHALL BE LIMITED TO 3 DEGREES. SET SCREWS SHALL BE TIGHTENED AFTER JOINT IS MADE TO 75 FOOT-POUNDS TORQUE. SET-SCREW TIGHTENING SHALL BE DONE AFTER THE JOINT BOLTS HAVE BEEN TIGHTENED. SET SCREWS SHALL ALL BE MADE FINGER-TIGHT AND TIGHTENED TO MAXIMUM TORQUE BY ALTERNATING TO OPPOSITE SIDES. ALL RETAINED MECHANICAL JOINT RETAINER GLANDS SHALL BE OF A DESIGN APPROVED BY THE COMMISSIONER OF WATER AND HEAT. ALL RETAINED JOINTS SHALL BE RATED FOR 250 PSI PRESSURE. ALL RETAINED JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH G.

(F) BOLTLESS RESTRAINED SLIP-ON JOINTS

WHERE DUCTILE-IRON PIPE SIZE IS GREATER THAN 20-INCHES ON PIPE AND FITTINGS WHERE "TIED DISTANCE" IS REQUIRED OR SHOWN ALL RESTRAINT SHALL BE OF THE BOLTLESS RESTRAINED SLIP-ON JOINT TYPE AND SHALL EXTEND FOR A MINIMUM DISTANCE OF ONE (1) EIGHTEEN FOOT (18') LENGTH OF PIPE OUT OF BOTH ENDS OF FITTINGS. VALVES WITHIN "RESTRAINED DISTANCES" SHALL BE OF THE TYPE INDICATED ON THE CONTRACT DRAWINGS. BOLTLESS RESTRAINED SLIP-ON JOINTS SHALL BE OF A DESIGN APPROVED BY THE COMMISSIONER OF WATER AND HEAT.

(G) POLYETHYLENE ENCASEMENT

ALL MECHANICAL JOINTS, ALL RETAINED MECHANICAL JOINTS AND ALL PIPE AND FITTING WHERE SHOWN ON THE DRAWING OR WHERE REQUIRED SHALL BE POLYETHYLENE ENCASED. POLYETHYLENE ENCASEMENT FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS OR ANY JOINT REQUIRING BOLTS SHALL BE GENERALLY IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI/AWWA C105/A21.582 FOR POLYETHYLENE ENCASEMENT FOR DUCTILE-IRON PIPING FOR WATER AND OTHER LIQUIDS. MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS AND ALL BOLTED JOINTS SHALL HAVE DOUBLE POLYETHYLENE ENCASEMENT OF CLASS "C" (BLACK) FILM, METHOD "C" DOUBLING SHEET AND PROVIDING ONE FOOT (1') MINIMUM OVERLAP ON PIPE OR FITTING ON BOTH SIDES OF JOINT. ALL PIPE AND FITTINGS WHERE SHOWN ON THE DRAWINGS OR WHERE OTHERWISE REQUIRED TO BE POLYETHYLENE ENCASED SHALL BE ENCASED USING CLASS "C" FILM, METHOD "B". POLYETHYLENE ENCASEMENT SHALL BE SECURELY TAPED SNUG AROUND PIPE AND FITTINGS.

(H) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS AND RETAINED MECHANICAL JOINTS SHALL HAVE FIELD APPLIED THREE (3) COAT OF BITUMASTIC COATING PRIOR TO POLYETHYLENE ENCASEMENT.

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PAINTING

AFTER ERECTION AND BEFORE POLYETHYLENE ENCASEMENT, ALL EXPOSED OR DAMAGED COATING AND ALL BOLTS FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS, FLANGES AND VICTAULIC OR COMPRESSION TYPE BOLTED SLEEVED COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF KOPPERS BITUMASTIC SUPER TANK SOLUTION OR EQUIVALENT.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL DUPLICATE PRINTS OF ALL SHOP DRAWINGS FOR PIPE AND FITTINGS AND MISCELLANEOUS OR SPECIAL DETAILS OF PIPE AND FITTING JOINTS WHICH ARE NOT STANDARD CONSTRUCTION OR FULLY DETAILED IN THE REGULAR CATALOG OF THE COMPANY FURNISHING THE PIPE, FITTINGS AND SPECIALS. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

MEASUREMENT

THE NUMBER OF LINEAR FEET OF DUCTILE IRON PIPE AND CONNECTIONS TO BE PAID FOR SHALL BE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING. FOR CONNECTIONS BETWEEN NEW AND EXISTING MAIN, MEASUREMENT SHALL BE THE DISTANCE FROM CENTERLINE TO CENTERLINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

PAYMENT

THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT FOR "ITEM SPECIAL-WATER MAIN, DUCTILE IRON PIPE", CLASSIFIED AS TO SIZE AND CLASS WHICH PAYMENT SHALL BE FULL COMPENSATION FOR A COMPLETED WATER MAIN INSTALLATION IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS INCLUDING ALL LABOR, MATERIAL, EQUIPMENT, TOOLS, ETC. NECESSARY AND INCLUDING BUT NOT LIMITED TO EXCAVATION, BEDDING, BACKFILL, SURFACE RESTORATION, AND FURNISHING, LAYING, CONNECTING, TESTING, PAINTING, POLYETHYLENE ENCASED PIPE FITTINGS, AND JOINTS. THE PAY ITEM DESCRIPTIONS AND UNIT FOR THIS PROJECT ARE:

ITEM SPECIAL - "WATER MAIN, DUCTILE IRON PIPE"

MAINTENANCE OF TRAFFIC NOTES

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ITEM 614, MAINTAINING TRAFFIC

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELLING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	100 CU.YD.
ITEM 410 - TRAFFIC COMPACTED SURFACE, TYPE A OR B	300 CU.YD.
ITEM 608 - TEMPORARY BITUMINOUS WALK	1000 SQ. FT.
ITEM 616 - CALCIUM CHLORIDE	6 TONS
ITEM 616 - WATER	6 M GALS.

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

PLACEMENT OF ASPHALT CONCRETE

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT THAT ONE-WAY TRAFFIC WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES.

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF THE WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE LIMITED TO 500' OR BETWEEN INTERSECTIONS AND SHALL AT ALL TIMES BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 24" INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ITEM SPECIAL - LAW ENFORCEMENT OFFICER WITH PATROL CAR

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER (AND OFFICIAL PATROL CAR WITH WORKING TOP MOUNTED EMERGENCY FLASHING LIGHTS) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS:

- FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.
- DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE PROJECT ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE.

THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

RICHMOND HEIGHTS POLICE DEPARTMENT 457 RICHMOND ROAD RICHMOND HEIGHTS, OHIO 44143 PHONE: (216)486-1234.	EUCLID POLICE DEPARTMENT 545 E.222ND STREET EUCLID, OHIO 44123 PHONE: (216)289-2700
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LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM SPECIAL - LAW ENFORCEMENT OFFICER WITH PATROL CAR. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL - LAW ENFORCEMENT OFFICER	280 HOURS
ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR	280 HOURS

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

IF THE CONTRACTOR WISHES TO UTILIZE L.E.O.'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, HE MAY DO SO AT HIS OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614 MAINTAINING TRAFFIC.

DUST CONTROL

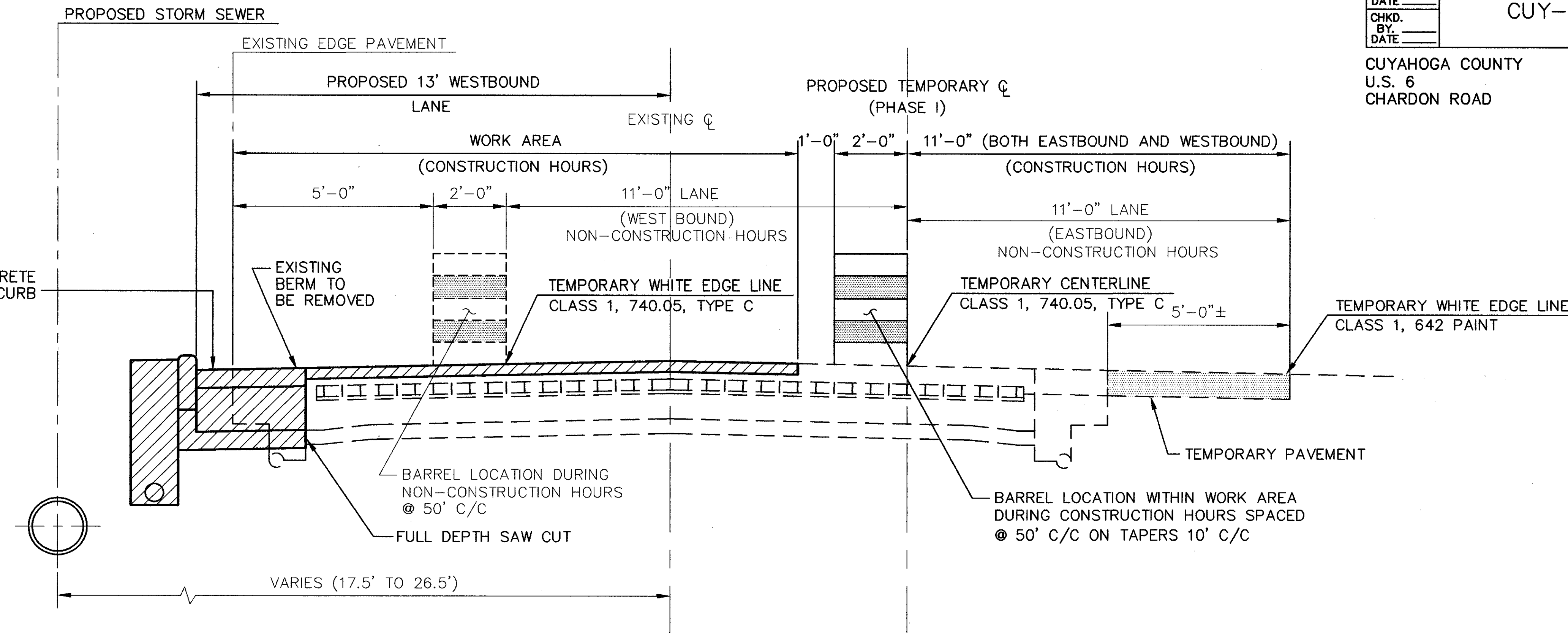
THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL PURPOSES AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616 - WATER	400 M GAL.
ITEM 616 - CALCIUM CHLORIDE	40 TONS

TEMPORARY WORK ZONE MARKINGS AND SIGNS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR TEMPORARY WORK ZONE PAVEMENT MARKINGS AND SIGNS PER THE REQUIREMENTS OF THE STANDARD CONSTRUCTION DRAWINGS:

ITEM 614 - TEMPORARY CENTER LINE, CLASS I, 642 PAINT	0.10 MILE
ITEM 614 - TEMPORARY CENTER LINE, CLASS I, 740.05 TYPE C	0.10 MILE
ITEM 614 - TEMPORARY EDGE LINE, CLASS I, 642 PAINT	0.10 MILE
ITEM 614 - TEMPORARY EDGE LINE, CLASS I, 740.05 TYPE C	0.10 MILE
ITEM 614 - TEMPORARY STOP LINE, CLASS I, 642 PAINT	100 LIN.FT.
ITEM 614 - TEMPORARY STOP LINE, CLASS I, 740.05 TYPE C	100 LIN.FT.
ITEM 614 - TEMPORARY CROSSWALK LINES, CLASS I, 642 PAINT	100 LIN.FT.
ITEM 614 - TEMPORARY CROSSWALK LINES, CLASS I, 740.05 TYPE C	100 LIN.FT.



NOTE: ALL OPEN CUT LATERAL CROSSINGS FOR THE PROPOSED STORM SEWER AND THE EXISTING SANITARY SEWER SHALL BE PLATED AT THE END OF EACH WORKING DAY TO ALLOW FOR TWO LANE TRAFFIC TO BE MAINTAINED DURING NON-CONSTRUCTION HOURS.

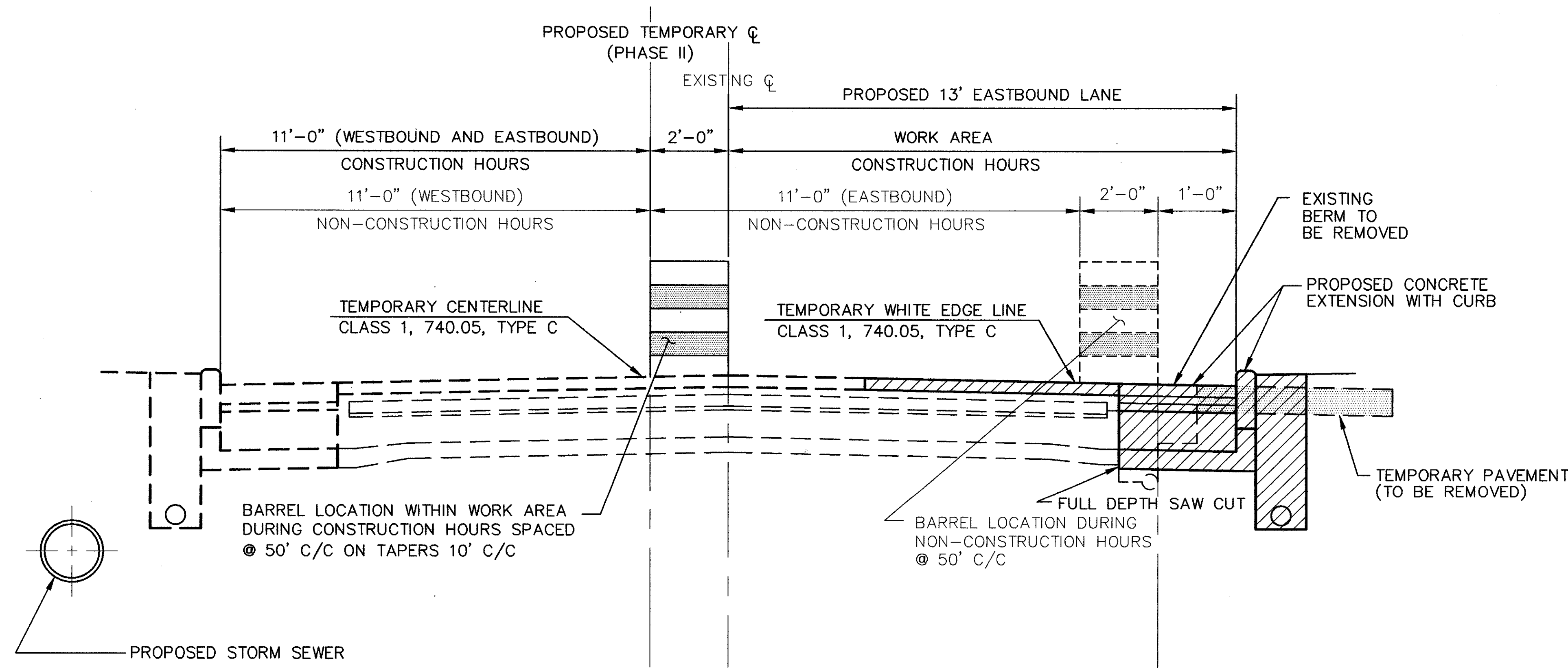
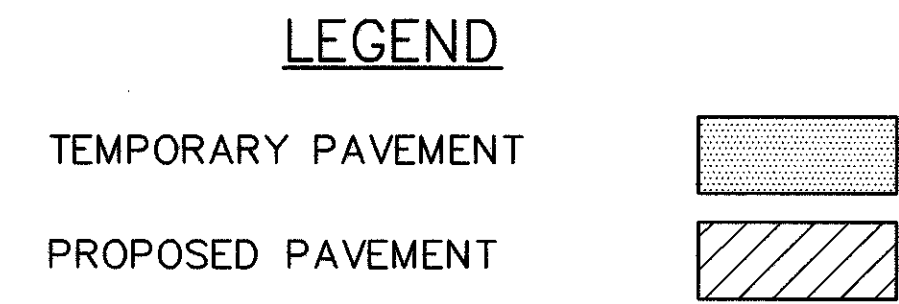
THE CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC THROUGH WORK ZONE AS PER MC 97.11.

THE CONTRACTOR SHALL REMOVE AND REPLACE ALL CUL-DE-SAC INTERSECTIONS IN TWO (2) PHASES SO THAT INGRESS AND EGRESS CAN BE MAINTAINED DURING CONSTRUCTION.

THE CONTRACTOR SHALL REMOVE AND REPLACE ALL TWO (2) LANE COMMERCIAL DRIVES IN TWO (2) PHASES SO THAT INGRESS AND EGRESS CAN BE MAINTAINED DURING CONSTRUCTION.

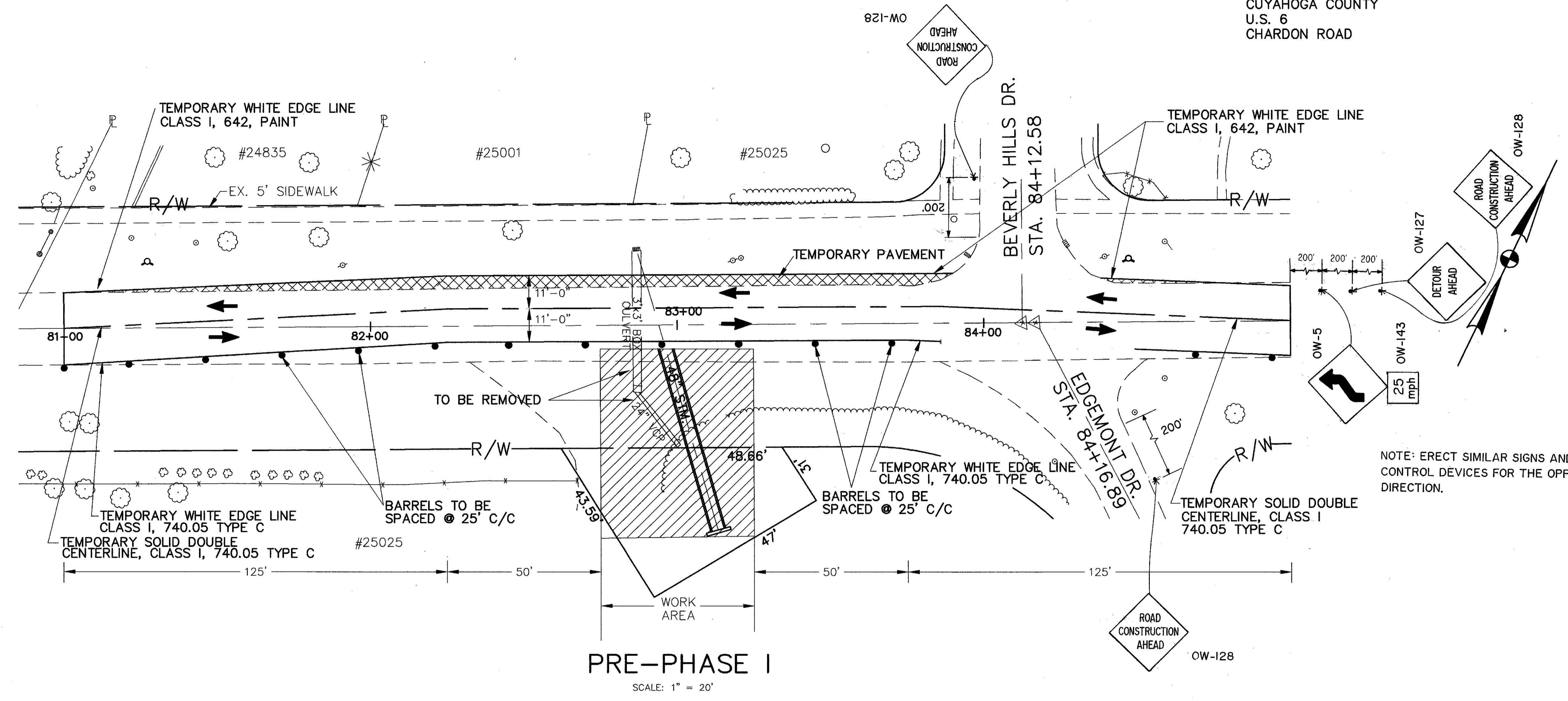
MAINTENANCE OF TRAFFIC (PHASE I)

SCALE 1" = 2' STA. 60+14.51 TO 106+00

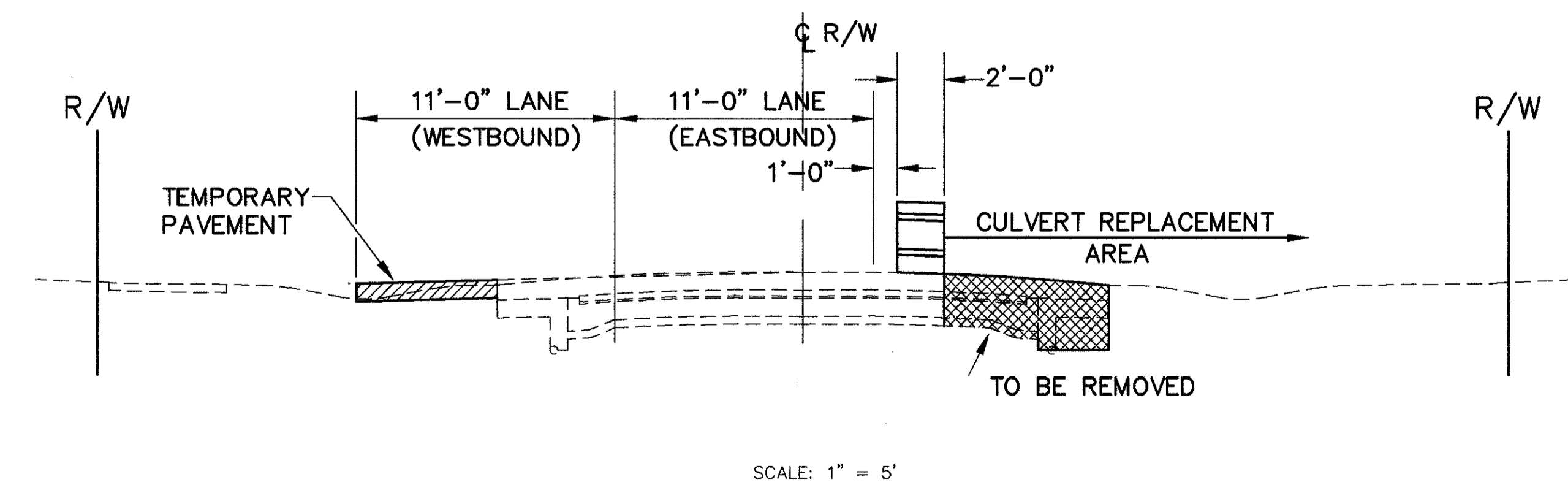


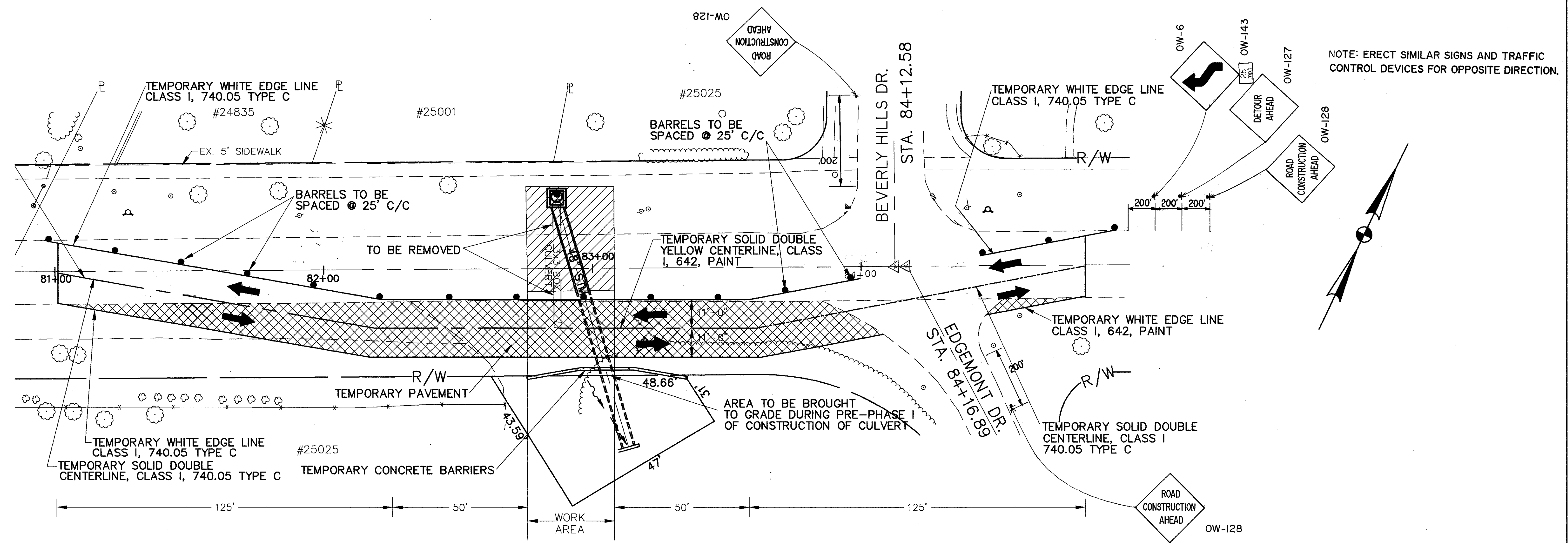
MAINTENANCE OF TRAFFIC (PHASE II)

SCALE 1" = 2' STA. 60+14.51 TO 106+00



TYPICAL SECTION AROUND CULVERT
STA. 82+86
(PRE-PHASE I)

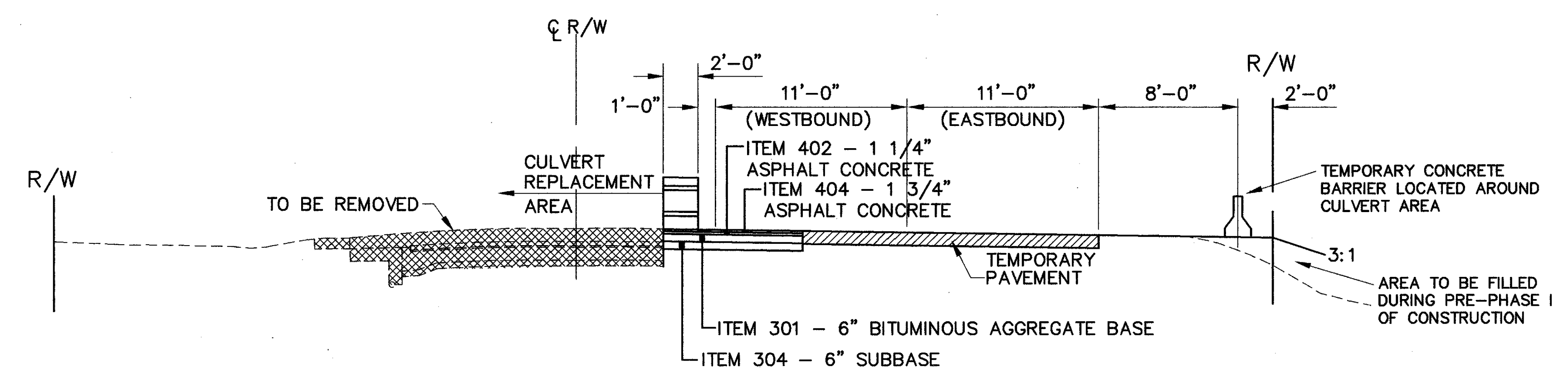




PRE-PHASE II

SCALE: 1" = 20'

**TYPICAL SECTION AROUND CULVERT
STA. 82+86
(PRE-PHASE II)**



SCALE: 1" = 5'

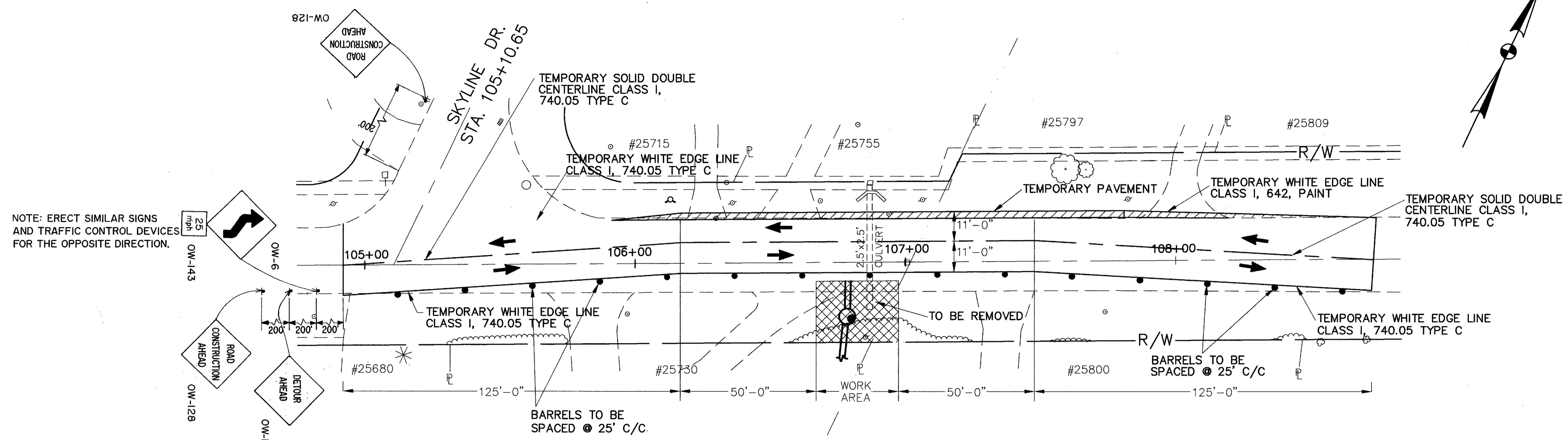
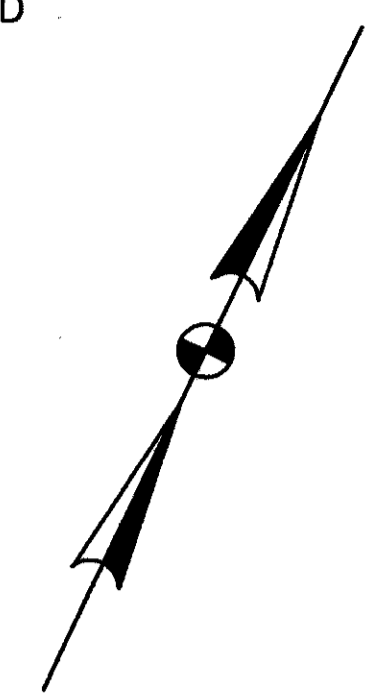
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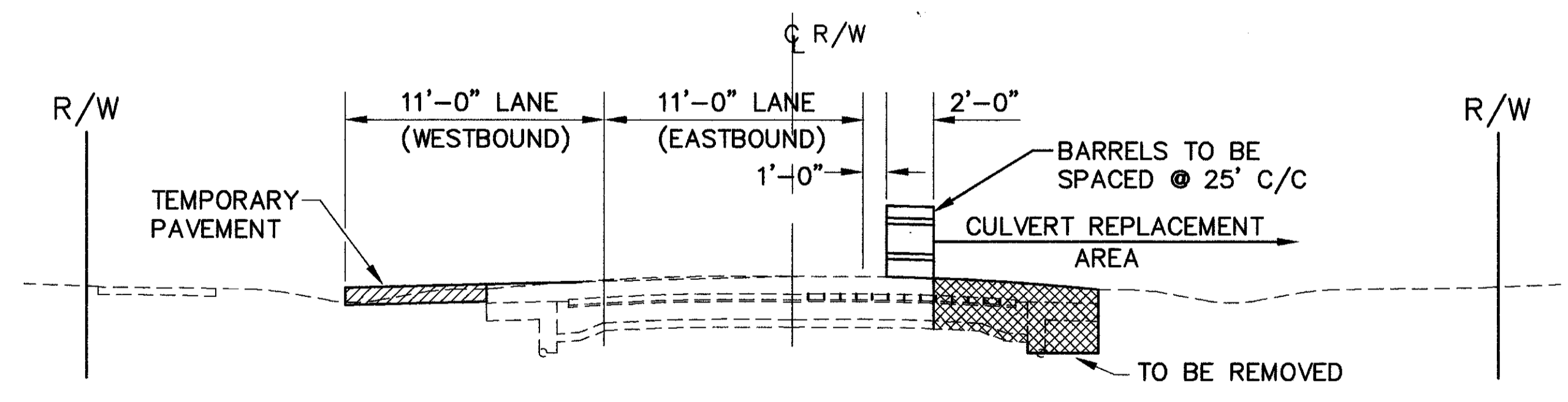
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CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



PRE-PHASE I

SCALE: 1" = 20'



TYPICAL SECTION AROUND CULVERT
 STA. 106+80
 (PRE-PHASE I)

SCALE: 1" = 5'

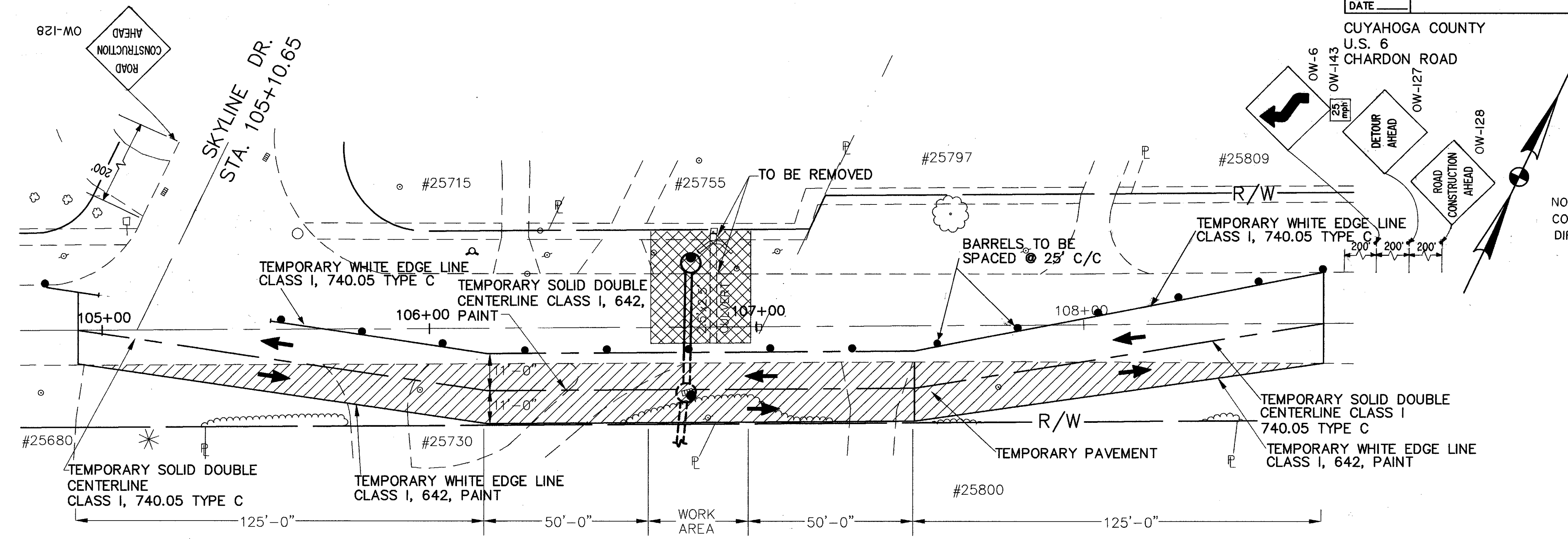
*FOR CULVERT QUANTITIES AND DETAILS SEE SHEET 110

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 DATE: _____

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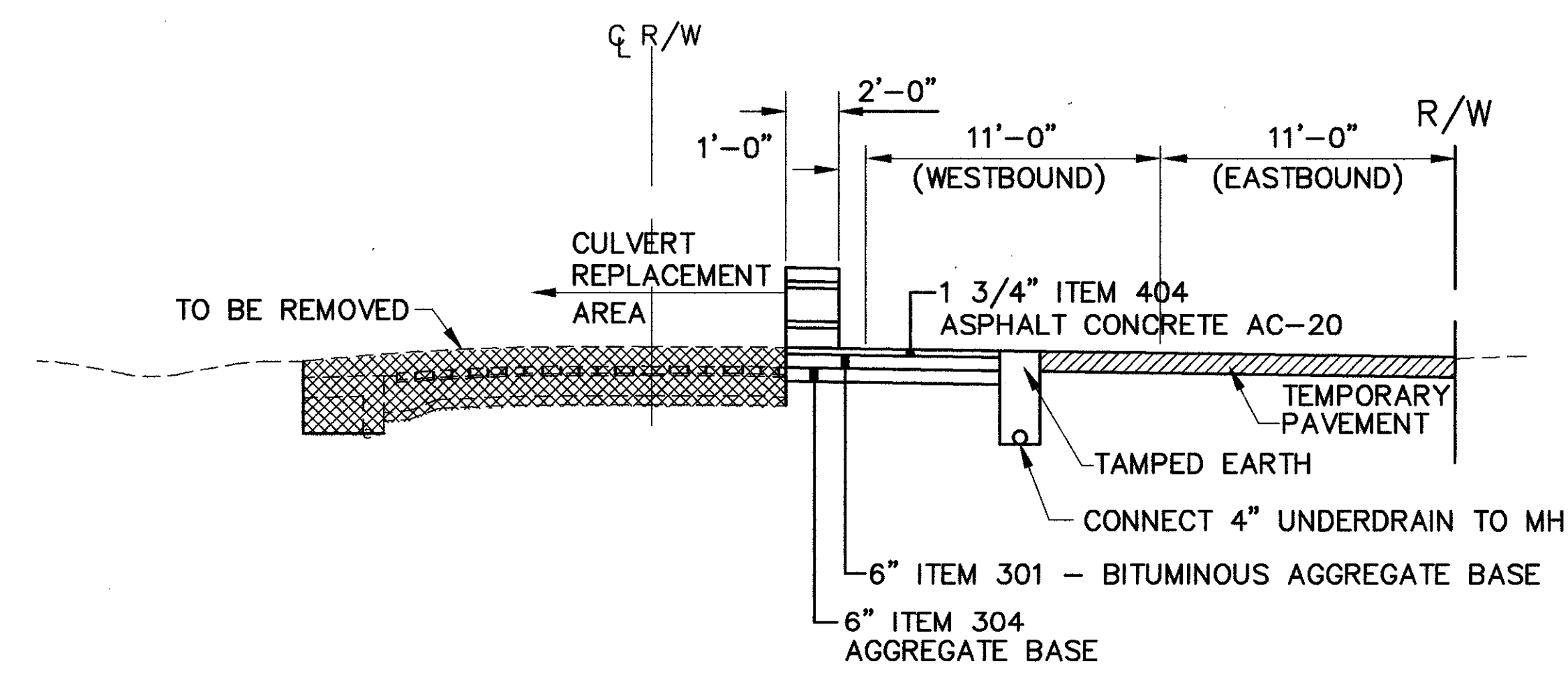
OHIO
 F.H.W.A. REGION 5

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PRE-PHASE II

SCALE: 1" = 20'



TYPICAL SECTION AROUND CULVERT
 STA. 106+80
 (PRE-PHASE II)

SCALE: 1" = 5'

*FOR CULVERT QUANTITIES AND DETAILS SEE SHEET 110

I - NORMAL PARTICIPATION CITY OF EUCLID
 II - NORMAL PARTICIPATION CITY OF RICHMOND HEIGHTS

GENERAL SUMMARY

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

CALC. BY: _____
 DATE: _____
 CHKD. BY: _____
 DATE: _____

CUY-6-25.94

OHIO
 F.H.W.A. REGION 5

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ITEM	SHEET NUMBER														PARTICIPATION		ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
	3	10	28	29	30	32	40	41	43	44	45	46	46a	I	II							
ROADWAY																						
201		1														1	201	26500	1	EACH	STUMP REMOVED	
201		5														LUMP	201	11000	LUMP	LUMP	CLEARING AND GRUBBING	
201		16														5	201	23000	5	EACH	TREE OR STUMP REMOVED, 30" SIZE	
201		2														16	201	21800	16	EACH	TREE OR STUMP REMOVED, 18" SIZE	
201																2	201	24800	2	EACH	TREE OR STUMP REMOVED, 48" SIZE	
202							LUMP									LUMP	202	11000	LUMP	LUMP	STRUCTURE REMOVED	
202					1,317	1,000	945									1,317	202	23000	3,262	SQ. YD.	PAVEMENT REMOVED	
202																1,742	202	24000	1,742	SQ. YD.	BRICK BASE REMOVED	
202			6,050				1,140									6,050	202	30000	21,517	SQ. FT.	WALK REMOVED	
202				11,053			498									11,053	202	32000	11,551	LIN. FT.	CURB REMOVED	
202						108		78	519	1,541						519	202	35101	2,246	LIN. FT.	PIPE REMOVED, 24" AND UNDER, AS PER PLAN	10
202									224							224	202	38000	224	LIN. FT.	GUARDRAIL REMOVED	
202										4						4	202	58000	4	EACH	MANHOLE REMOVED	
202										32	9					32	202	58300	41	EACH	CATCH BASIN REMOVED	
202										1						1	202	58700	1	EACH	MANHOLE ABANDONED	
202												187				187	202	75001	187	LIN. FT.	FENCE REMOVED, AS PER PLAN	10
203						813	722									4,438	203	12000	4,438	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
203								98								1295	203	20000	1295	CU. YD.	EMBANKMENT	
203							1,828									1,828	203	50000	1,828	SQ. YD.	SUBGRADE COMPACTION	
203												92				92	203	60000	92	STATION	LINEAR GRADING	
604		5														3	604	38504	5	EACH	CUYAHOGA COUNTY ROADWAY MONUMENT ASSEMBLY	
604		7							18							18	604	39500	25	EACH	MONUMENT BOX ADJUSTED TO GRADE	
607								56								56	607	20000	56	LIN. FT.	FENCE, TYPE CL	
608			7,200													7,200	608	10001	7,200	SQ. FT.	4" CONCRETE WALK, AS PER PLAN	12
608							3,870					36,001				39,871	608	11001	39,871	SQ. FT.	4-1/2" CONCRETE WALK, AS PER PLAN	12
608							16									16	608	51000	16	EACH	CURB RAMP, TYPE 2	
608			415													415	608	53000	415	SQ. FT.	CURB RAMP, TYPE 1	
608			1,500													1,500	608	54000	1,500	SQ. FT.	CURB RAMP, TYPE 2	
EROSION CONTROL																						
207		2,500														2,500	207	10000	2,500	SQ. YD.	TEMPORARY SEEDING AND MULCHING	
207		5,308														5,308	207	30000	5,308	LIN. FT.	FILTER FABRIC FENCE	
207		1,342														1,342	207	70000	1,342	EACH	STRAW OR HAY BALES	
659		0.11														0.11	659	20000	0.11	TON	COMMERCIAL FERTILIZER	
601								18								18	601	32100	18	CU. YD.	ROCK CHANNEL PROTECTION, TYPE B, WITH FILTER	
601		30														30	601	32200	30	CU. YD.	ROCK CHANNEL PROTECTION, TYPE C, WITH FILTER	
616		0.6														0.6	616	10000	0.6	M.GAL.	WATER	
653		870														870	653	10000	870	CU. YD.	TOPSOIL FURNISHED AND PLACED	
659								570								1,089	659	10000	1,089	SQ. YD.	SEEDING AND MULCHING	
660																16,267	660	30001	16,267	SQ. YD.	SODDING, AS PER PLAN	10
DRAINAGE																						
602									2.74							2.74	602	20000	2.74	CU. YD.	CONCRETE MASONRY	

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CHARDON ROAD

I - NORMAL PARTICIPATION CITY OF EUCLID
 II - NORMAL PARTICIPATION CITY OF RICHMOND HEIGHTS

GENERAL SUMMARY

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

CALC. BY: _____
 DATE: _____
 CHKD. BY: _____
 DATE: _____

CUY-6-25.94

OHIO
 F.H.W.A. REGION 5

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ITEM	SHEET NUMBER														PARTICIPATION		ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET	
	11	29	41	42	43	44	45								I	II							
DRAINAGE (CONTINUED)																							
603	1,000																1000	603	00101	1,000	LIN. FT.	4" CONDUIT, TYPE B, 707.19, PS 46 MIN., AS PER PLAN	10
603	1,400																200	603	00901	1,400	LIN. FT.	6" CONDUIT, TYPE B, 706.08 ES OR 707.19, PS 46 MIN., AS PER PLAN	10
603	1,300				650		10										200	603	01101	1,960	LIN. FT.	6" CONDUIT, TYPE C, 706.08 ES OR 707.19, PS 46 MIN., AS PER PLAN	10
603	100																100	603	01401	100	LIN. FT.	6" CONDUIT, TYPE E, 707.19, PS 46 MIN., AS PER PLAN	10
603	100																100	603	01501	100	LIN. FT.	6" CONDUIT, TYPE F, 707.19, PS 46 MIN., AS PER PLAN	10
603			625					630									625	603	01501	1,255	LIN. FT.	6" CONDUIT, TYPE F, 707.17 NON-PERFORATED ASTM D3034 SDR 35, SS931 OR SS944, AS PER PLAN	10
603	400																40	603	01801	400	LIN. FT.	8" CONDUIT, TYPE B, 706.08 ES OR 707.19, PS 46 MIN., AS PER PLAN	10
603								8									8	603	02001	8	LIN. FT.	8" CONDUIT, TYPE C, 706.08 ES OR 707.19, PS 46 MIN., AS PER PLAN	10
603					650	961											650	603	04401	1,611	LIN. FT.	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	10
603	200				207	1,773											227	603	04601	2,180	LIN. FT.	12" CONDUIT, TYPE C, 706.01 CL.3, 706.02, OR 706.08 ES, AS PER PLAN	10
603					146	368											146	603	05901	514	LIN. FT.	15" CONDUIT, TYPE B, 706.02, AS PER PLAN	10
603						191											191	603	06101	191	LIN. FT.	15" CONDUIT, TYPE C, 706.01 CL.3, 706.02, OR 706.08 ES, AS PER PLAN	10
603						148											148	603	07401	148	LIN. FT.	18" CONDUIT, TYPE B, 706.02, 1350 D-LOAD, AS PER PLAN	10
603						293											293	603	07601	293	LIN. FT.	18" CONDUIT, TYPE C, 706.01 CL.3, OR 706.02, AS PER PLAN	10
603						248											248	603	09101	248	LIN. FT.	21" CONDUIT, TYPE C, 706.01 CL.3, OR 706.02, AS PER PLAN	10
603						844											844	603	10601	844	LIN. FT.	24" CONDUIT, TYPE C, 706.02, AS PER PLAN	10
603						48											48	603	11901	48	LIN. FT.	27" CONDUIT, TYPE B, 706.02, 1350 D-LOAD, AS PER PLAN	10
603						228											228	603	12101	228	LIN. FT.	27" CONDUIT, TYPE C, 706.02, AS PER PLAN	10
603				40													40	603	13401	40	LIN. FT.	30" CONDUIT, TYPE B, 706.02, 1350 D-LOAD, AS PER PLAN	10
603				118				466									584	603	13601	584	LIN. FT.	30" CONDUIT, TYPE C, 706.02, AS PER PLAN	10
603								61									61	603	16401	61	LIN. FT.	36" CONDUIT, TYPE B, 706.02, 1350 D-LOAD, AS PER PLAN	10
603								97									97	603	16601	97	LIN. FT.	36" CONDUIT, TYPE C, 706.02, AS PER PLAN	10
603				96													96	603	20701	96	LIN. FT.	48" CONDUIT, TYPE B, 706.02, 1350 D-LOAD, AS PER PLAN	10
603				25													25	603	21101	25	LIN. FT.	48" CONDUIT, TYPE C, 706.02, AS PER PLAN	10
603								26									26	603	52303	26	LIN. FT.	19"X30" CONDUIT, TYPE B, 706.04, CL. HE-III, AS PER PLAN	10
604								9									9	604	00501	9	EACH	CATCH BASIN, NO. 3 WITH V GRATE, AS PER PLAN	10
604								38									38	604	00701	38	EACH	CATCH BASIN, NO. 3A WITH V GRATE, AS PER PLAN	10
604				1				4									1	604	01801	1	EACH	CATCH BASIN, NO. 5A, AS PER PLAN	10
604								4									4	604	02001	4	EACH	CATCH BASIN, NO. 6, AS PER PLAN	10
604	8							12									20	604	04501	20	EACH	CATCH BASIN, NO. 2-2B, AS PER PLAN	10
604								15									15	604	04901	15	EACH	CATCH BASIN, NO. 2-3, AS PER PLAN	10
604								1									1	604	06101	1	EACH	CATCH BASIN, NO. 2-6, AS PER PLAN	10
604						36											36	604	01001	36	EACH	CATCH BASIN, CUYAHOGA COUNTY N# 3C, AS PER PLAN	10
604						16	10										16	604	09001	26	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	11
604				1				1									2	604	09501	2	EACH	CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN	11
604	16							15									2	604	10101	31	EACH	INLET, NO. 1, AS PER PLAN	10
604								7									7	604	31501	7	EACH	MANHOLE, NO. 3, AS PER PLAN - A	10
604				2			2	14									2	604	31501	18	EACH	MANHOLE, NO. 3, AS PER PLAN - B	10
604						53	25										53	604	34501	78	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	11
604	10																1	604	37000	10	EACH	INSPECTION WELL	
SPECIAL	15,000																7500	SPECIAL	60450000	15,000	POUND	MISCELLANEOUS METAL	
605				11,275				8,684									11,275	605	11111	19,959	LIN. FT.	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, AS PER PLAN	10
PAVEMENT																							
251								896									896	251	01000	896	SQ. YD.	PARTIAL DEPTH PAVEMENT REPAIR	

CHARDON ROAD

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I - NORMAL PARTICIPATION CITY OF EUCLID
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GENERAL SUMMARY

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

CALC. BY: _____
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OHIO
 F.H.W.A. REGION 5

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ITEM	SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
	27	29	30	32	37	39	40	45	46	I	II									
PAVEMENT (CONTINUED)																				
253								896						896	253	01000	896	SQ. YD.	PAVEMENT REPAIR	
254	21,793													21,793	254	01000	21,793	SQ. YD.	PAVEMENT PLANING, BITUMINOUS (2")	
254							1,233	9,534						10,767	254	01000	10,767	SQ. YD.	PAVEMENT PLANING, BITUMINOUS (4"-8")	
254								2,107						2,107	254	01000	2,107	SQ. YD.	PAVEMENT PLANING, BITUMINOUS (9")	
254	2,179													2,179	254	01600	2,179	SQ. YD.	PATCHING PLANED SURFACE	
255								1,109						1,109	255	10000	1,109	SQ. YD.	FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS C	
255								175						175	255	20000	175	LIN. FT.	FULL DEPTH PAVEMENT SAWING	
301								136	181					317	301	10002	317	CU. YD.	BITUMINOUS AGGREGATE BASE, AC-20	
304	56			381				353	600					56	304	20001	1,390	CU. YD.	AGGREGATE BASE, AS PER PLAN	12
305	333													333	305	11000	333	SQ. YD.	7" CONCRETE BASE	
305								789						789	305	13000	789	SQ. YD.	9" CONCRETE BASE	
305								459	2,850					3,309	305	17000	3,309	SQ. YD.	15" CONCRETE BASE	
402								155	600					755	402	20000	755	CU. YD.	ASPHALT CONCRETE, AC-20	
403	37							53	350					37	403	20000	748	CU. YD.	ASPHALT CONCRETE, AC-20	
403	308													308	403	25000	308	CU. YD.	ASPHALT CONCRETE, AC-20, SPOT LEVELING	
404	769		1,169					113	420					1,938	404	20000	2,471	CU. YD.	ASPHALT CONCRETE, AC-20	
407	2,213							316	1,164					2,213	407	10000	3,693	GALLON	TACK COAT	
451								151						151	451	11000	151	SQ. YD.	7" REINFORCED CONCRETE PAVEMENT	
452				917	3,235									917	452	10000	4,152	SQ. YD.	6" PLAIN CONCRETE PAVEMENT	
452				400	123									400	452	12000	523	SQ. YD.	8" PLAIN CONCRETE PAVEMENT	
609								86						86	609	14000	86	LIN. FT.	CURB, TYPE 2-A	
609			700					465						700	609	16000	1,165	LIN. FT.	CURB, TYPE 2-B	
609			11,200					941	8,150					11,200	609	26000	20,291	LIN. FT.	CURB, TYPE 6	
WATER WORK																				
604								6						6	604	34501	6	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	14
638								6						6	638	09000	6	EACH	8" CUTTING-IN SLEEVE, VALVE AND VALVE BOX	
638								8						8	638	09200	8	EACH	12" CUTTING-IN SLEEVE, VALVE AND VALVE BOX	
638								15						15	638	10700	15	EACH	FIRE HYDRANT REMOVED AND DISPOSED OF	
638								38	10					38	638	10800	48	EACH	VALVE BOX ADJUSTED TO GRADE	
638								143	72					143	638	10900	215	EACH	SERVICE BOX ADJUSTED TO GRADE	

I - NORMAL PARTICIPATION CITY OF EUCLID
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GENERAL SUMMARY

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

CALC. BY. _____
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ITEM	SHEET NUMBER																PARTICIPATION			ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REF. SHEET
	13	15	16	33	34	35	39											I	II						
WATER WORK (CONTINUED)																									
SPECIAL							257												257	SPECIAL	63820402	257	LIN. FT.	8" WATER MAIN DUCTILE IRON PIPE WITH PUSH-ON JOINTS AND RETAINED MECHANICAL JOINT FITTINGS, ANSI CLASS 56	
SPECIAL							455												455	SPECIAL	63821000	455	LIN. FT.	12" WATER MAIN DUCTILE IRON PIPE WITH PUSH-ON JOINTS AND RETAINED MECHANICAL JOINT FITTINGS, ANSI CLASS 56	
SPECIAL							22												22	SPECIAL	63822804	22	LIN. FT.	16" STEEL CASING PIPE	
SPECIAL							9												9	SPECIAL	63822900	9	LIN. FT.	20" STEEL CASING PIPE	
SPECIAL							15												15	SPECIAL	63824600	15	EACH	FURNISHING AND SETTING 6" HYDRANT COMPLETE	
SPECIAL	5000																	2500	2500	SPECIAL	63825000	5,000	POUND	MISCELLANEOUS METAL WORK	13
SPECIAL							1												1	SPECIAL	63826306	1	EACH	RETAP AND RECONNECT 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	
SPECIAL							1												1	SPECIAL	63827302	1	EACH	RAISE AND EXTEND 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	
SPECIAL							9												9	SPECIAL	63828100	9	EACH	LOWER AND EXTEND 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	
SPECIAL							14												14	SPECIAL	63828508	14	EACH	LOWER 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	
SPECIAL							2												2	SPECIAL	63829006	2	EACH	RAISE 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	
SPECIAL							9												9	SPECIAL	63829408	9	EACH	EXTEND 1" WATER SERVICE CONNECTION, COMPLETE	
SPECIAL							2												2	SPECIAL	63829608	2	EACH	SHORTEN 1" WATER SERVICE CONNECTION, COMPLETE	
SPECIAL		2,000																300	1700	SPECIAL	63830000	2,000	LIN. FT.	COPPER WATER TUBING	15
TRAFFIC CONTROL																									
642				0.09														0.09		642	00202	0.09	MILE	LANE LINE, TYPE 2	
642				1.25	0.89													1.25	0.89	642	00302	2.14	MILE	CENTER LINE, TYPE 2	
642				250														250		642	00402	250	LIN. FT.	CHANNELIZING LINE, TYPE 2	
642				375	104													375	104	642	00502	479	LIN. FT.	STOP LINE, TYPE 2	
642				1,650	216													1,650	216	642	00602	1,866	LIN. FT.	CROSSWALK LINE, TYPE 2	
MAINTENANCE OF TRAFFIC																									
404			100																100	404	35000	100	CU. YD.	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	
410			300																300	410	12000	300	CU. YD.	TRAFFIC COMPACTED SURFACE, TYPE A OR B	
608			1000																1000	608	21200	1000	SQ. FT.	TEMPORARY BITUMINOUS WALK	
614			0.10																0.10	614	21100	0.10	MILE	TEMPORARY CENTER LINE, CLASS I, 642 PAINT	
614			0.10			2.11													2.21	614	21300	2.21	MILE	TEMPORARY CENTER LINE, CLASS I, 740.05, TYPE C	
614			0.10			1.13													1.23	614	22100	1.23	MILE	TEMPORARY EDGE LINE, CLASS I, 642 PAINT	
614			0.10			2.07													2.17	614	22300	2.17	MILE	TEMPORARY EDGE LINE, 740.05, CLASS I, TYPE C	
614			100																100	614	26200	100	LIN. FT.	TEMPORARY STOP LINE, CLASS I, 642 PAINT	
614			100			104													204	614	26600	204	LIN. FT.	TEMPORARY STOP LINE, CLASS I, 740.05, TYPE C	
614			100																100	614	27200	100	LIN. FT.	TEMPORARY CROSSWALK LINE, CLASS I, 642 PAINT	
614			100			432													532	614	27600	532	LIN. FT.	TEMPORARY CROSSWALK LINE, CLASS I, 740.05, TYPE C	

DRIVE QUANTITIES

LEGEND

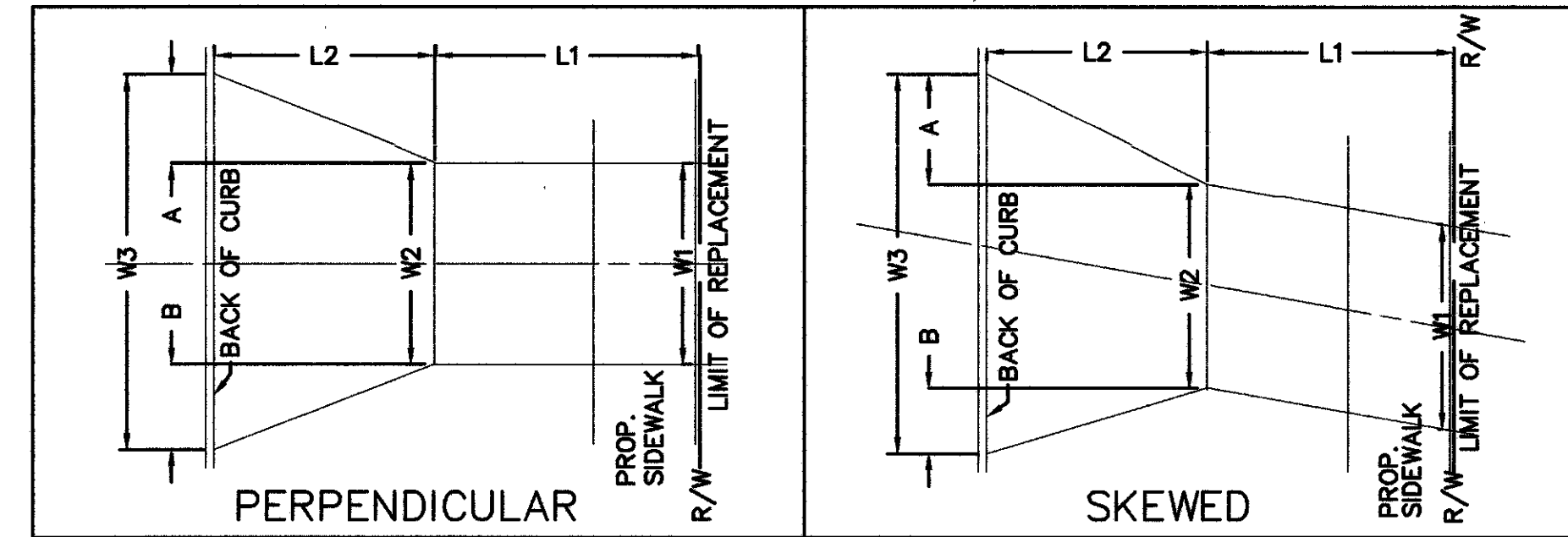
SIDE: R = RIGHT
L = LEFT

DRIVE USE: COMM. = COMMERCIAL
RES. = RESIDENTIAL

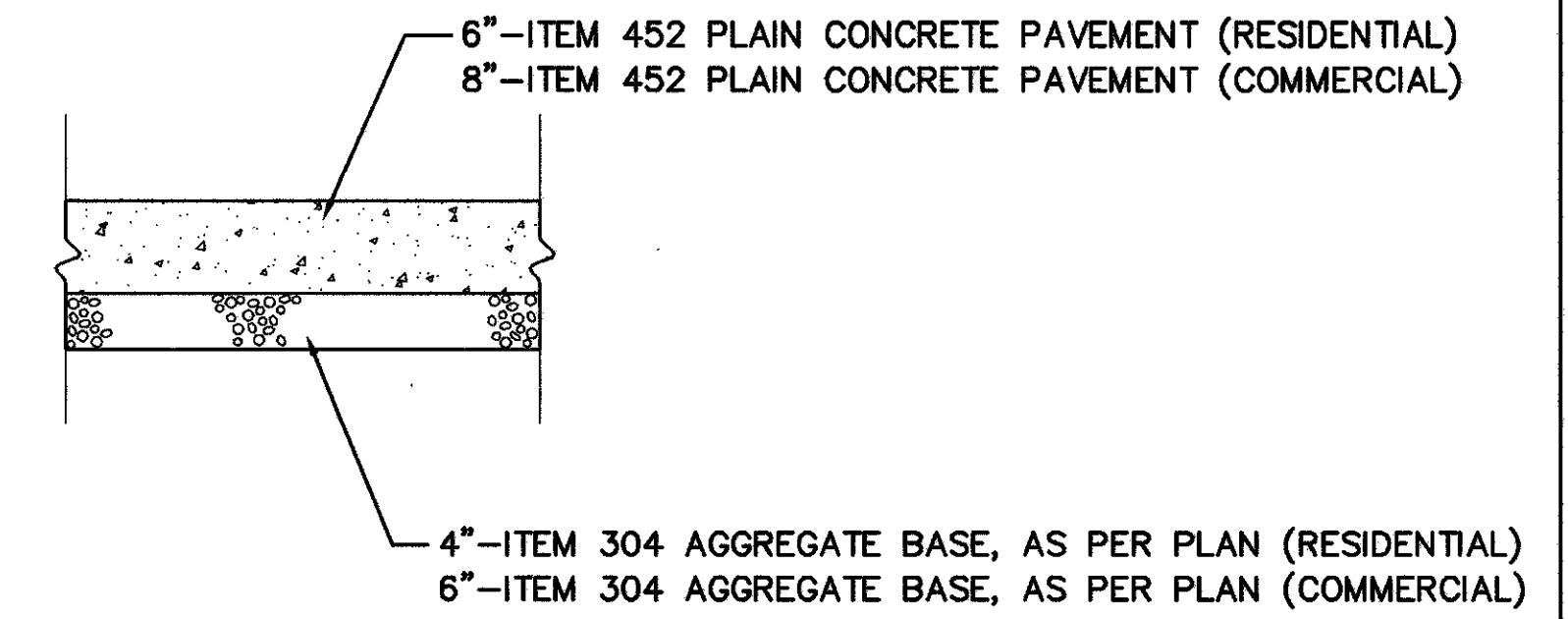
PAVEMENT TYPE: C = CONCRETE
A = ASPHALT
G = GRAVEL/EARTH

GEOMETRY TYPE: P = PERPENDICULAR
S = SKEWED

DRIVE GEOMETRY



ITEM	SHEET NO.	REFERENCE NO.	STATION	SIDE	GEOMETRY TYPE	EX. PAVEMENT TYPE		DRIVE USE	GEOMETRY								24" AND UNDER PIPE REMOVED	PAVEMENT REMOVED	EXCAVATION	4" AGGREGATE BASE, A.P.P. (RESIDENTIAL) 6" AGGREGATE BASE, A.P.P. (COMMERCIAL)	8" PLAIN CONCRETE PAVEMENT	6" PLAIN CONCRETE PAVEMENT	SIDEWALK INCLUDED IN DRIVE QUANTITY
						APRON	DRIVE		(L1)	(L2)	(W1)	(W2)	(W3)	(A)	(B)	LENGTH W1 TO W2							
73 A1			104 + 87	R	P	A	C	RES.	5	11	17	17	27	5	5		3	10	4.0		36.3	85	
A2			105 + 15	L	P	C	C	RES.	0	10.5	0	16	26	5	5		19	5	2.7		24.5	-	
A3			105 + 87	R	P	A	C	RES.	5	11	18	18	28	5	5			11	4.2		38.1	90	
A4			106 + 29	L	P	A	A	RES.	5	9	12	12	22	5	5			7	2.6		23.7	60	
A5			106 + 62	L	P	C	C	RES.	0	11	13	13	24	6	5		22	4	2.5		22.6	-	
TOTAL THIS SHEET																	44	37	16		145.2	235	
TOTAL SHEET NO. 31																108	956	775.5	364.2	123.0	3088.9	5635	
TOTAL																108	1000	812.5	380.2	123.0	3234.1	5870	



TYPICAL DRIVE SECTION
NOT TO SCALE

SUB-SUMMARIES

PAVEMENT MARKINGS "EUCLID"

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CALC.
BY _____
DATE _____
CHKD.
BY _____
DATE _____

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STATION	SHEET No.	CENTERLINE DOUBLE SOLID (YELLOW)	CHANNELIZATION LINE SOLID (WHITE)	STOP BAR LINES (WHITE)	CROSSWALK LINES (WHITE)	4" LANE LINE DASHED (WHITE)	LANE ARROWS															
		MILE	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	EACH															
0+00 TO 2+50	47	0.035	173	42	142																	
2+50 TO 6+50	48	0.076				400																
6+50 TO 9+50	49	0.057	15	11	112	25																
9+50 TO 12+50	50	0.057																				
12+50 TO 15+50	51	0.057																				
15+50 TO 18+50	52	0.057																				
18+50 TO 22+50	53	0.076						ITEM 642 CENTERLINE DOUBLE SOLID SUBTOTAL = 1.13 Mi. ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER 0.12 Mi. TOTAL = 1.25 Miles														
22+50 TO 26+50	54	0.076		25	120																	
26+50 TO 30+00	55	0.066		25	120			ITEM 642 CHANNELIZING LINE SUBTOTAL = 188 L.F. ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER 62 L.F. TOTAL = 250 Lin. Ft.														
30+00 TO 34+00	56	0.076		58	292																	
34+00 TO 38+00	57	0.076		40	206			ITEM 642 STOP BAR LINE SUBTOTAL = 328 L.F. ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER 47 L.F. TOTAL = 375 Lin. Ft.														
38+00 TO 42+00	58	0.076		12	56																	
42+00 TO 46+00	59	0.076		54	257			ITEM 642 CROSSWALK LINE SUBTOTAL = 1547 L.F. ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER 103 L.F. TOTAL = 1650 Lin. Ft.														
46+00 TO 50+00	60	0.076		44	148																	
50+00 TO 54+00	61	0.076		17	94			ITEM 642 LANE LINE DASHED (WHITE) SUBTOTAL = 425 L.F. ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER 50 L.F. TOTAL = 475 Lin.Ft. = 0.09 Miles														
54+00 TO 58+00	62	0.076																				
58+00 TO 60+14.51	63	0.041																				
TOTALS		1.13 Mi.	188 LF.	328 LF.	1547 LF.	425 LF.																

SUMMARY OF TEMPORARY PAVEMENT MARKINGS

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

NOTE: QUANTITIES MARKED WITH AN * SHALL BE PLACED AT FINAL MARKING POSITIONS AT THE COMPLETION OF EACH SECTION

ROADWAY	STATION		614	614	614	614	614	614	614	614											
	FROM	TO	TEMPORARY WHITE EDGE LINES, CLASS 1, 740.05 TYPE C	TEMPORARY YELLOW EDGE LINES, CLASS 1 642 PAINT	TEMPORARY SOLID DOUBLE CENTERLINE, CLASS 1 740.05, TYPE C	TEMPORARY STOP LINE, CLASS 1, 740.05 TYPE C	TEMPORARY CROSSWALK LINES, CLASS 1, 740.05 TYPE C														
			LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.													
NEWCOME DR.							13*	54*													
BEVERLY HILLS DR.					50*		13*	54*													
EDGEMONT DR.							26*	108*													
CHELFORD AVE.					50*		13*	54*													
BROOKDALE DR.					50*		13*	54*													
SUNSET DR.					50*		13*	54*													
SKYLINE DR.					50*		13*	54*													
CHARDON RD.																					
	60+14.51	65+00	971	486	971																
	65+00	70+00	1000	500	1000																
	70+00	75+00	1000	500	1000																
	75+00	80+00	1000	500	1000																
	80+00	85+00	1000	449	1000																
	85+00	90+00	1000	560	1000																
	90+00	95+00	1000	445	1000																
	95+00	100+00	1000	500	1000																
	100+00	104+75	950	475	950																
	104+75	106+95	440	220	440																
CHARDON RD. (CULVERT CONSTRUCTION)	80+00	85+00	783	693	783																
	104+75	108+73	760	660	760																
TOTAL			10,904 L.F. 2.07 MI.	5,988 L.F. 1.13 MI.	11,154 L.F. 2.11 L.F.		104 L.F. 104 L.F.	432 L.F. 432 L.F.													

CHARDON ROAD

SUB-SUMMARIES

WATERWORKS "EUCLID"

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CALC.
BY: _____
DATE: _____
CHKD.
BY: _____
DATE: _____

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SHEET No.	REFERENCE	STATION	OFFSET / SIDE	638			SHEET No.	REFERENCE	STATION	OFFSET / SIDE	638			SHEET No.	REFERENCE	STATION	OFFSET / SIDE	638							
				LINE VALVE BOX ADJUSTED TO GRADE	SERVICE BOX ADJUSTED TO GRADE	HYDRANT VALVE BOX ADJUSTED GRADE					LINE VALVE BOX ADJUSTED TO GRADE	SERVICE BOX ADJUSTED TO GRADE	HYDRANT VALVE BOX ADJUSTED GRADE					LINE VALVE BOX ADJUSTED TO GRADE	SERVICE BOX ADJUSTED TO GRADE	HYDRANT VALVE BOX ADJUSTED GRADE					
				EACH	EACH	EACH					EACH	EACH	EACH					EACH	EACH	EACH					
49	W-1	7+29	22'R.		1		56	W-1	30+22	18'L.		1		59	W-1	42+01	20'R.		1						
49	W-2	7+55	11'R.			1	56	W-2	30+53	17'R.		1		59	W-2	42+32	17'R.		1						
49	W-3	8+36	28'R.		1		56	W-3	30+61	31'L.	1			59	W-3	42+38	18'L.		1						
49	W-4	9+22	20'R.		1		56	W-4	31+05	17'R.		1		59	W-4	42+52	17'L.	1							
49	W-5	9+24	20'L.		1		56	W-5	31+27	18'L.		1		59	W-5	42+74	30'L.			1					
49	W-6	9+27	20'L.		1		56	W-6	31+48	17'R.		1		59	W-6	42+88	18'R.		1						
							56	W-7	31+75	18'L.		1		59	W-7	43+31	18'R.		1						
50	W-1	9+80	18'R.		1		56	W-8	32+04	15'L.			1	59	W-8	43+34	18'L.		1						
50	W-2	9+89	19'L.		1		56	W-9	32+07	17'R.		1		59	W-9	43+75	18'L.		1						
50	W-3	10+34	20'L.		1		56	W-10	32+14	19'L.		1		59	W-10	43+91	28'R.	1							
50	W-4	10+40	35'L.		1		56	W-11	32+17	10'L.	1			59	W-11	44+27	18'R.		1						
50	W-5	10+85	6'L.			1	56	W-12	32+47	31'R.	1			59	W-12	44+21	18'L.		1						
50	W-6	10+93	5'L.	1			56	W-13	32+76	26'L.		1		59	W-13	44+48	18'L.		1						
							56	W-14	33+13	28'L.		1		59	W-14	44+74	18'R.		1						
51	W-1	13+80	18'L.		1		56	W-15	33+16	18'R.		1		59	W-15	44+89	23'L.		1						
51	W-2	14+58	26'L.		1		56	W-16	33+44	18'L.		1		59	W-16	45+06	18'L.		1						
51	W-3	14+64	17'L.			1	56	W-17	33+46	18'R.		1		59	W-17	45+18	18'R.		1						
							56	W-18	33+87	18'L.		1		59	W-18	45+65	31'L.	1							
52	W-1	17+53	18'R.		1									59	W-19	45+70	18'R.		1						
52	W-2	17+57	20'R.		1		57	W-1	34+03	17'R.		1													
52	W-3	17+81	18'R.		1		57	W-2	34+16	10'L.	1			60	W-1	46+04	13'L.			1					
52	W-4	18+16	17'L.			1	57	W-3	34+38	20'L.		1		60	W-2	46+39	18'L.		1						
							57	W-4	34+46	17'R.		1		60	W-3	46+29	21'R.		1						
53	W-1	19+29	17'R.		1		57	W-5	34+75	12'L.	1			60	W-4	46+73	18'R.		1						
53	W-2	20+25	17'R.		1		57	W-6	34+74	31'L.	1			60	W-5	46+88	18'L.		1						
53	W-3	21+27	17'R.		1		57	W-7	34+98	17'R.		1		60	W-6	47+38	19'R.		1						
53	W-4	21+42	17'L.			1	57	W-8	35+07	18'L.		1		60	W-7	47+45	18'L.		1						
53	W-5	22+22	17'R.		1		57	W-9	35+35	18'L.		1		60	W-8	47+79	22'L.		1						
53	W-6	22+26	13'L.		1		57	W-10	35+47	17'R.		1		60	W-9	47+86	18'R.		1						
							57	W-11	35+60	15'L.			1	60	W-10	48+39	17'R.		1						
54	W-1	22+64	17'R.		1		57	W-12	35+82	20'L.		1		60	W-11	48+44	18'L.		1						
54	W-2	23+27	17'R.		1		57	W-13	35+95	17'R.		1		60	W-12	48+90	30'L.	1							
54	W-3	23+87	28'R.	1			57	W-14	36+46	17'R.		1		60	W-13	48+85	17'R.		1						
54	W-4	24+47	31'L.	1			57	W-15	36+97	30'R.	1			60	W-14	49+33	17'R.		1						
54	W-5	24+54	18'R.		1		57	W-16	37+26	29'L.	1			60	W-15	49+38	18'L.		1						
54	W-6	24+75	12'L.			1	57	W-17	37+60	18'L.		1		60	W-16	49+67	11'L.			1					
54	W-7	24+88	10'L.	1			57	W-18	37+88	17'R.		1		60	W-17	49+80	10'L.	1							
54	W-8	24+90	18'R.		1		57	W-19	37+98	17'R.		1		60	W-18	49+86	18'L.		1						
54	W-9	25+33	18'L.		1									60	W-19	49+84	17'R.		1						
54	W-10	25+41	18'R.		1		58	W-1	38+28	20'L.		1													
54	W-11	26+03	16'R.		1		58	W-2	38+53	18'R.		1													
54	W-12	26+39	17'R.		1		58	W-3	39+03	18'R.		1													
54	W-13	26+44	20'L.		1		58	W-4	38+98	19'L.		1													
							58	W-5	39+05	15'L.			1												
55	W-1	27+01	17'R.		1		58	W-6	39+30	10'L.	1														
55	W-2	27+28	31'L.	1			58	W-7	39+49	19'L.		1													
55	W-3	27+46	17'R.		1		58	W-8	39+74	18'R.		1													
55	W-4	27+97	28'R.	1			58	W-9	39+93	31'L.	1														
55	W-5	28+22	18'L.		1		58	W-10	40+09	18'R.		1													
55	W-6	28+49	15'L.			1	58	W-11	40+43	18'L.		1													
55	W-7	28+82	18'L.		1		58	W-12	40+94	18'L.		1													
55	W-8	28+96	17'R.		1		58	W-13	41+12	18'R.		1													
55	W-9	29+18	18'L.		1		58	W-14	41+48	18'R.		1													
55	W-10	29+47	16'R.		1		58	W-15	41+43	18'L.		1													
55	W-11	29+69	18'L.		1		58	W-16	41+95	18'L.		1													
55	W-12	29+96	17'R.		1																				
SUB-TOTALS																21	107	13							

SUB-SUMMARIES

WATERWORKS "EUCLID"

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CALC. BY: _____
DATE: _____
CHKD. BY: _____
DATE: _____

CUY-6-25.94

OHIO
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SHEET No.	REFERENCE	STATION	OFFSET / SIDE	638		638		638																			
				LINE VALVE BOX ADJUSTED TO GRADE	SERVICE BOX ADJUSTED TO GRADE		HYDRANT VALVE BOX ADJUSTED GRADE																				
				EACH	EACH			EACH																			
61	W-1	50+25	17'R.		1																						
61	W-2	50+34	18'L.		1																						
61	W-3	50+89	17'L.		1																						
61	W-4	50+86	17'R.		1																						
61	W-5	51+28	17'R.		1																						
61	W-6	51+79	19'R.		1																						
61	W-7	51+80	23'L.		1																						
61	W-8	52+05	31'L.	1																							
61	W-9	52+30	17'R.		1																						
61	W-10	52+80	18'R.		1																						
61	W-11	52+84	18'L.		1																						
61	W-12	53+03	14'L.				1																				
61	W-13	53+37	18'L.		1																						
61	W-14	53+33	18'R.		1																						
61	W-15	53+81	27'R.		1																						
61	W-16	53+75	19'L.		1																						
62	W-1	54+31	17'L.		1																						
62	W-2	54+58	18'R.		1																						
62	W-3	54+93	18'R.		1																						
62	W-4	54+81	20'L.		1																						
62	W-5	55+30	18'R.		1																						
62	W-6	55+31	17'L.		1																						
62	W-7	55+81	17'L.		1																						
62	W-8	55+78	17'R.		1																						
62	W-9	56+33	17'R.		1																						
62	W-10	56+34	18'L.		1																						
62	W-11	56+41	14'L.				1																				
62	W-12	56+81	18'R.		1																						
62	W-13	57+26	20'R.		1																						
62	W-14	57+74	17'R.		1																						
62	W-15	57+48	17'L.		1																						
62	W-16	57+81	17'L.		1																						
63	W-1	58+28	18'L.		1																						
63	W-2	58+35	17'R.		1																						
63	W-3	58+78	18'L.		1																						
63	W-4	58+82	20'R.		1																						
63	W-5	58+88	27'R.		1																						
63	W-6	59+56	18'R.		1																						
63	W-7	59+64	19'L.		1																						
63	W-8	59+73	14'L.				1																				
																SUB-TOTALS THIS SHEET		1	36		3						
																SUB-TOTALS SHEET No.36		21	107		13						
																GRAND-TOTALS		22	143		16						

SUMMARY OF WATERWORK QUANTITIES

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

SHEET NO.	REF. NO.	STATION	OFFSET	604	638	638	638	638	638	638	638	638	638	638	
				MANHOLE ADJUSTED TO GRADE, AS PER PLAN	FIRE HYDRANT REMOVED AND DISPOSED OF	FURNISHING AND SETTING 6" HYDRANT (COMPLETE)	RETAP & RECONNECT 1" WATER SERVICE CONN. SHORT SIDE COMPLETE	RAISE & EXTEND 1" WATER SERVICE CONN. SHORT SIDE COMPLETE	LOWER & EXTEND 1" SERVICE CONNECTION, SHORT SIDE COMPLETE	LOWER 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	RAISE 1" WATER SERVICE CONNECTION, SHORT SIDE COMPLETE	EXTEND 1" WATER SERVICE CONN., COMPLETE	SHORTEN 1" WATER SERVICE CONN., COMPLETE	VALVE BOX, ADJUSTED TO GRADE	SERVICE BOX, ADJUSTED TO GRADE
				EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
71	W1	95+22	21' L												
	W2	95+41	22' L							1				1	
	W3	96+37	28.5' L										1		
	W4	96+95	23' L		1	1									
	W5	97+05	15' L										1		
	W6	97+20	18' L											1	
	W7	97+54	17' L											1	
	W8	98+12	26' R	1											
	W9	99+70	18' R											1	
	W10	99+72	26' R	1											
72	W1	100+06	22' L							1				1	
	W2	100+14	23' L		1	1									
	W3	100+62	22'R-24'R	1										1	
	W4	101+23	22' L					1						1	
	W5	101+85	16'L-23'L										1	1	
	W6	102+37	23' R	1											
	W7	102+48	15' R							1					
	W8	102+56	23' L											1	
	W9	103+12-103+23	20'L-23'L		1	1							1		
	W10	103+80	18' L					1						1	
	W11	104+48	24' R											1	
	W12	104+56	18' L							1				1	
73	W1	104+81	18' R											1	
	W2	106+04	18' R											1	
	W3	106+14	23' L		1	1									
	W4	106+29	17' L							1					
	W5	106+31	15' L										1		
TOTAL				4	4	4	0	0	1	4	1	3	0	4	14
TOTAL OTHER PAGE				2	11	11	1	1	8	10	1	6	2	6	58
GRAND TOTALS				6	15	15	1	1	9	14	2	9	2	10	72

WATERMAIN LOWERING QUANTITIES

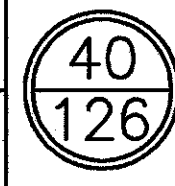
SHEET NO.	638	638		SPECIAL	SPECIAL		SPECIAL	SPECIAL
	12" CUTTING-IN SLEEVE, VALVE AND VALVE BOX	8" CUTTING-IN SLEEVE, VALVE AND VALVE BOX		8" DUCTILE IRON PIPE (CL 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	12" DUCTILE IRON PIPE (CL 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS		16" STEEL CASING PIPE	20" STEEL CASING PIPE
	EACH	EACH		L.F.	L.F.		L.F.	L.F.
109	2				77			9
122	1	1		41	81			
123	1	1		45	97		7	
124	2	2		80			6	
125	1	1		33	118			
126	1	1		58	82		9	
TOTALS	8	6		257	455		22	9

SUMMARY OF EXTRA AREA QUANTITIES

CALC BY _____
 DATE _____
 CHKD BY _____
 DATE _____

CUY-6-25.94

OHIO
 F.H.W.A. REGION 5



CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

STREET NAME	202	202	202		203	203		254		255		301		304		305	305		402		403		404		407		451		608	608		609	609	609
	PAVEMENT REMOVED	WALK REMOVED	CURB REMOVED		EXCAVATION, NOT INCLUDING EMBANKMENT CONSTRUCTION	SUBGRADE COMPACTION		PAVEMENT PLANING (5" BITUMINOUS)		FULL DEPTH PAVEMENT SAWING		BITUMINOUS AGGREGATE BASE, AC-20		6" AGGREGATE BASE, AS PER PLAN		9" CONCRETE BASE	15" CONCRETE BASE		ASPHALT CONCRETE AC-20, INTERMEDIATE COURSE		ASPHALT CONCRETE AC-20		ASPHALT CONCRETE AC-20, SURFACE COURSE		TACK COAT @ 0.1 GAL./S.Y.		7" REINFORCED CONCRETE PAVEMENT		4-1/2" CONCRETE WALK, A.P.P.	CURB RAMP TYPE 2		CURB, TYPE 2A	CURB, TYPE 2B	CURB, TYPE 6
	S.Y.	S.F.	L.F.		C.Y.	S.Y.		S.Y.		L.F.		C.Y.		C.Y.		S.Y.	S.Y.		C.Y.		C.Y.		C.Y.		GAL.		S.Y.		S.F.	EA.		L.F.	L.F.	L.F.
NEWCOME DRIVE	154				59	172		176		27		6		37			64		12		6		8		24		151		550	2		86		98
BEVERLY HILLS DR./ EDGEMONT DRIVE	146		98		195	425		232		43		46		76		146	88		34		8		25		70			640	4			91		203
CHELFORD AVE.		265			97	170		163		21		33		38			61		19		6		14		38			575	2					173
EDGEMONT DRIVE/ BROOKDALE DRIVE	145	630	98		253	521		256		41		51		91		137	98		39		8		28		79			855	4			85		243
SUNSET DRIVE	215	245	142		51	220		183		22				47		213	66		22		16		17		45			575	2			133		98
SKYLINE DRIVE	285		160		67	320		223		21				64		293	82		29		9		21		60			675	2			156		126
TOTALS	945	1140	498		722	1828		1233		175		136		353		789	459		155		53		113		316		151		3870	16		86	465	941

NOTE
 SEE SHEET 101 THRU 107

STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD

SUB-SUMMARY OF CULVERT QUANTITIES

CALC. BY: _____	OHIO	41
DATE: _____	CUY-6-25.94	126
CHKD. BY: _____	F.H.W.A. REGION 5	
DATE: _____		

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

SHEET NO.	CULVERT STATION															
		202	202	203		601	602	603	603	603	603	604	604	604	607	659
	STATION	STRUCTURE REMOVED LUMP	PIPE REMOVED 24" AND UNDER L.F.	EMBANKMENT C.Y.		ROCK CHANNEL PROTECTION, TYPE B W/FILTER C.Y.	CONCRETE MASONRY STANDARD HEADWALL HW-4B C.Y.	30" CONDUIT TYPE B AS PER PLAN L.F.	30" CONDUIT TYPE C AS PER PLAN L.F.	48" CONDUIT TYPE B AS PER PLAN L.F.	48" CONDUIT TYPE C AS PER PLAN L.F.	CATCH BASIN NO. 5A AS PER PLAN EACH	CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN EACH	MANHOLE NO. 3 AS PER PLAN B EACH	FENCE, TYPE CL L.F.	SEEDING & MULCHING S.Y.
108	71+35			32.5		12.5	1.09					25	1			170
109	82+94	LUMP	78	65			1.09			96		1			56	150
110	106+80	LUMP				5.0	.56	40	118					2		250
TOTALS		LUMP	78	97.5		17.5	2.74	40	118	96	25	1	1	2	56	570

SUB-SUMMARIES

DRAINAGE QUANTITIES "EUCLID"

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CALC.
BY
DATE
CHKD.
BY
DATE

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OHIO
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LOCATION	SHEET No.	202				603			604																
		PIPE REMOVED 24" & UNDER, A.P.P. L.F.	GUARDRAIL REMOVED L.F.	CATCH BASIN OR INLET REMOVED EA.	MANHOLE ABANDONED EA.	12" CONDUIT, TYPE B 706.02 AS PER PLAN L.F.	12" CONDUIT, TYPE C 706.02 AS PER PLAN L.F.	15" CONDUIT, TYPE B 706.02 AS PER PLAN L.F.	CATCH BASIN, CUYAHOGA COUNTY 3C, AS PER PLAN EA.	CATCH BASIN ADJUSTED TO GRADE EA.	MANHOLE No. 3 AS PER PLAN B EA.	MANHOLE ADJUSTED TO GRADE, AS PER PLAN EA.	MONUMENT BOX ADJUSTED TO GRADE EA.												
0+00 TO 2+50	47			2	1	43	50	146	4		1	2													
2+50 TO 6+50	48					35	157		2		1														
6+50 TO 9+50	49	80	140	4		80			4			7	1												
9+50 TO 12+50	50	35	84	2		38			2			2	1												
12+50 TO 15+50	51	38		2		38			2			2													
15+50 TO 18+50	52											2	1												
18+50 TO 22+50	53	68		4		68			4			2	1												
22+50 TO 26+50	54	30		2		30			2	4		4	2												
26+50 TO 30+00	55	38		2		38			2	2		5													
30+00 TO 34+00	56	37		2		37			2	2		5	1												
34+00 TO 38+00	57	37		4		87			4			5	2												
38+00 TO 42+00	58	32		2		32			2			4	2												
42+00 TO 46+00	59	35		2		35			2	4		3	4												
46+00 TO 50+00	60	24		1		24			1	1		2	1												
50+00 TO 54+00	61	42		2		42			2	2		4													
54+00 TO 58+00	62	23		1		23			1	1		2	1												
58+00 TO 60+14.51	63											2	1												
TOTALS		519	224	32	1	650	207	146	36	16	2	53	18												

SUB-SUMMARY OF DRAINAGE QUANTITIES (RICHMOND HEIGHTS)

CALC.
BY
DATE
CHKD.
BY
DATE

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F.H.W.A.
REGION 5

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CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

** 707.17 NON-PERFORATED, ASTM D3034, SDR 35, SS931 OR SS944

SHEET NO.	STATION		PIPE REMOVED, 24" & UNDER AS PER PLAN	MANHOLE REMOVED	CATCH BASIN REMOVED	6" CONDUIT, TYPE C 707.19, PS46 MIN. AS PER PLAN	6" CONDUIT, TYPE F, ** AS PER PLAN	8" CONDUIT, TYPE C 706.08, ES OR 707.19, PS 46 MIN. A.P.P.	12" CONDUIT, TYPE B, 706.02 AS PER PLAN	12" CONDUIT, TYPE C, 706.02 AS PER PLAN	15" CONDUIT, TYPE B, 706.02 AS PER PLAN	15" CONDUIT, TYPE C, 706.02 AS PER PLAN	18" CONDUIT, TYPE B, 706.02 AS PER PLAN	18" CONDUIT, TYPE C, 706.02 AS PER PLAN	21" CONDUIT, TYPE C, 706.02 AS PER PLAN	24" CONDUIT, TYPE C, 706.02 AS PER PLAN	27" CONDUIT, TYPE B, 706.02 AS PER PLAN	27" CONDUIT, TYPE C, 706.02 AS PER PLAN	30" CONDUIT, TYPE C, 706.02 AS PER PLAN	36" CONDUIT, TYPE B, 706.02 AS PER PLAN	36" CONDUIT, TYPE C, 706.02 AS PER PLAN	19"X30" CONDUIT TYPE B, 706.04 AS PER PLAN			CATCH BASIN, NO. 3 W/V GRATE, AS PER PLAN	CATCH BASIN, NO. 3A W/V GRATE, AS PER PLAN	CATCH BASIN, NO. 2-2B, AS PER PLAN	CATCH BASIN, NO. 2-3, AS PER PLAN	CATCH BASIN, NO. 2-6, AS PER PLAN	CATCH BASIN, NO. 6, AS PER PLAN	MANHOLE, NO. 3 AS PER PLAN-A	MANHOLE, NO. 3 AS PER PLAN-B	INLET, NO. 1	CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, L&P			
	FROM	TO																																				L.F.	EA.	EA.
64	60+14.51	65+00	397		2		20		26	422																	2	3							1	2		2		942
65	65+00	70+00	290				60		78	163	132																6	1	2				1	1	2		1	2		909
66	70+00	75+00	22				40		115	163																2	2	3	1	1					2	1		3		940
67	75+00	80+00	13				60	8	85	288					226	78										2	4	1	2				2	1	1		1	3		910
68	80+00	85+00	52	1	1	10	120		218	92						50			292	61	97				1	6	1	4		2			3			4		929		
69	85+00	90+00	65				40		26	66						108	48	228	174								3		3					3	6		1	3		964
70	90+00	95+00					130		158	103			53	195		210									2	7		3				1	2	1		4	2		944	
71	95+00	100+00	326	1	4		90		154	185	180	31		8	22	8									2	3	2			1	1	1			1	3		958		
72	100+00	104+75	151	1			20		26	230	56	140															2	1			1	1	1		2	2		920		
73	104+75	106+00	225	1	2		50		75	61		20	95	90													3			1	1	1				1		268		
TOTALS			1541	4	9	10	630	8	961	1773	368	191	148	293	248	844	48	228	466	61	97	26			9	38	12	15	1	4	7	14	15	1	10	25		8684		

CHARDON ROAD

902390S\041495

CALCULATIONS

(RICHMOND HEIGHTS)

CALC BY	CUY-6-25.94	OHIO	45 125
DATE		F.H.W.A. REGION 5	
CHKD BY			
DATE			

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

ITEM 202 - BRICK BASE REMOVED

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
95+00	100+25	525
102+00	105+00	300
	<u>825</u>	
825 FT. x 19 FT. / 9 (S.F./S.Y.)		= 1,741.7
	USE	1,742

ITEM 202 - WALK REMOVED

STATION TO STATION	SIDE	LENGTH(FT.)	QUANTITY(S.F.)
77+25	79+40 (L)	215	
79+56	83+75.08 (L)	419.08	
84+78.98	88+88.14 (L)	409.16	
85+11	88+88.14 (R)	377.14	
89+63.14	93+54.98 (L&R)	783.68	
94+70.07	98+13.08 (L)	343.01	
94+70.07	96+10 (R)	139.93	
98+96.87	104+87.85 (L)	590.98	
105+87.60	106+22.00 (L)	34.4	
		<u>3,312.38</u>	
3,312.38 FT. x 5 FT.		=	16,561.9
	USE		16,562

DEDUCTIONS FOR DRIVEWAY AREAS:

77+25	103+90.00 (L)	292	
85+11	96+10 (R)	155	
		<u>447</u>	
447 FT. x 5 FT.		= 2,235	
TOTAL QUANTITY = 16,562 - 2,235		=	14,327

ITEM 202 - FENCE REMOVED, AS PER PLAN

STATION TO STATION	SIDE	LENGTH (FT.)
64+58	66+45 L	187
TOTAL =		187 FT.

ITEM 203 - EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION (CUT)

ITEM 203 - EMBANKMENT (FILL)

SHT. NO.	STATION TO STATION	CUT QUANTITY(C.Y.)	FILL QUANTITY(C.Y.)	
77	60+00	63+00	189	76
78	64+00	67+00	262	76
79	68+00	71+00	253	220
80	71+50	73+00	114	92
81	73+50	76+00	148	193
82	77+00	80+00	247	168
83	81+00	83+00	190	53
84	83+50	86+00	225	44
85	87+00	90+00	237	81
86	91+00	94+00	303	35
87	95+00	98+00	240	67
88	99+00	102+00	243	32
89	103+00	106+00	252	60
TOTAL =		2,903 C.Y.	TOTAL =	1,197 C.Y.

ITEM 203 - LINEAR GRADING

STATION TO STATION	LENGTH(FT.)	QUANTITY (STATION)
60+14.51	106+00	4585.49
4585.49 FT. x 2 = 9170.98 ÷ 100		= 91.7 - USE 92
ONE STATION = 100 LIN. FT. - SEE SHEET 10		

ITEM 251 - PARTIAL DEPTH PAVEMENT REPAIR

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.4
		<u>4,029.12</u>
4,029.12 FT. x 20 FT. x 10% OF TOTAL AREA / 9 (S.F./S.Y.)		= 895.36
	USE	896

ITEM 253 - PAVEMENT REPAIR

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.4
		<u>4,029.12</u>
4,029.12 FT. x 20 FT. x 10% OF TOTAL AREA / 9 (S.F./S.Y.)		= 895.36
	USE	896

ITEM 254 - PAVEMENT PLANING, BITUMINOUS (4"-8")

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	95+00	29.93
100+25	102+00	175
105+87.60	106+00.00	12.4
		<u>3,300.06</u>
3,300.06 FT. x 26 FT. / 9 (S.F./S.Y.)		= 9,533.5
	USE	9,534

ITEM 254 - PAVEMENT PLANING, BITUMINOUS (9")

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
95+00	98+13.08	313.08
98+96.87	100+25	128.13
102+00	104+87.85	287.85
		<u>729.06</u>
729.06 FT. x 26 FT. / 9 (S.F./S.Y.)		= 2,106.2
	USE	2,107

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL AND RIGID REPLACEMENT

EXISTING SANITARY CONNECTIONS:
8 FT. x 20 FT. x 10 CONNECTIONS / 9 (S.F./S.Y.) = 177.8 S.Y.
USE 178 S.Y.

CATCH BASIN CROSSOVERS:
8 FT. x 20 FT. x 20 CROSSOVERS / 9 (S.F./S.Y.) = 355.6 S.Y.
USE 356 S.Y.

CULVERT STA. 82+94.00
30 FT. x 20 FT. / 9 (S.F./S.Y.) = 66.7 S.Y.
USE 67 S.Y.

CULVERT STA. 106+80.00
27 FT. x 20 FT. / 9 (S.F./S.Y.) = 60 S.Y.
USE 60 S.Y.

MISCELLANEOUS (5% OF TOTAL AREA) :
4,029.12 FT. x 20 FT. x .05 / 9 (S.F./S.Y.) = 447.7 S.Y.
USE 448 S.Y.

TOTAL = 1,109 S.Y.


ITEM 301 - BITUMINOUS AGGREGATE BASE (AC-20)

STATION TO STATION	LENGTH(FT.)	QUANTITY(C.Y.)
60+14.51	70+50.00	1,035.49
72+50.00	82+50.00	1,000.00
84+00.00	93+50.00	950.00
		<u>2,985.49</u>
2,985.49 FT. x 2 x 3 FT. x (3"/12") / 27 (C.F./C.Y.)		= 165.9
*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER		= 15.1 C.Y.
TOTAL =		181 C.Y.

STEPHEN HOVANCSEK & ASSOC., INC.

CALCULATIONS

(RICHMOND HEIGHTS)

CALC BY _____	CUY-6-25.94	OHIO	
CHKD BY _____		F.H.W.A. REGION 5	
BY DATE _____			

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

ITEM 304 - 6" AGGREGATE BASE, AS PER PLAN

STATION TO STATION	SIDE	LENGTH(FT.)	QUANTITY(C.Y.)
60+14.51	66+36.92	(L&R) 622.41	
67+15.76	83+75.08	(L&R) 1,659.32	
84+78.98	88+88.14	(L&R) 409.16	
89+63.14	93+54.98	(L&R) 391.84	
94+70.07	98+13.08	(L&R) 343.01	
98+96.87	104+87.85	(L&R) 590.98	
105+87.60	106+00.00	(L&R) 12.40	
			4,029.12

4,029.12 FT. x 2 x 3.5 FT. x (6"/12") / 27 (C.F./C.Y.) = 522.3

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 77.7 C.Y.

TOTAL = 600 C.Y.

ITEM 305 - 15" CONCRETE BASE, AS PER PLAN

STATION TO STATION	SIDE	LENGTH(FT.)	QUANTITY(S.Y.)
60+14.51	66+36.92	(L&R) 622.41	
67+15.76	83+75.08	(L&R) 1,659.32	
84+78.98	88+88.14	(L&R) 409.16	
89+63.14	93+54.98	(L&R) 391.84	
94+70.07	98+13.08	(L&R) 343.01	
98+96.87	104+87.85	(L&R) 590.98	
105+87.60	106+00.00	(L&R) 12.40	
			4,029.12

4,029.12 FT. x 2 x 3.0 FT. / 9 (S.F./S.Y.) = 2,686.1

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 163.9 S.Y.

TOTAL = 2850 S.Y.

ITEM 402 - ASPHALT CONCRETE, AC-20

STATION TO STATION	LENGTH(FT.)	QUANTITY(C.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.40
		4,029.12

4,029.12 FT. x 26 FT. x (1-3/4"/12") / 27 (C.F./C.Y.) = 565.8

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 34.2 C.Y.

TOTAL = 600 C.Y.

ITEM 403 - ASPHALT CONCRETE, AC-20

STATION TO STATION	LENGTH(FT.)	QUANTITY(C.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	95+00.00	29.93
100+25.00	102+00.00	175.00
105+87.60	106+00.00	12.40
		3,300.06

3,300.06 FT. x 2.0 x 3.0 FT. x (3"/12") / 27 (C.F./C.Y.) = 183.3

95+00.00	98+13.08	313.08
98+96.87	100+25.00	128.13
102+00.00	104+87.85	287.85
		729.06

729.06 FT. x 20.0 FT. x (3"/12") / 27 (C.F./C.Y.) = 135.0

TOTAL = 318.3

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 31.7 C.Y.

TOTAL = 350 C.Y.

ITEM 404 - ASPHALT CONCRETE, AC-20

STATION TO STATION	LENGTH(FT.)	QUANTITY(C.Y.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.40
		4,029.12

4,029.12 FT. x 26 FT. x (1-1/4"/12") / 27 (C.F./C.Y.) = 404.2

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 15.8 C.Y.

TOTAL = 420 C.Y.

ITEM 407 - TACK COAT

STATION TO STATION	LENGTH(FT.)	QUANTITY(GAL.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.40
		4,029.12

4,029.12 FT. x 26 FT. / 9 (S.F./S.Y.) x 0.1 (GAL./S.Y.) = 1,164.0

USE 1,164

ITEM 608 - 4-1/2" CONCRETE WALK

STATION TO STATION	SIDE	LENGTH(FT.)	QUANTITY(S.F.)
60+31	66+36.92	(L) 605.92	
60+14.51	83+75.08	(R) 2360.57	
67+15.76	83+75.08	(L) 1659.32	
84+78.98	88+88.14	(L) 409.16	
84+78.98	93+54.98	(R) 876	
89+63.14	93+54.98	(L) 391.84	
94+70.07	98+13.08	(L) 343.01	
94+70.07	105+75	(R) 1104.93	
98+96.87	104+87.85	(L) 590.98	
105+87.60	106+20	(L) 32.40	
			8,374.13

8,374.13 x 5 = 41,870.65 S.F.

USE 41,871 S.F.

DEDUCTIONS FOR DRIVEWAYS

5,870 S.F.

TOTAL = 36,001 S.F.

ITEM 609 - CURB, TYPE 6

STATION TO STATION	LENGTH(FT.)	QUANTITY(L.F.)
60+14.51	66+36.92	622.41
67+15.76	83+75.08	1,659.32
84+78.98	88+88.14	409.16
89+63.14	93+54.98	391.84
94+70.07	98+13.08	343.01
98+96.87	104+87.85	590.98
105+87.60	106+00.00	12.40
		4,029.12

4,029.12 FT. x 2 = 8,058.2

*ADDITIONAL QUANTITIES TO BE USED AS DIRECTED BY ENGINEER = 91.8 L.F.

TOTAL = 8150 L.F.

ITEM 615 - TEMPORARY PAVEMENT, CLASS B

STATION TO STATION	LENGTH(FT.)	QUANTITY(S.Y.)
60+14.51	106+00	4585.49
		4,585.49' x 5' (WIDTH) / (9 SQ. FT./ SQ. YD)
		= 2,547.49
		USE 2,548

CULVERT	STA. 82+86	105
	PHASE I	
CULVERT	STA. 82+86	535
	PHASE II	
CULVERT	STA. 106+80	57
	PHASE I	
CULVERT	STA. 106+80	511
	PHASE II	

TOTAL 3756 S.Y.

CALCULATIONS

CALC BY _____	CUY-6-25.94	OHIO	<div style="border: 1px solid black; border-radius: 50%; width: 30px; height: 30px; display: flex; align-items: center; justify-content: center; margin: 0 auto;"> 46a 126 </div>
CHKD BY _____		F.H.W.A. REGION 5	
BY _____			
DATE _____			

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

ITEM 659 - SEEDING AND MULCHING

SHT. NO.	STATION TO STATION	QUANTITY(S.Y.)
77	60+00 63+00	34
78	64+00 67+00	45
79	68+00 71+00	45
80	71+50 73+00	23
81	73+50 76+00	34
82	77+00 80+00	45
83	81+00 83+00	34
84	83+50 86+00	34
85	87+00 90+00	45
86	91+00 94+00	45
87	95+00 98+00	45
88	99+00 102+00	45
89	103+00 106+00	45
TOTAL =		519 S.Y.

ITEM 660 - SODDING

SHT. NO.	STATION TO STATION	QUANTITY(S.Y.)
77	60+00 63+00	735
78	64+00 67+00	980
79	68+00 71+00	1368
80	71+50 73+00	712
81	73+50 76+00	1068
82	77+00 80+00	1424
83	81+00 83+00	1347
84	83+50 86+00	1402
85	87+00 90+00	1868
86	91+00 94+00	1868
87	95+00 98+00	1535
88	99+00 102+00	980
89	103+00 106+00	980
TOTAL =		16,267 S.Y.

ITEM 653 - TOPSOIL FURNISHED AND PLACED
 $16,267 \times 9 \times 0.16 \times \frac{1}{27} = 867.57 \text{ CU.YDS.} - \text{USE } 870 \text{ CU.YDS.}$
 SEE SHEET 10

A-4

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

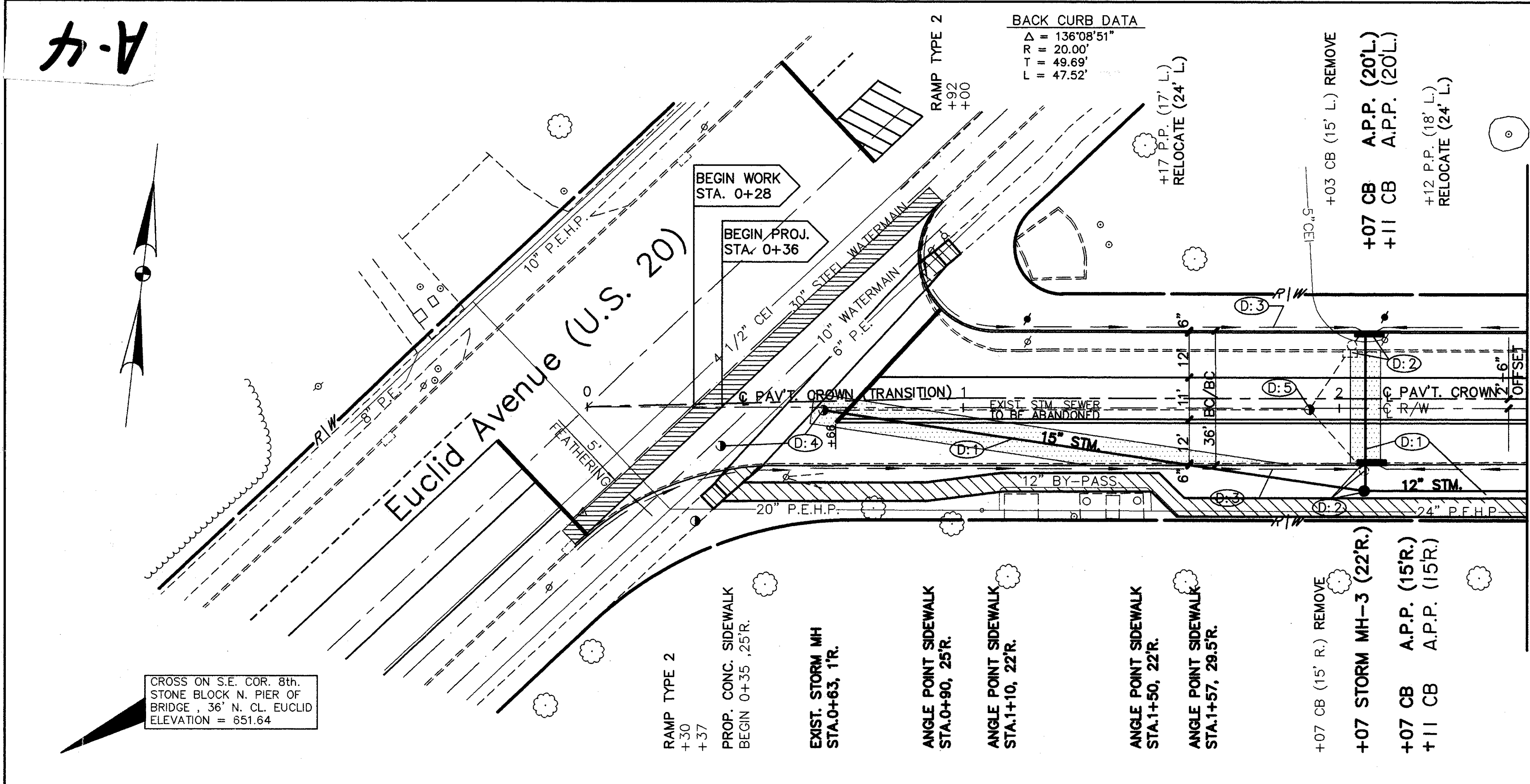
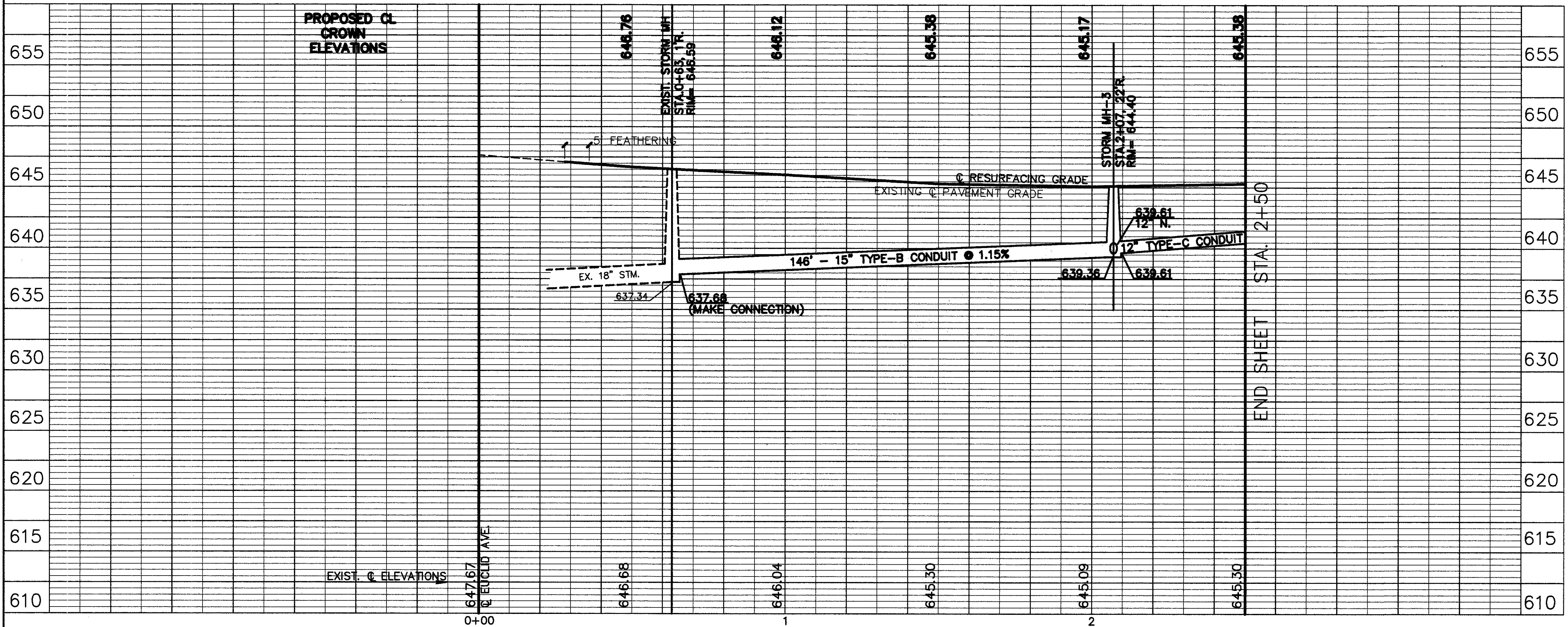
A.P.P.: AS PER PLAN

ESTIMATED DRAINAGE QUANTITIES	ITEM	UNIT	STATIONS		TOTALS
			FROM	TO	
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.		415'	415
	MONUMENT BOX ADJUSTED TO GRADE	EA.			
	CATCH BASIN ADJUSTED TO GRADE	EA.			
	MANHOLE ADJUSTED TO GRADE	EA.		2	2
	MANHOLE No. 3 WITH OPEN GRATE	EA.	1		1
	CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.	4		4
	15" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		146'	146
	12" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		43'	43
	12" CONDUIT TYPE-C 706.02 AS PER PLAN	L.F.		50'	50
	6" CONDUIT TYPE-F *	L.F.		40'	40
202	MANHOLE ABANDONED	EA.		1	1
	CATCH BASIN REMOVED	EA.		2	2
	PIPE REMOVED 24" & UNDER	L.F.			
SIDE		L.R.			
OFFSET		L.R.			
STATIONS					
REFERENCE No.					

REFERENCE SHEETS

SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
SEE SHEET No. 111 FOR CATCH BASIN CONNECTIONS.
SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
SEE SHEET No. 23 FOR SIDEWALK QUANTITIES.
SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 707.17 MIN. PERFORATED, ASTM D-3034, SDR-35 JS 9.1 DR JS 9.4



END SHEET STA. 2+50

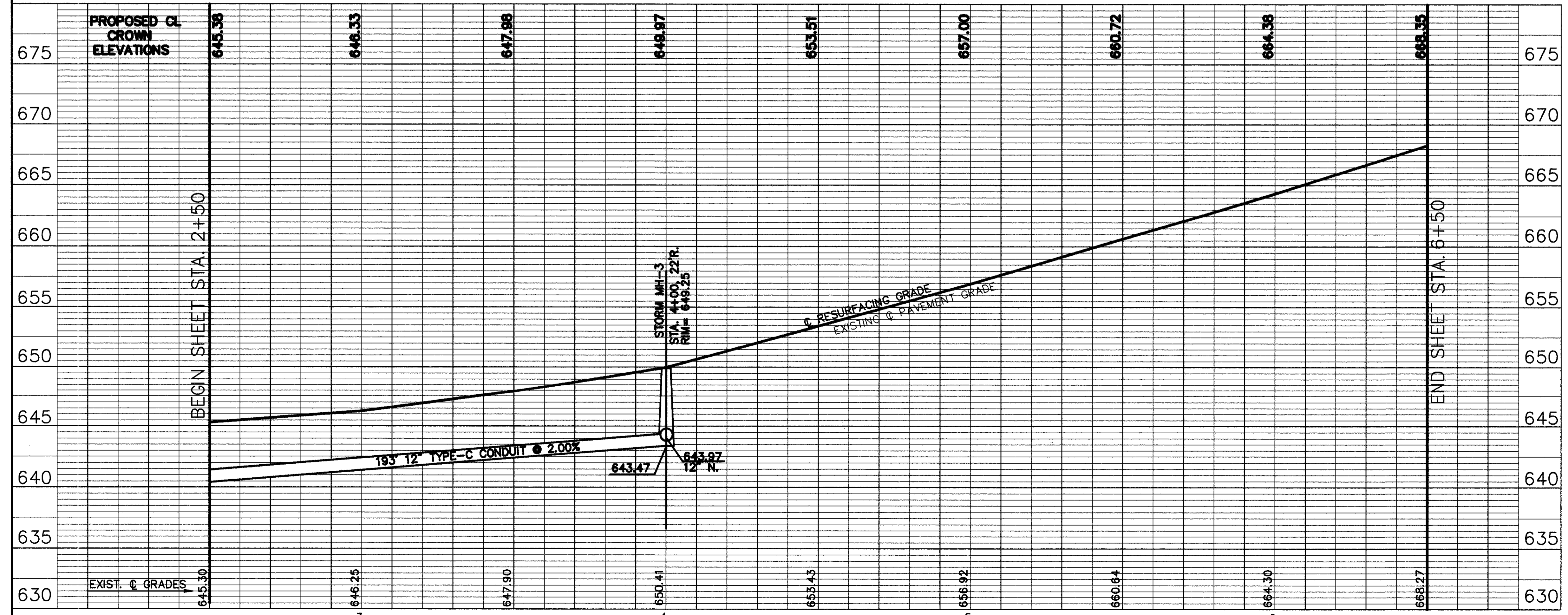
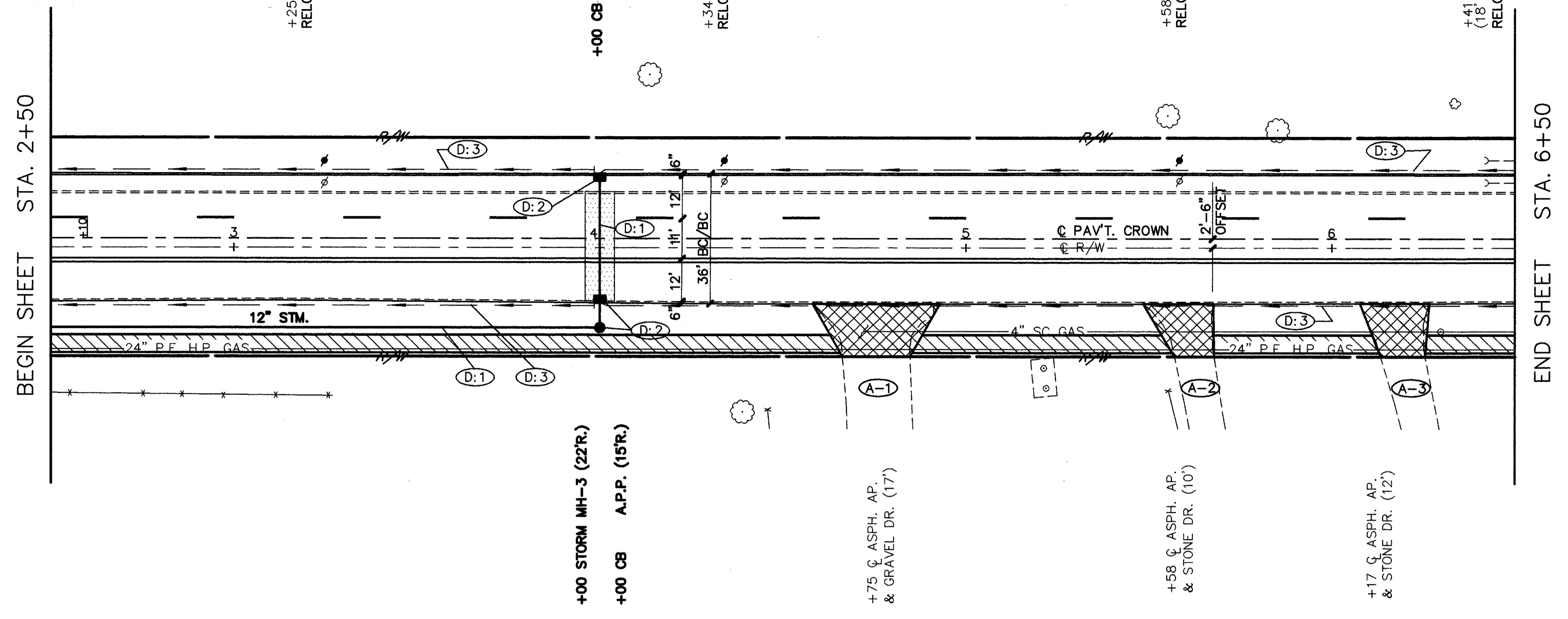
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P. : AS PER PLAN

ESTIMATED DRAINAGE QUANTITIES	ITEM	UNIT	QUANTITIES	
			FROM	TO
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.	780'	780'
	MONUMENT BOX ADJUSTED TO GRADE	EA.		
	CATCH BASIN ADJUSTED TO GRADE	EA.		
	MANHOLE ADJUSTED TO GRADE	EA.		
	MANHOLE No. 3 WITH OPEN GRATE	EA.	1	1
	CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.	2	2
603	15" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		
	12" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.	35'	35'
	12" CONDUIT TYPE-C 706.02 AS PER PLAN	L.F.	157'	157'
	6" CONDUIT TYPE-F *	L.F.	20'	20'
202	CATCH BASIN REMOVED	EA.		
	PIPE REMOVED 24" & UNDER	L.F.		
TOTALS	SIDE	L.F.		
	OFFSET	L.F.		

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 111 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 23 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 2007.17 NON-PERFORATED, ASTM D-3034 JDR-35 33-931 DR 33-944



CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

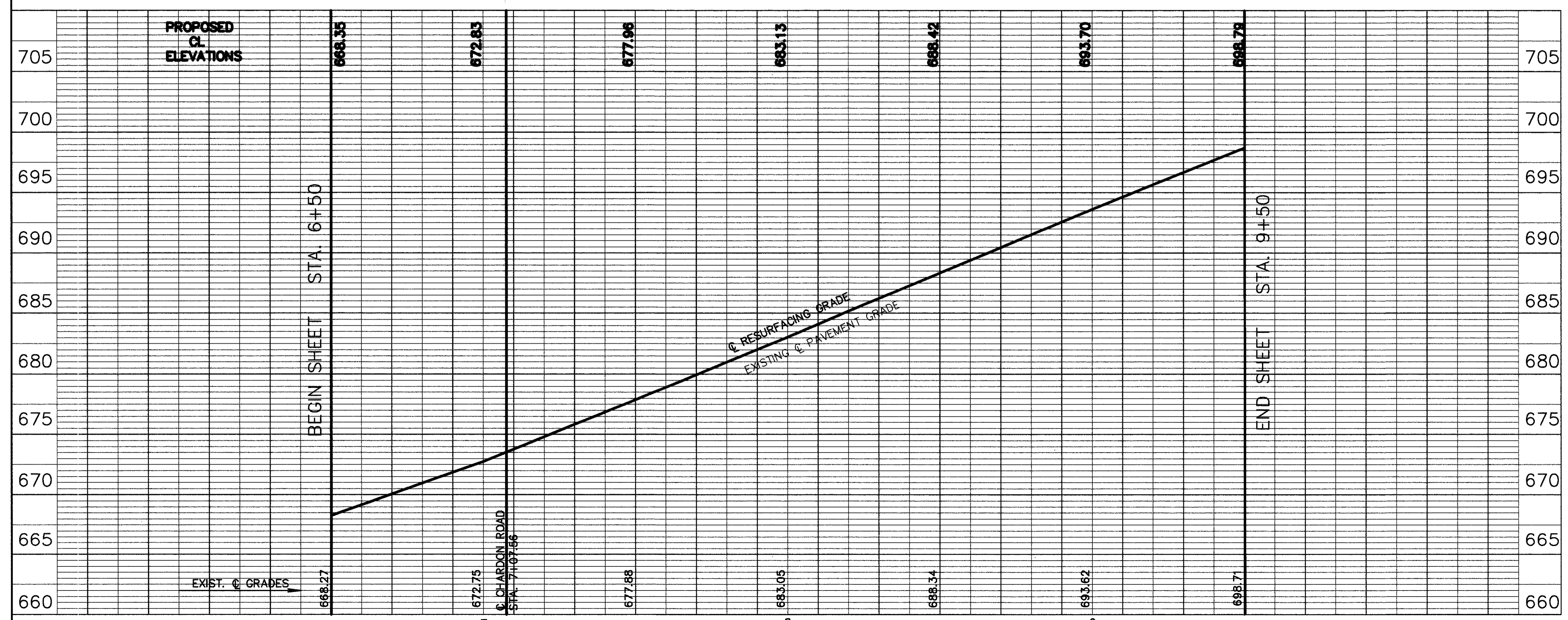
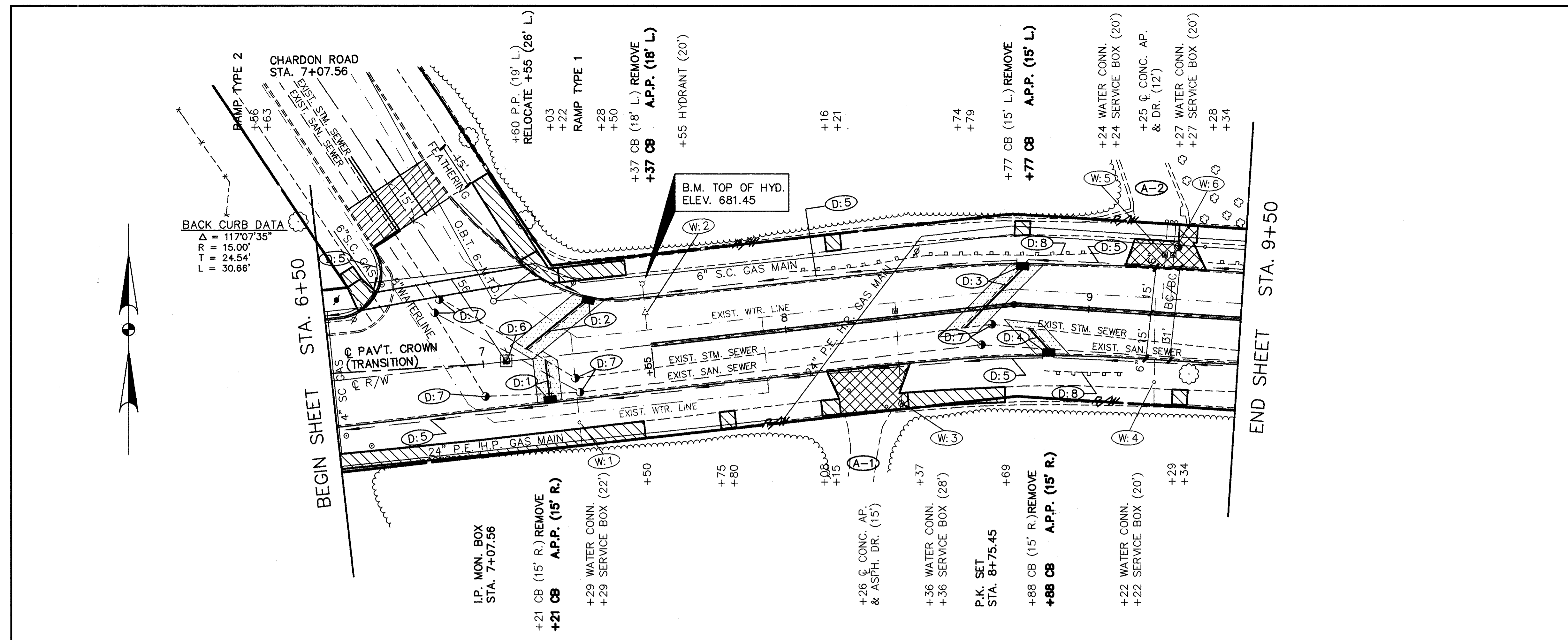
A.P.P. : AS PER PLAN

ESTIMATED DRAINAGE QUANTITIES		STATIONS		TOTALS	
FROM	TO	FROM	TO	QUANTITY	UNIT
D1 7+21	14	15	R.T.	14	
D2 7+37	18	L.T.	26	14	
D3 8+77	15	L.T.	28	26	
D4 8+88	15	R.T.	12	12	
D5 6+50	9+50	L.R.	50'	50'	
D6 7+07.56	9+50	C.L.			
D7 6+50	9+50	L.R.	140'	140'	
D8 8+03	9+50	L.R.			
TOTALS				80'	4
TOTALS				80'	140'
TOTALS				80'	4
TOTALS				80'	50'
TOTALS				80'	80'
TOTALS				7	7
TOTALS				1	1
TOTALS				4	4
TOTALS				1	1
TOTALS				570'	570'

REFERENCE SHEETS

SEE SHEET No. **30** FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. **29** FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. **111** FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. **33** FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. **28** FOR SIDEWALK QUANTITIES.
 SEE SHEET No. **36** FOR WATERWORK QUANTITIES.

* 707.17 NOMI. REPERFORATED, ASTM: D-3034, SDR-35 SS 931 DR 33 944



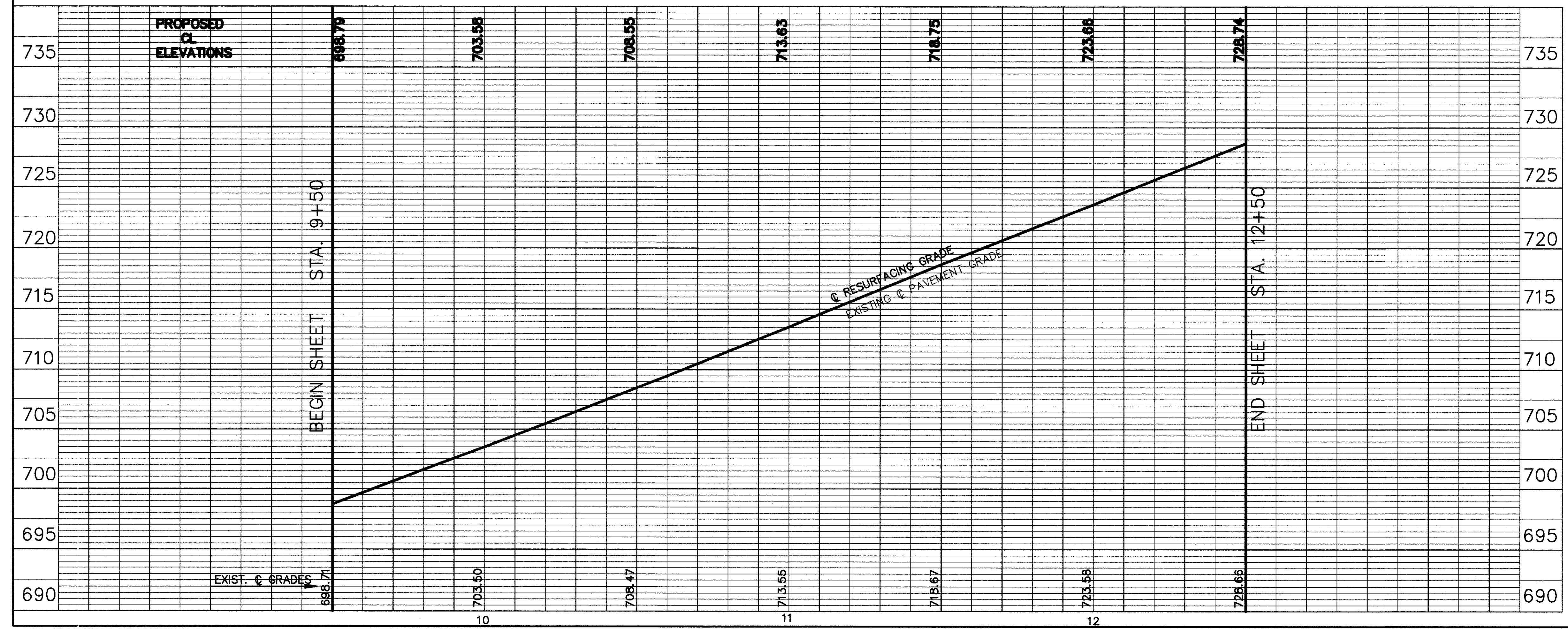
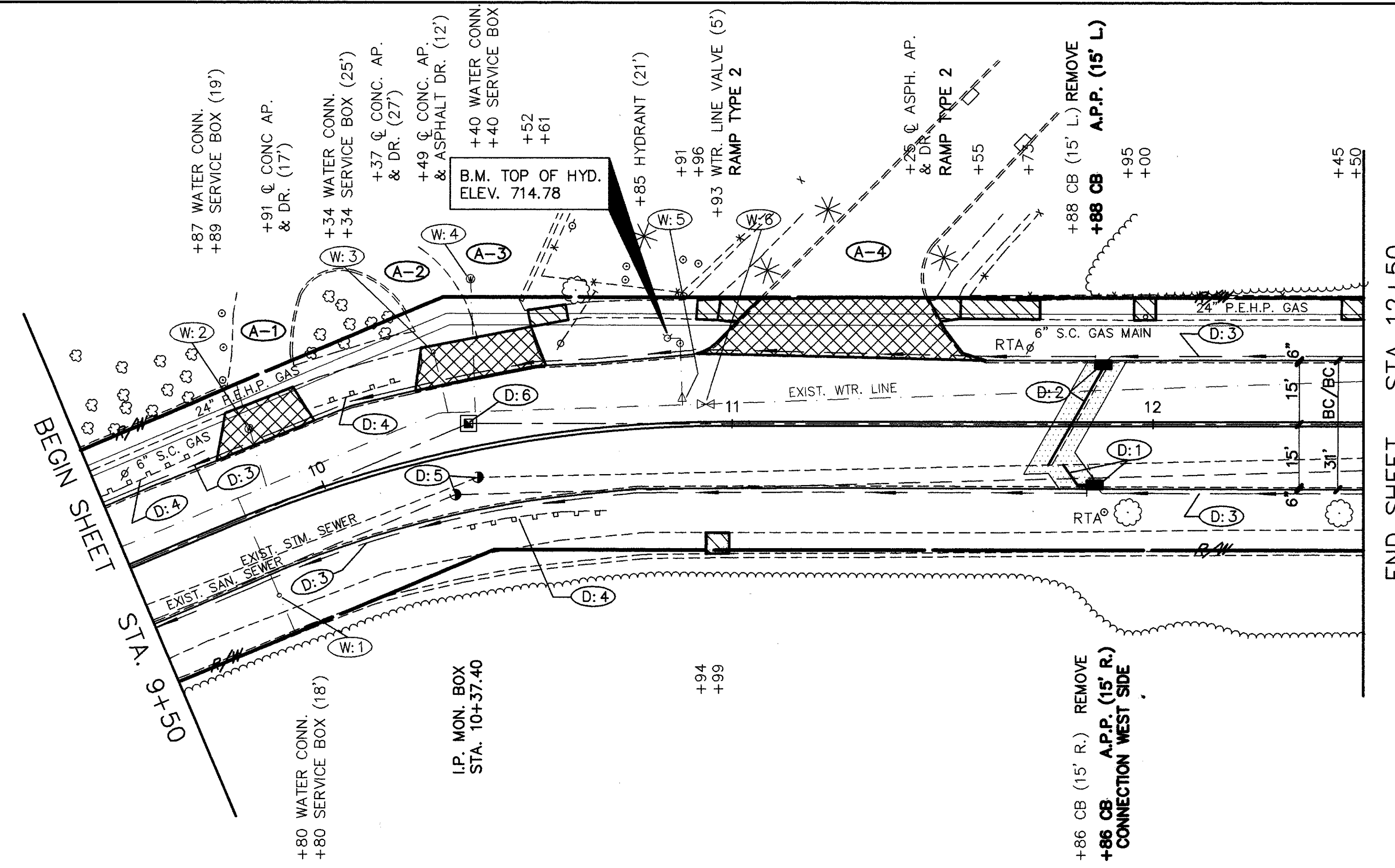
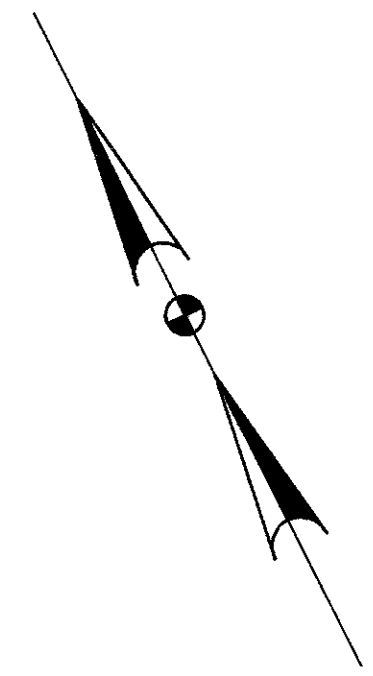
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

APP.: AS PER PLAN

STATIONS	FROM	TO	RT.	LI.	CL.	QUANTITY	UNIT	DESCRIPTION
605	D1	11+86	15	RT.		1	L.F.	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.
	D2	11+88	15	LI.		580'	EA.	MONUMENT BOX ADJUSTED TO GRADE
	D3	9+50	12+50	L.R.		1	EA.	CATCH BASIN ADJUSTED TO GRADE
	D4	9+50	10+70	L.R.		2	EA.	MANHOLE ADJUSTED TO GRADE
	D5	10+28 & 10+34	RT.			1	EA.	MANHOLE No. 3 WITH OPEN GRATE
	D6	10+37.40	CL.			1	EA.	CATCH BASIN MISCELLANEOUS AS PER PLAN
603	D1	11+86	15	RT.		1	L.F.	15" CONDUIT TYPE-B 706.02 AS PER PLAN
	D2	11+88	15	LI.		27	L.F.	12" CONDUIT TYPE-B 706.02 AS PER PLAN
	D3	9+50	12+50	L.R.		20'	L.F.	12" CONDUIT TYPE-C 706.02 AS PER PLAN
	D4	9+50	10+70	L.R.		*	L.F.	6" CONDUIT TYPE-F *
202	D1	11+86	15	RT.		1	L.F.	GUARD RAIL REMOVED
	D2	11+88	15	LI.		1	EA.	CATCH BASIN REMOVED
	D3	9+50	12+50	L.R.		84'	L.F.	PIPE REMOVED 24" & UNDER
TOTALS								
TOTALS								

REFERENCE SHEETS

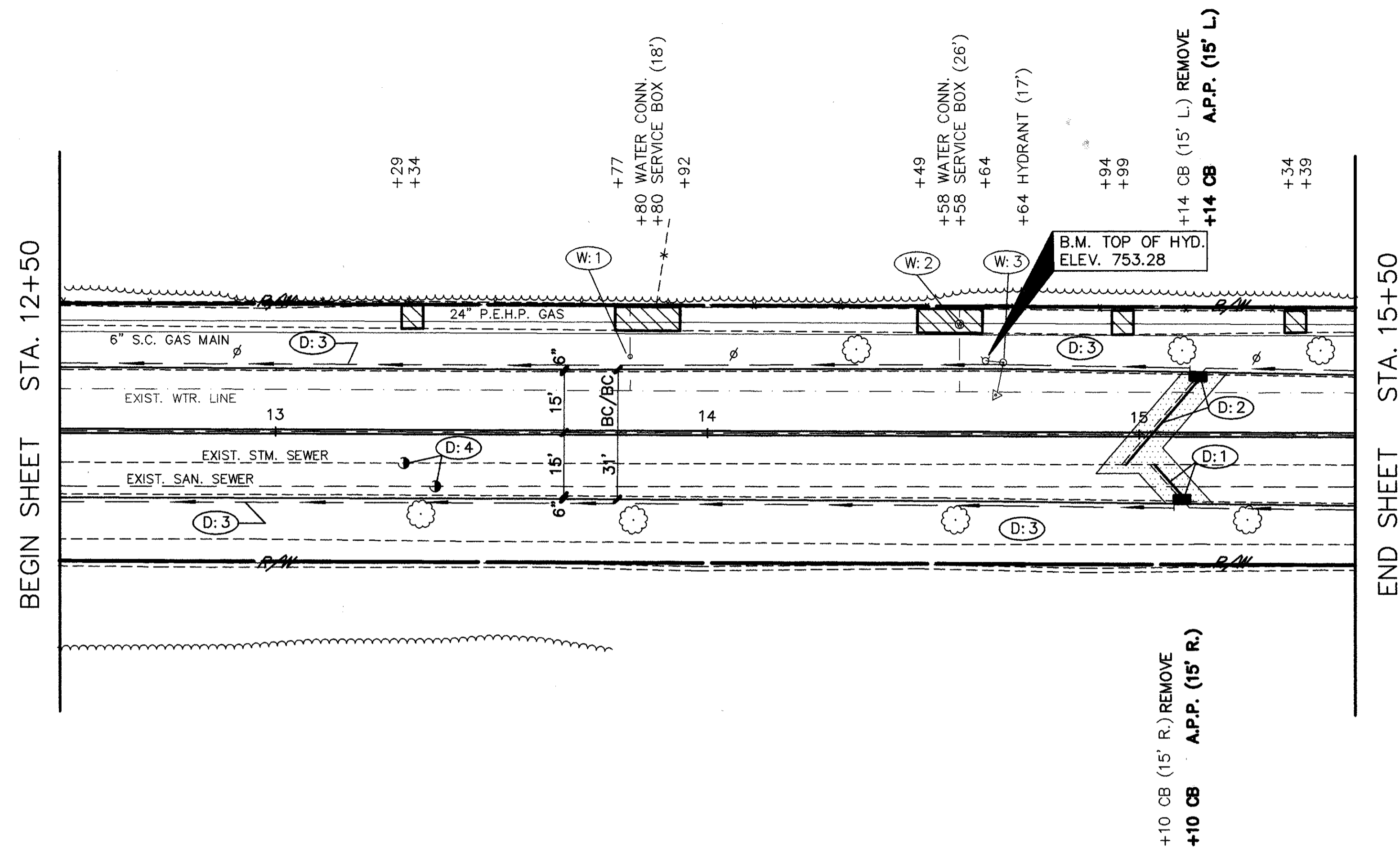
SEE SHEET No. **30** FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. **29** FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. **111** FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. **33** FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. **28** FOR SIDEWALK QUANTITIES.
 SEE SHEET No. **36** FOR WATERWORK QUANTITIES.



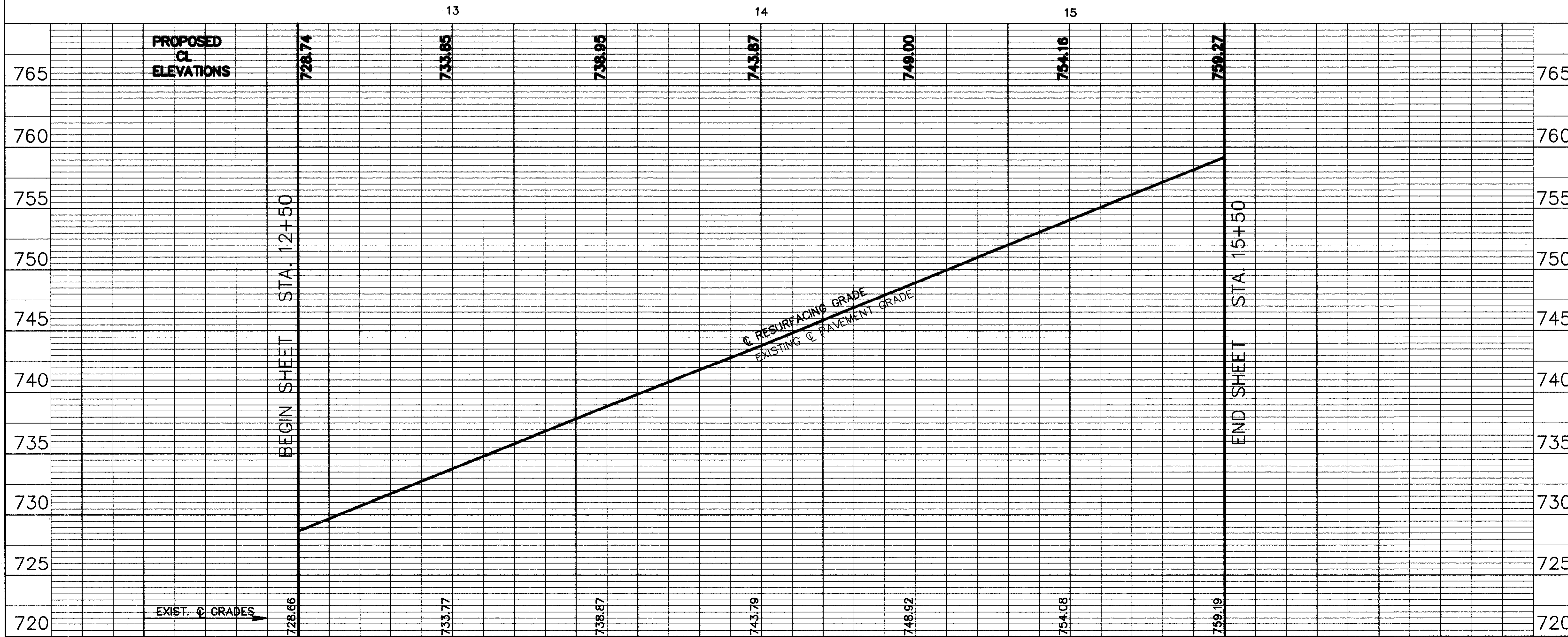
* 107.17 100% PERFORATED, ASTM D-3034, SDR-35 55-93/ DR 55-944

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P. : AS PER PLAN



STATIONS	FORM	TO	RT.	L.F.	EA.	EA.	EA.	EA.	EA.	TOTALS
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.		L.F.	580'						580'
	MONUMENT BOX ADJUSTED TO GRADE		EA.							
604	CATCH BASIN ADJUSTED TO GRADE		EA.							
	MANHOLE ADJUSTED TO GRADE		EA.	2						2
603	MANHOLE No. 3 WITH OPEN GRATE		EA.							
	CATCH BASIN MISCELLANEOUS AS PER PLAN		EA.	1	1					2
202	15" CONDUIT TYPE-B, 706.02 AS PER PLAN		L.F.							
	12" CONDUIT TYPE-B, 706.02 AS PER PLAN		L.F.	10'	28'					38'
	12" CONDUIT TYPE-C, 706.02 AS PER PLAN		L.F.							
	6" CONDUIT TYPE-F *		L.F.	20'						20'
CATCH BASIN REMOVED		EA.	1							
PIPE REMOVED 24" & UNDER		L.F.	10'	28'						38'
SIDE OFFSET		RT.	15'							
		LT.	15'							
		RT.	13+30 & 13+37							
TOTALS										



REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 111 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 23 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 2021.17 NON-PERFORATED, ASTM D-3034, SDR-35, SS-931 DR SS-944

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

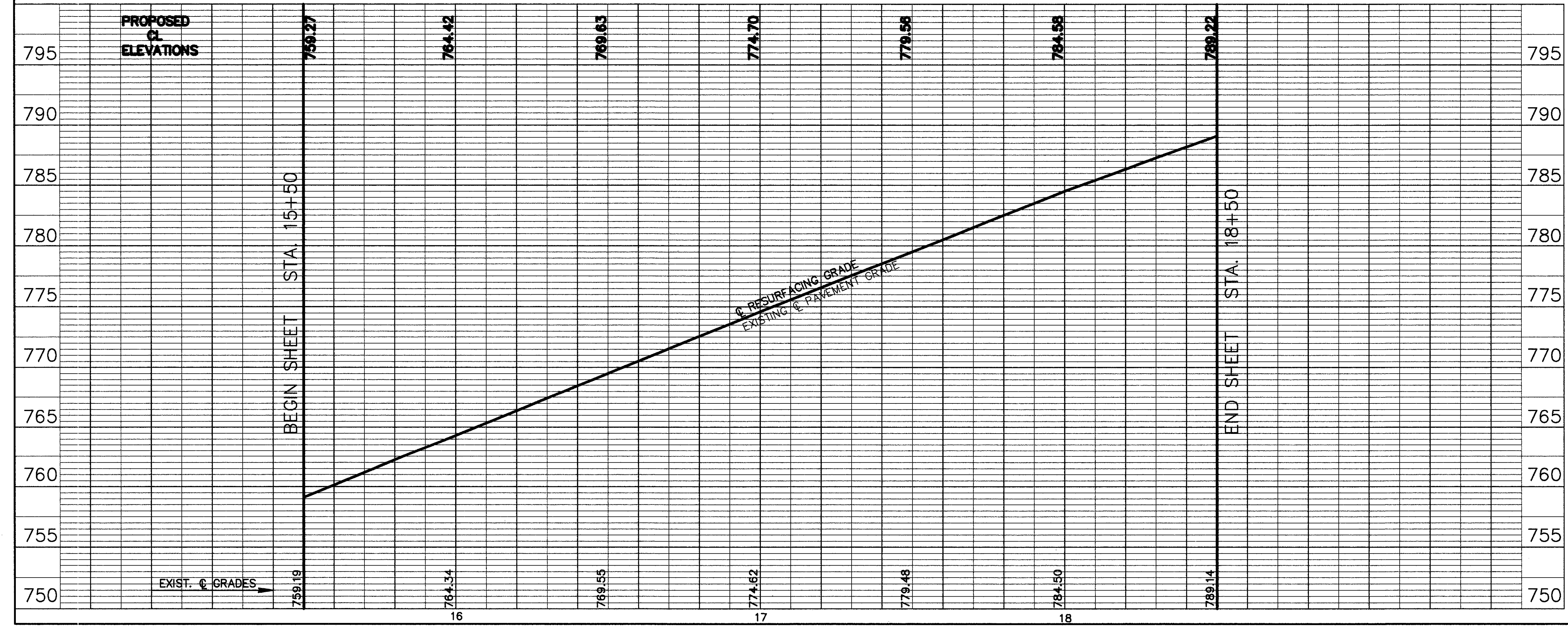
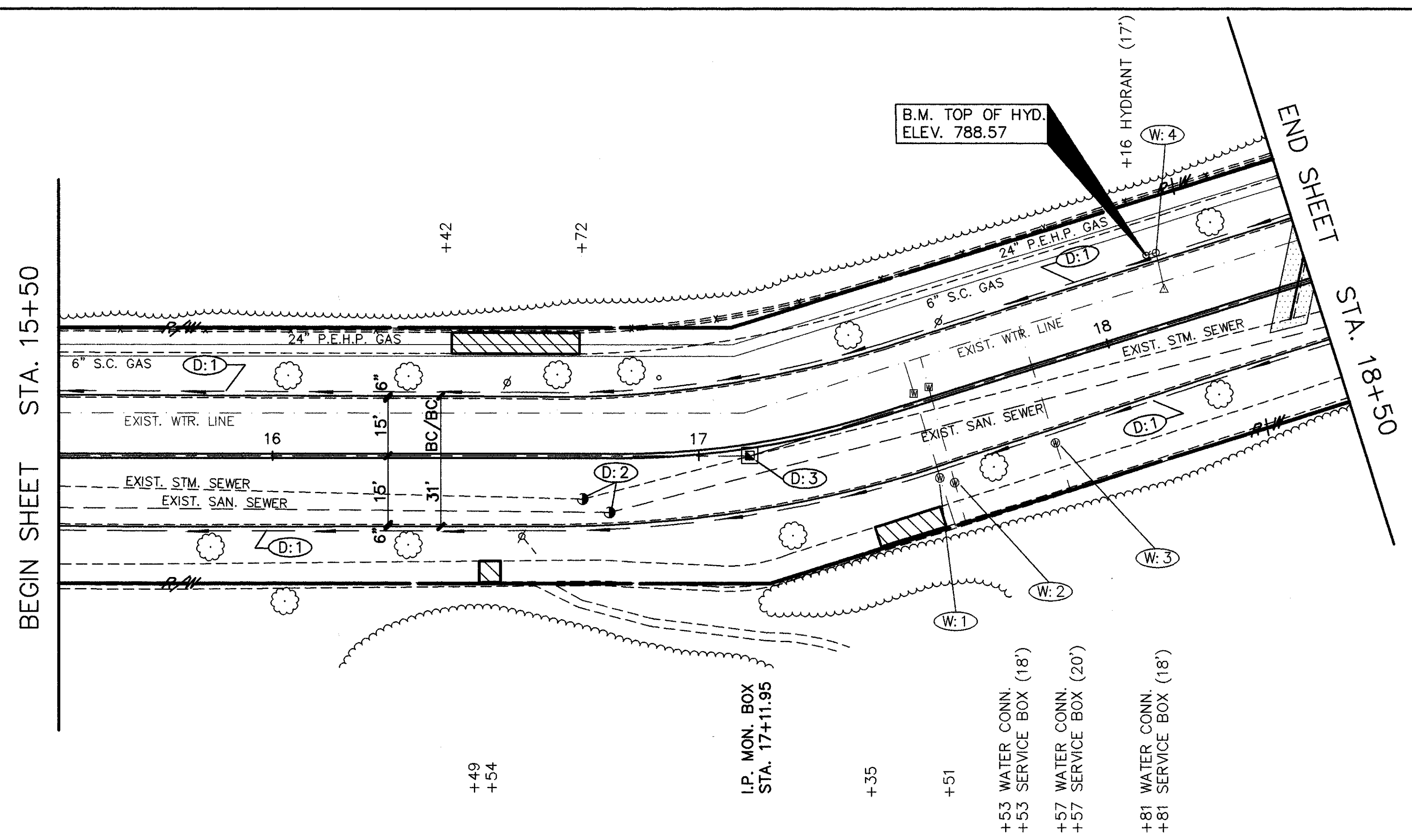
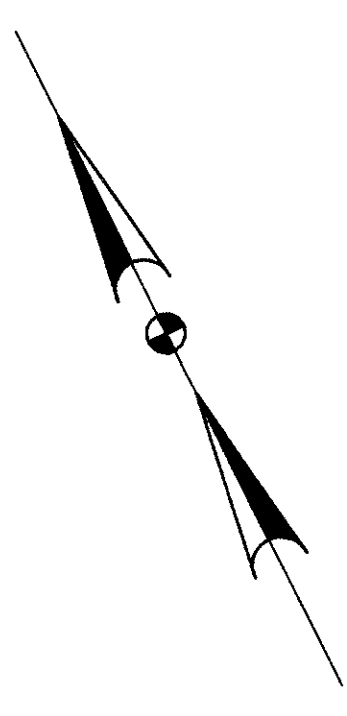
A.P.P. : AS PER PLAN

ESTIMATED DRAINAGE QUANTITIES	ITEM	UNIT	QUANTITIES	
			NO.	FOOTAGE
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.	600	
	MONUMENT BOX ADJUSTED TO GRADE	EA.	1	
604	CATCH BASIN ADJUSTED TO GRADE	EA.		
	MANHOLE ADJUSTED TO GRADE	EA.	2	
603	MANHOLE No. 3 WITH OPEN GRATE	EA.		
	CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.		
202	15" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		
	12" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		
	12" CONDUIT TYPE-C 706.02 AS PER PLAN	L.F.		
	6" CONDUIT TYPE-F *	L.F.		
202	CATCH BASIN REMOVED	EA.		
	PIPE REMOVED 24" & UNDER	L.F.		
STATIONS	SIDE	L.R.		
	OFFSET	R.T. CL.		
TOTALS				
REFERENCE No.	FROM TO			
	D1 15+50 18+50			
	D2 16+73 & 16+79			
	D3 17+11.95			

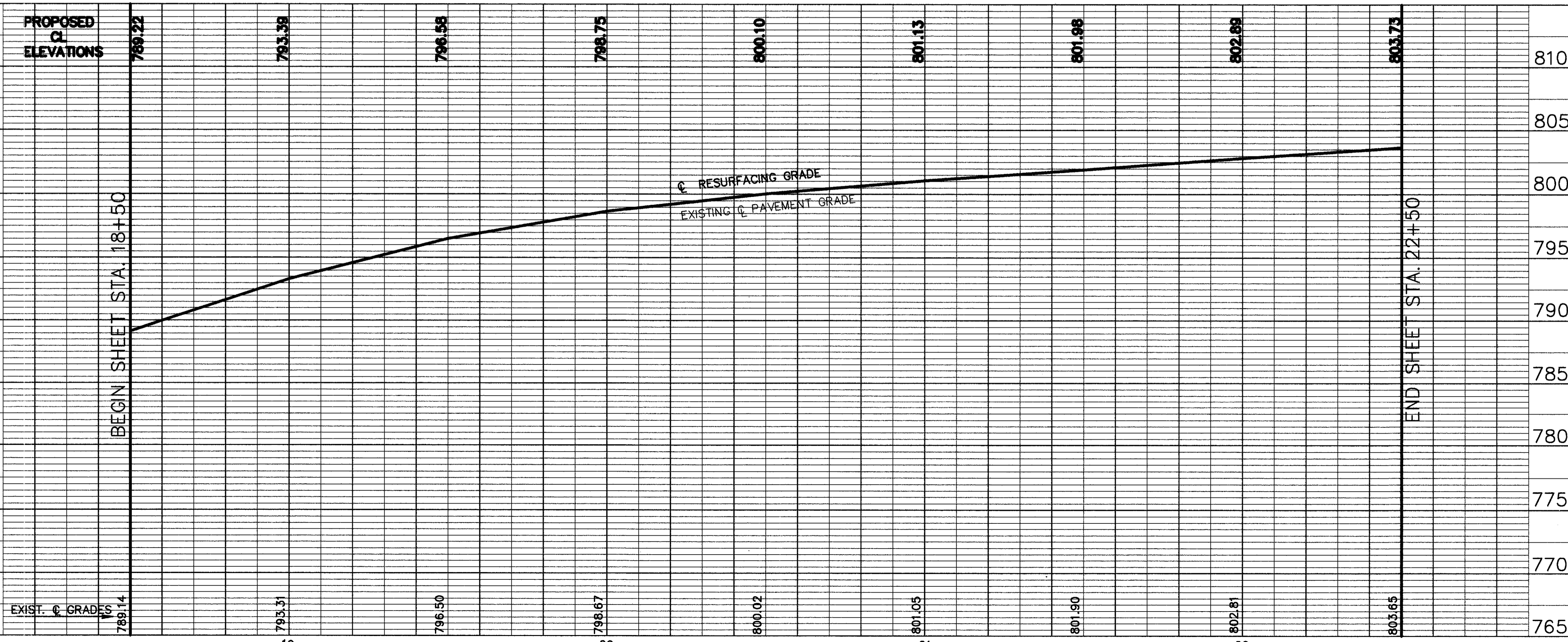
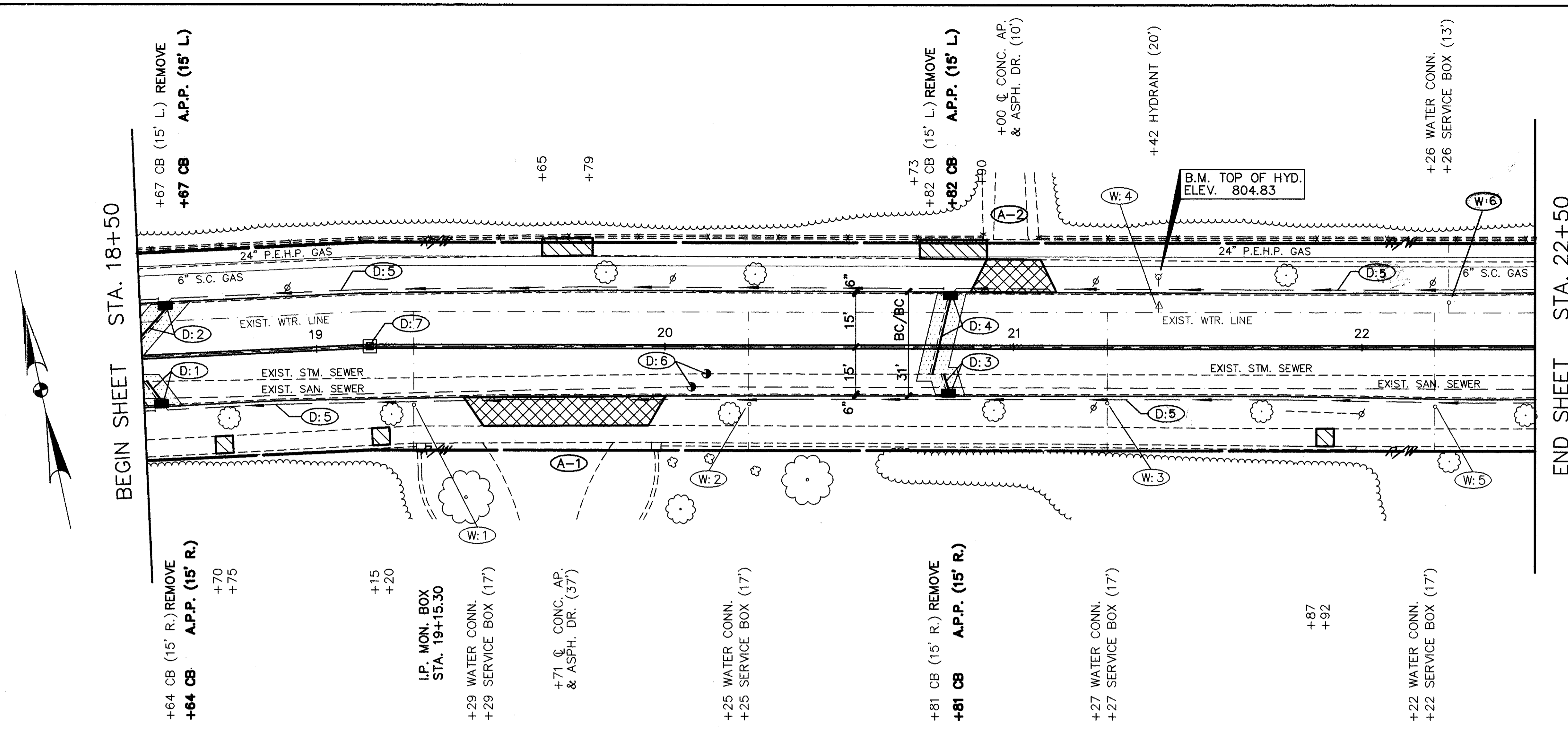
REFERENCE SHEETS

- SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
- SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
- SEE SHEET No. 112 FOR CATCH BASIN CONNECTIONS.
- SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
- SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
- SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 707.17 NOW PERFORMED, ASTM D-3034, SDR-35, 35-931 OR 35-944



A.P.P.: AS PER PLAN



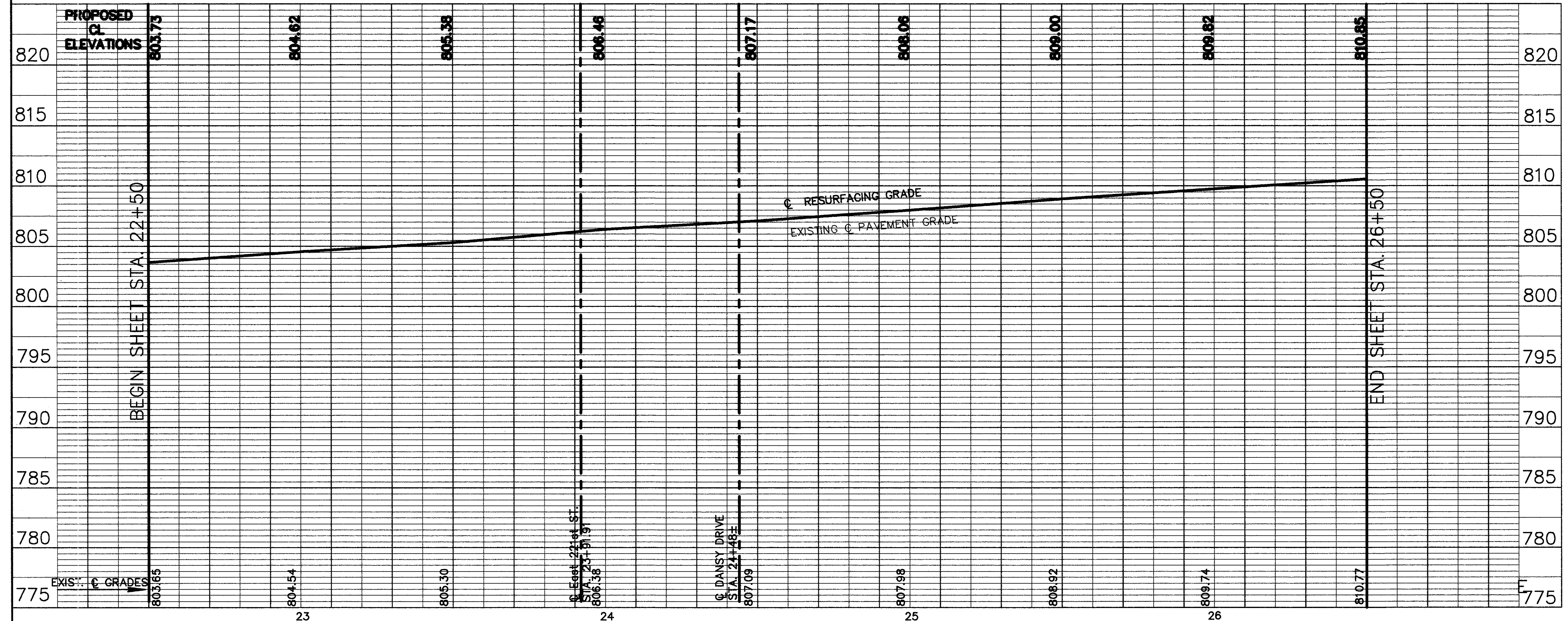
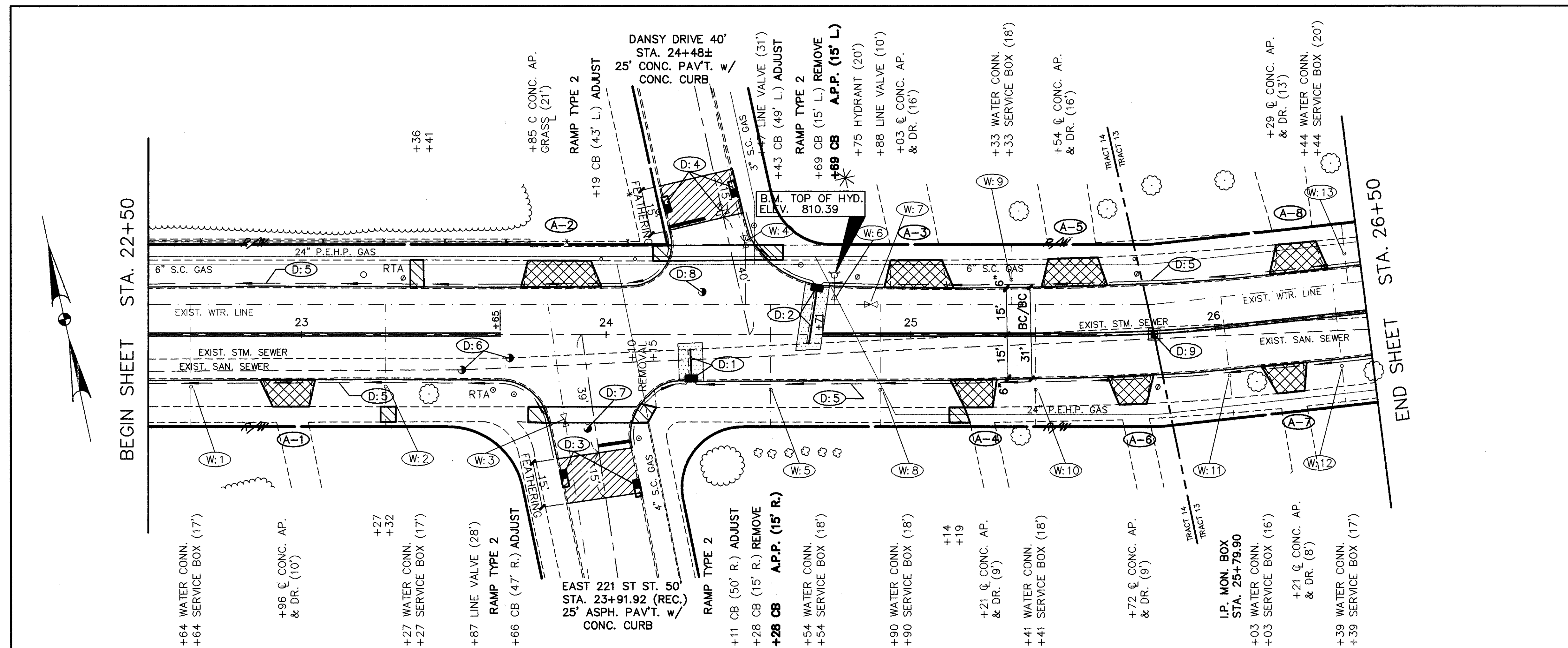
STATIONS	FROM	TO	RT.	LT.	CL.	ESTIMATED DRAINAGE QUANTITIES	TOTALS
603	D1	18+64	15			6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	760'
	D2	18+67	15			MONUMENT BOX ADJUSTED TO GRADE	1
	D3	20+81	15			CATCH BASIN ADJUSTED TO GRADE	1
	D4	20+82	15			MANHOLE ADJUSTED TO GRADE	2
	D5	18+50	22+50			MANHOLE No. 3 WITH OPEN GRATE	
	D6	20+07 & 20+12				CATCH BASIN MISCELLANEOUS AS PER PLAN	4
	D7	19+15.30				15" CONDUIT TYPE-B 706.02 AS PER PLAN	
602						12" CONDUIT TYPE-B 706.02 AS PER PLAN	68'
						12" CONDUIT TYPE-C 706.02 AS PER PLAN	
						6" CONDUIT TYPE-F *	40'
						CATCH BASIN REMOVED	4
						PIPE REMOVED 24" & UNDER	68'
						SIDE OFFSET	
						TOTALS	

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 112 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 107.17 MIN. PERFORATED, ASTM: D-3034, SDR-35, SS-531 DR SS-944

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P. : AS PER PLAN



STATIONS	ESTIMATED DRAINAGE QUANTITIES		L.F.	EA.	L.F.	EA.	L.F.	EA.	L.F.	EA.
	FROM	TO								
D1 24+28	24+28	24+28	15'	1						
D2 24+69	24+69	24+69	15'	1						
D3 E 221st STREET	22+50	26+50	RT.							
D4 DANCY DRIVE	24+48±	24+48±	LT.							
D5 22+50	22+50	26+50	LT.							
D6 23+53 & 23+58	23+53	23+58	RT.							
D7 23+95	23+95	23+95	RT.							
D8 24+32	24+32	24+32	LT.							
D9 25+75.90	25+75.90	25+75.90	CL.							
TOTALS										

REFERENCE SHEETS

SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 112 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 707.17 NON-PERFORATED, ASTM D-3034, SDR-35, S5-931 DR S5-944

CUY-6-25.94

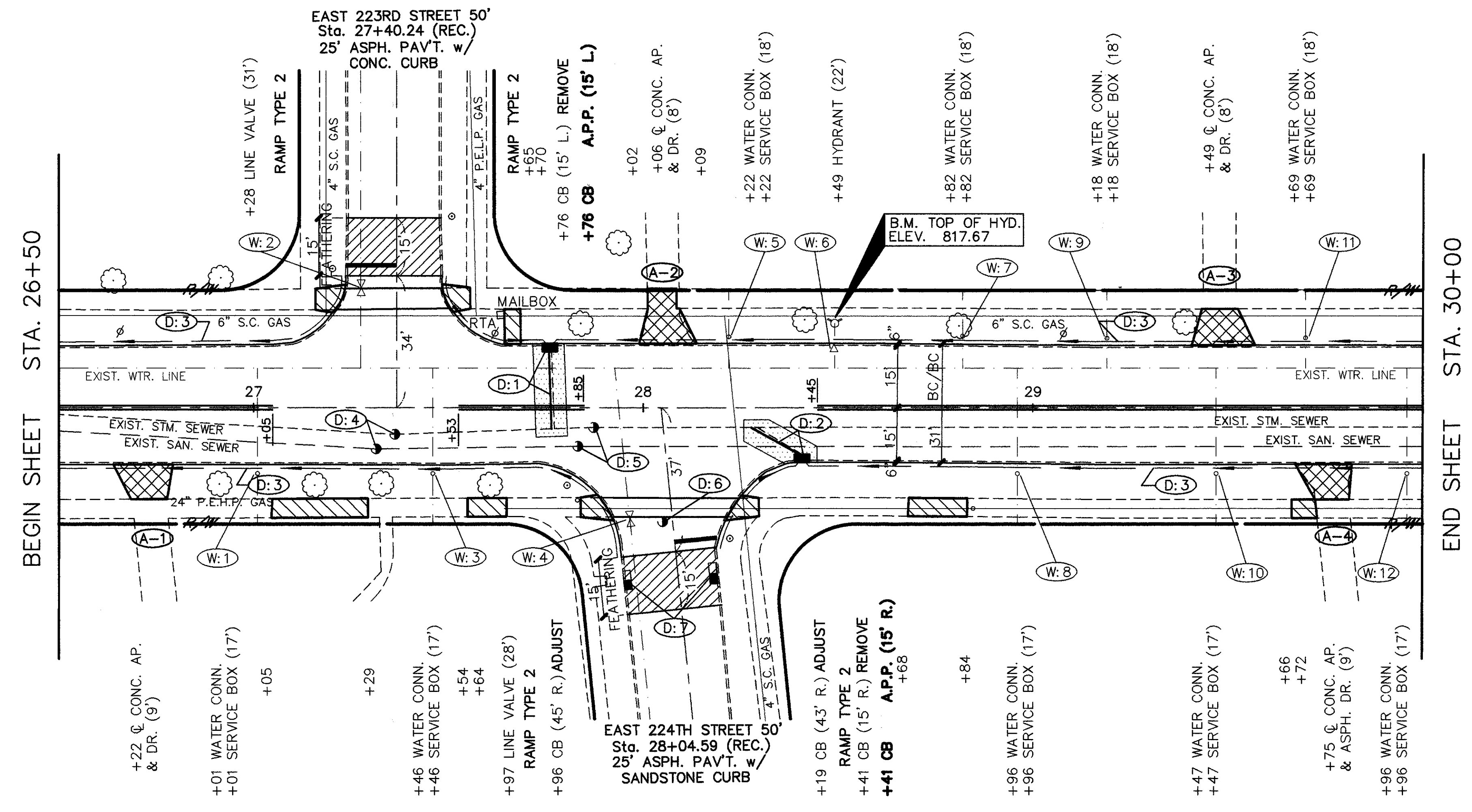
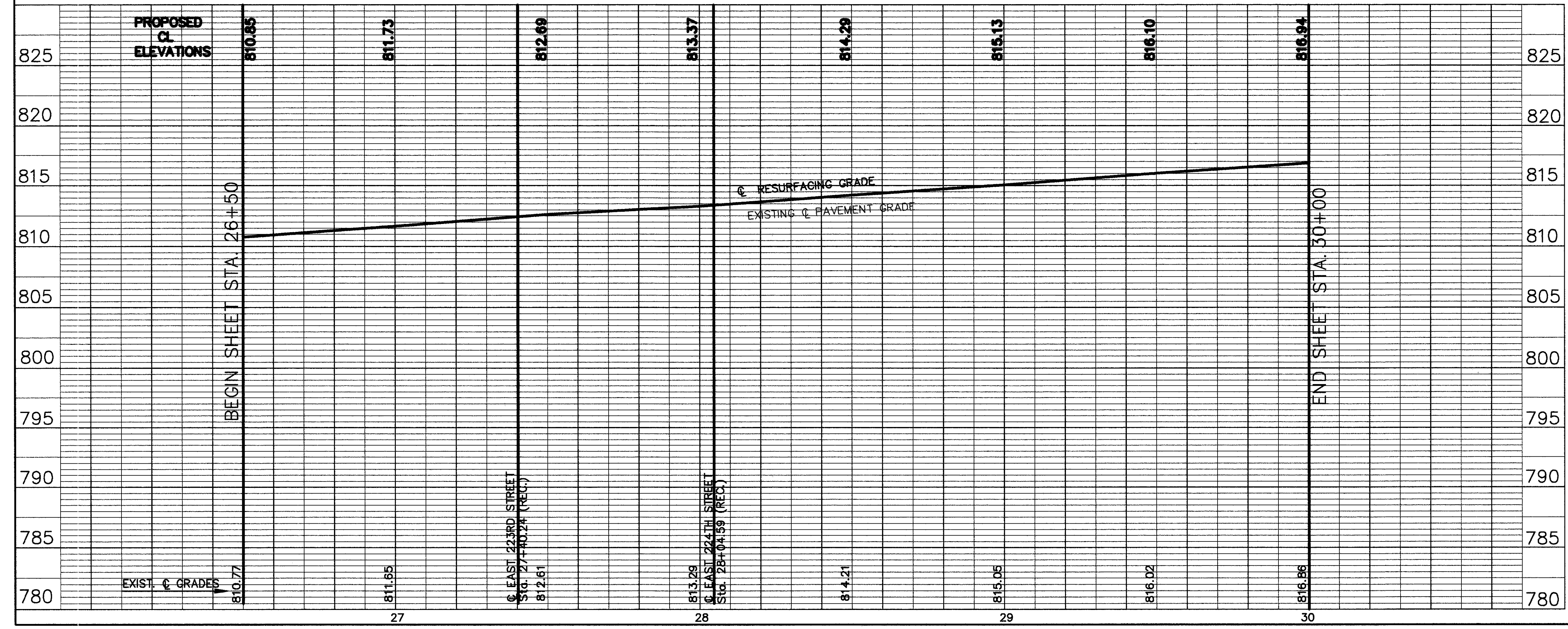
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P. : AS PER PLAN

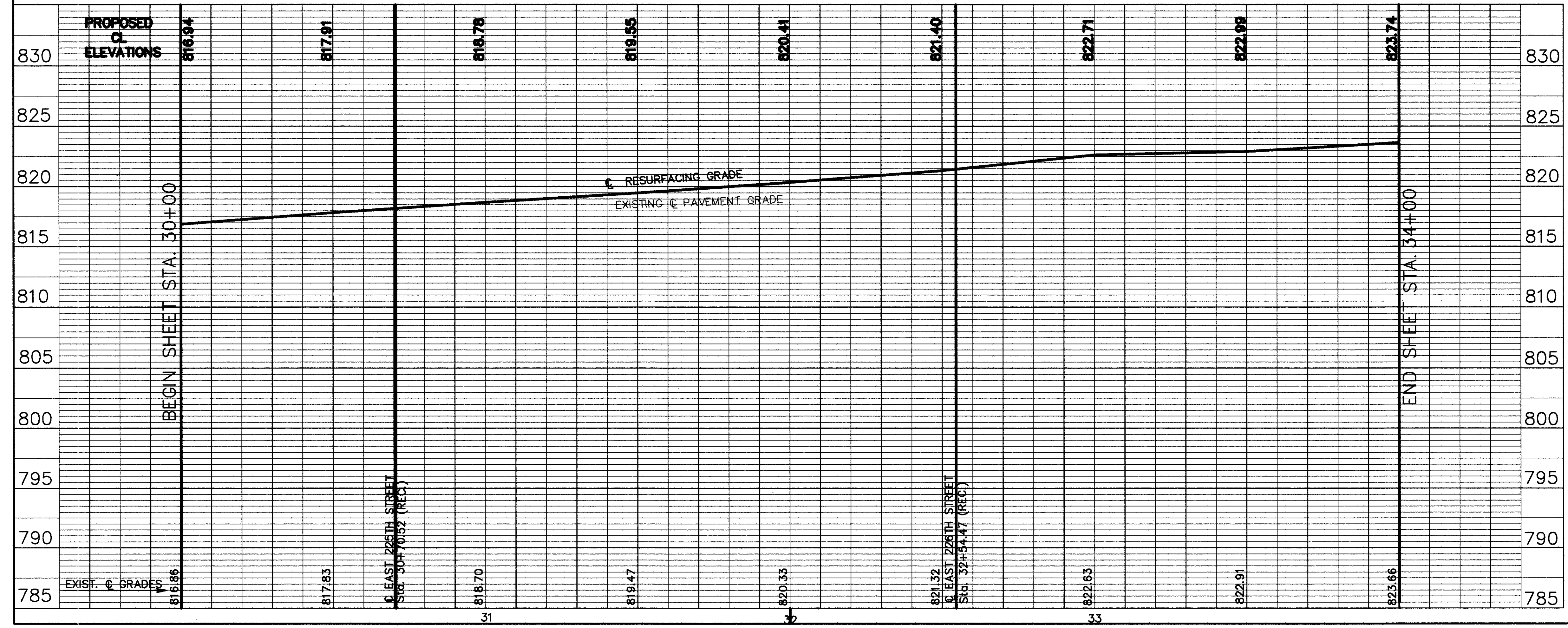
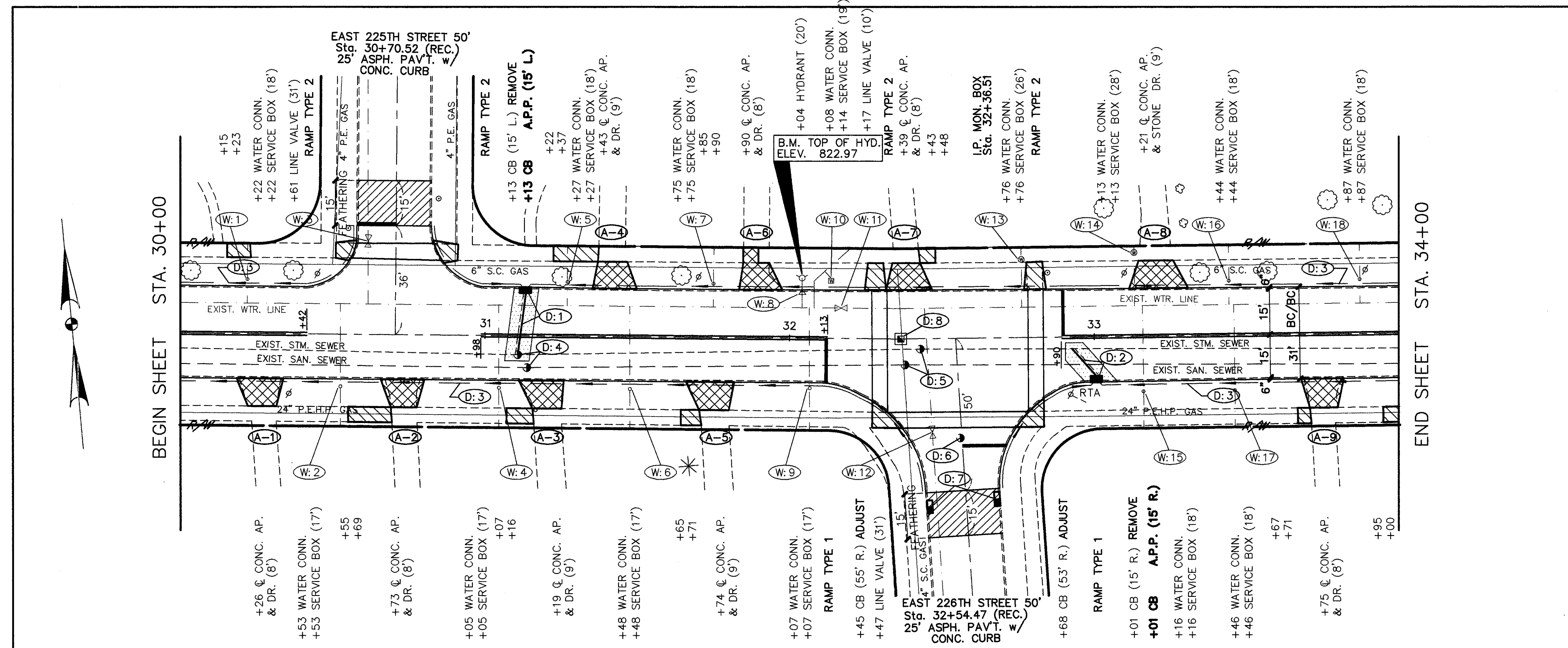
ESTIMATED DRAINAGE QUANTITIES		603		604		605	
STATIONS	FROM TO	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.
202	CATCH BASIN REMOVED	EA.	1				
	PIPE REMOVED 24" & UNDER	L.F.	22'	16'			
	SIDE OFFSET	15' LT.	15' RT.				
	TOTALS						
603	15" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.					
	12" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.	22'	16'			38'
	12" CONDUIT TYPE-C 706.02 AS PER PLAN	L.F.					
	6" CONDUIT TYPE - F *	L.F.		40'			40'
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.		675'			675'
	MONUMENT BOX ADJUSTED TO GRADE	EA.					
	CATCH BASIN ADJUSTED TO GRADE	EA.				2	
	MANHOLE ADJUSTED TO GRADE	EA.			2	1	5
604	MANHOLE No. 3 WITH OPEN GRATE	EA.			2	1	2
	CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.	1	1			2
	MANHOLE ADJUSTED TO GRADE	EA.					
	MANHOLE ADJUSTED TO GRADE	EA.					

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 1/3 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 107.17 MODIFIED PERFORATED, ASTM D-3034, R3771 D-3034, SDR-35, SS 931 DR SS 944



CUYAHOGA COUNTY U.S. 6 CHARDON ROAD



A.P.P. : AS PER PLAN

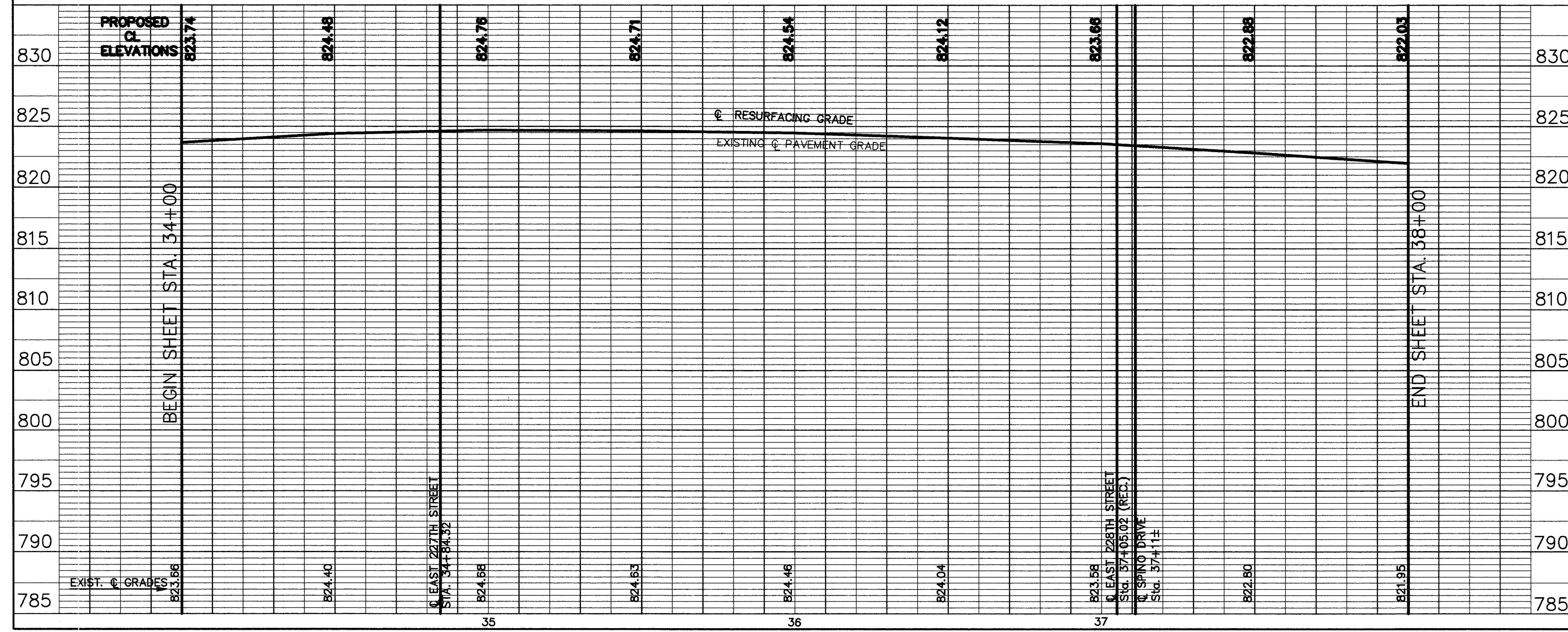
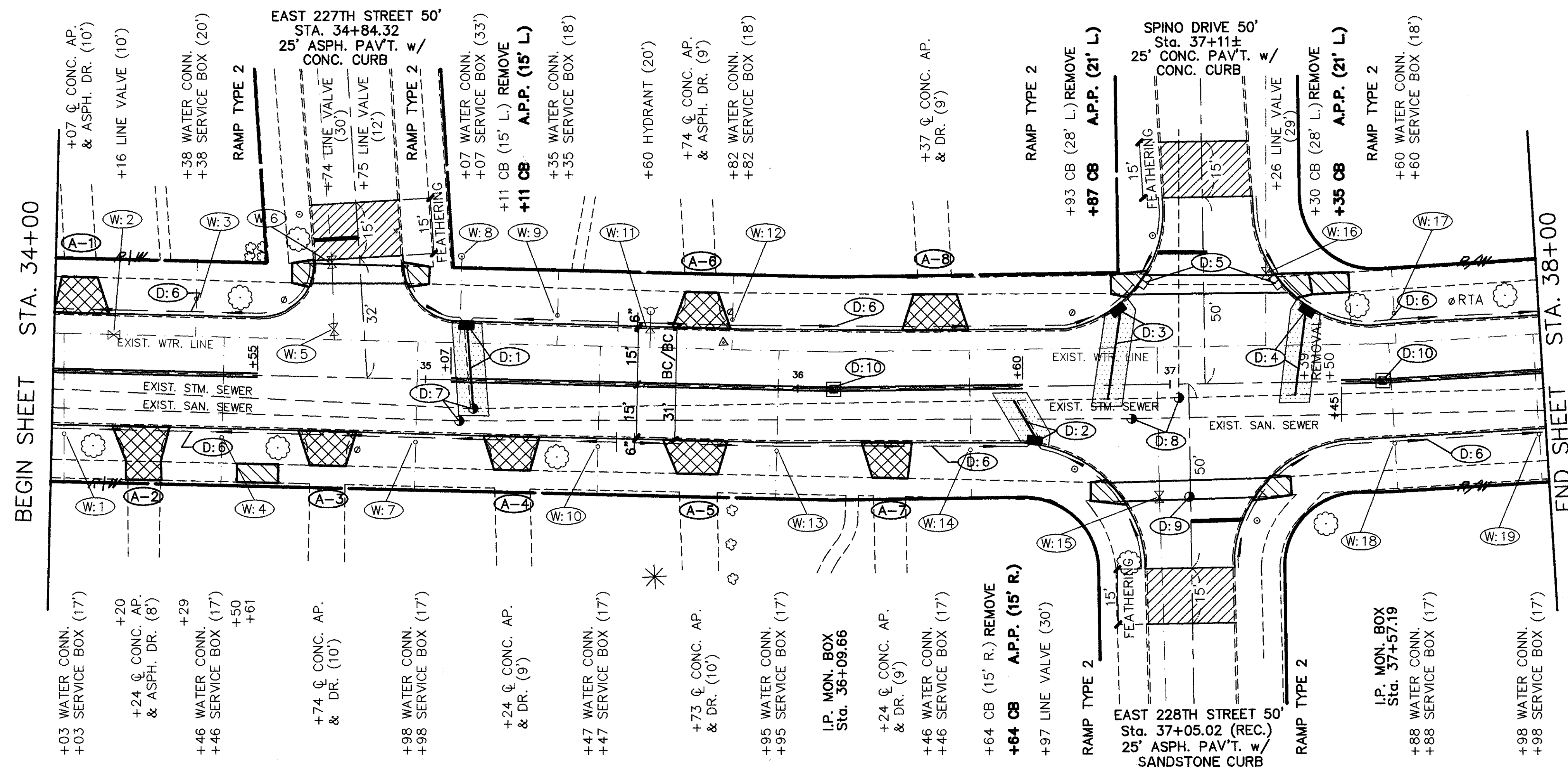
STATIONS	FROM	TO	QUANTITY	UNIT	REMARKS
605	D1	31+13	1	EA	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.
	D2	33+01	1	EA	MONUMENT BOX ADJUSTED TO GRADE
604	D3	30+00	2	EA	CATCH BASIN ADJUSTED TO GRADE
	D4	31+10 & 31+14	1	EA	MANHOLE ADJUSTED TO GRADE
603	D5	32+38 & 32+43	2	EA	MANHOLE No. 3 WITH OPEN GRATE
	D6	32+56	1	EA	CATCH BASIN MISCELLANEOUS AS PER PLAN
202	D7	E. 226th STREET	1	EA	15" CONDUIT TYPE-B 706.02 AS PER PLAN
	D8	32+56.51	1	EA	12" CONDUIT TYPE-B 706.02 AS PER PLAN
TOTALS			37		6" CONDUIT TYPE -F *

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 113 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 207.17 DIM. REFERENCED, ASTM D-3034, SDR 35, S3 531 DR S5.944

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

A.P.P. : AS PER PLAN



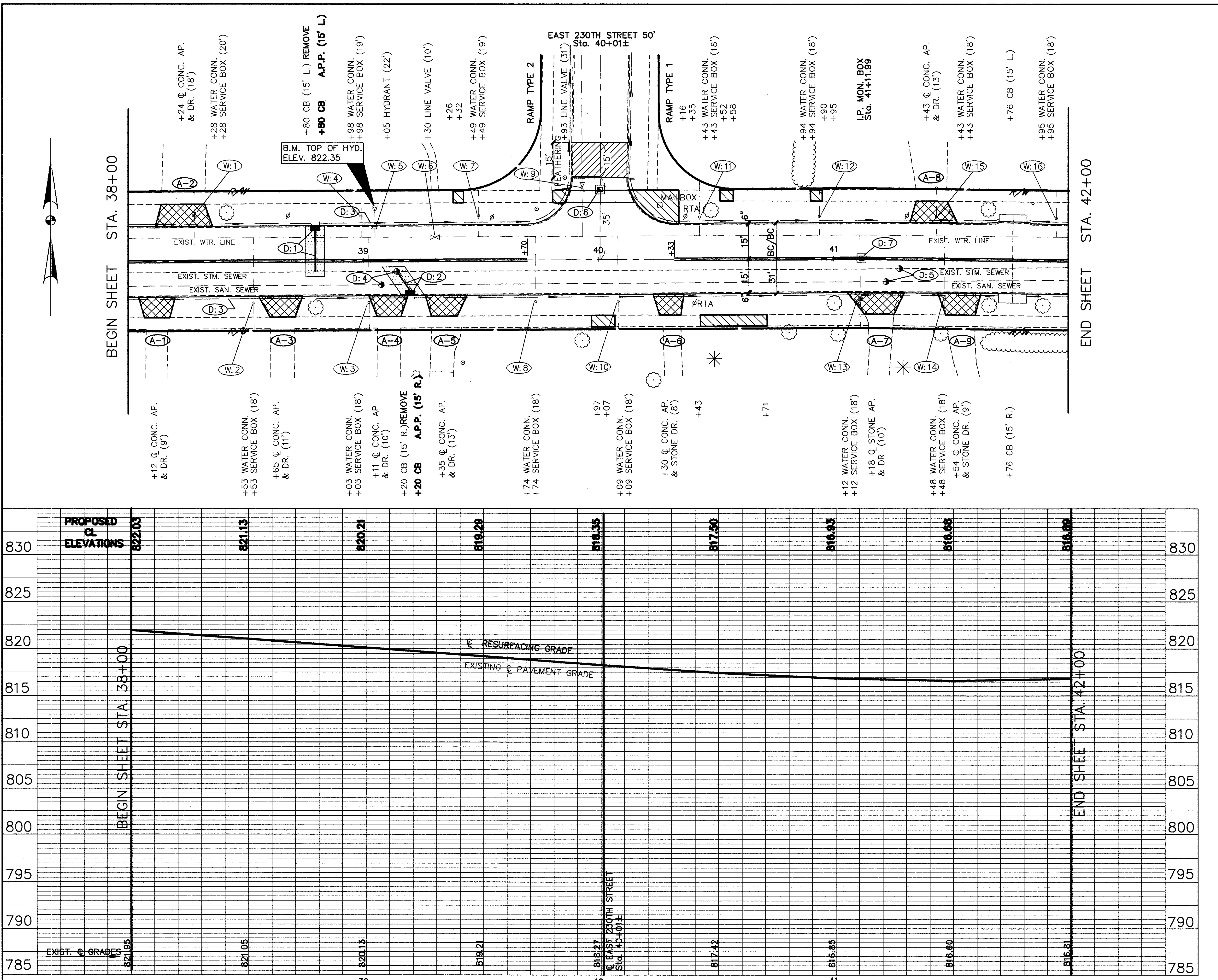
STATIONS	FROM	TO	ESTIMATED DRAINAGE QUANTITIES		
			L.F.	EA.	
202	D1	35+11	15	1	
	D2	36+64	24	1	
	D3	36+87	13	1	
	D4	37+35	21	1	
	D5	36+93 & 37+30	21	2	
	D6	34+00	36+00	RT	
	D7	35+09 & 35+13	RT		
	D8	36+90 & 37+02	RT		
	D9	37+05	RT		
	D10	36+09.66, 37+57.19	CL		
603	15" CONDUIT TYPE-B 706.02 AS PER PLAN				
	12" CONDUIT TYPE-B 706.02 AS PER PLAN				
	12" CONDUIT TYPE-C 706.02 AS PER PLAN				
	6" CONDUIT TYPE-F *		70'		
604	MANHOLE No. 3 WITH OPEN GRATE			2	
	CATCH BASIN MISCELLANEOUS AS PER PLAN			1	
605	MANHOLE ADJUSTED TO GRADE			2	
	MONUMENT BOX ADJUSTED TO GRADE			2	
			TOTALS	4	
			PIPE REMOVED 24" & UNDER	37'	
			CATCH BASIN REMOVED	4	
			6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	795'	
			MANHOLE ADJUSTED TO GRADE	5	
			6" MON. BOX ADJUSTED TO GRADE	2	

REFERENCE SHEETS

- SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
- SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
- SEE SHEET No. 173 FOR CATCH BASIN CONNECTIONS.
- SEE SHEET No. 43 FOR PAVEMENT MARKING QUANTITIES.
- SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
- SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 707.17 NOW REPERFORATED, AS777-D-3034, SDR-35 SS 931 DR SS 944

A.P.P. : AS PER PLAN



ESTIMATED DRAINAGE QUANTITIES		STATIONS		TOTALS	
DESCRIPTION	QUANTITY	FROM	TO	QUANTITY	QUANTITY
6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.	D1 38+80	D7 41+11.99	750	750'
MONUMENT BOX ADJUSTED TO GRADE	EA.	D2 39+20	D7 41+11.99	1	2
CATCH BASIN ADJUSTED TO GRADE	EA.	D2 39+20	D7 41+11.99	1	1
MANHOLE ADJUSTED TO GRADE	EA.	D2 39+20	D7 41+11.99	2	4
MANHOLE No. 3 WITH OPEN GRATE	EA.	D2 39+20	D7 41+11.99	2	2
CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.	D2 39+20	D7 41+11.99	1	2
15" CONDUIT TYPE-B, 706.02 AS PER PLAN	L.F.	D2 39+20	D7 41+11.99	32'	32'
12" CONDUIT TYPE-B, 706.02 AS PER PLAN	L.F.	D2 39+20	D7 41+11.99	32'	32'
12" CONDUIT TYPE-C, 706.02 AS PER PLAN	L.F.	D2 39+20	D7 41+11.99	32'	32'
6" CONDUIT TYPE -F *	L.F.	D2 39+20	D7 41+11.99	60'	60'
CATCH BASIN REMOVED	EA.	D2 39+20	D7 41+11.99	1	2
PIPE REMOVED 24" & UNDER	L.F.	D2 39+20	D7 41+11.99	32'	32'
SIDE OFFSET		D2 39+20	D7 41+11.99		
					TOTALS

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 14 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 25 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* 107.17 MIN. PERFORATED, ASTM D-3034, SDR-35, SS-531 DR 33.944

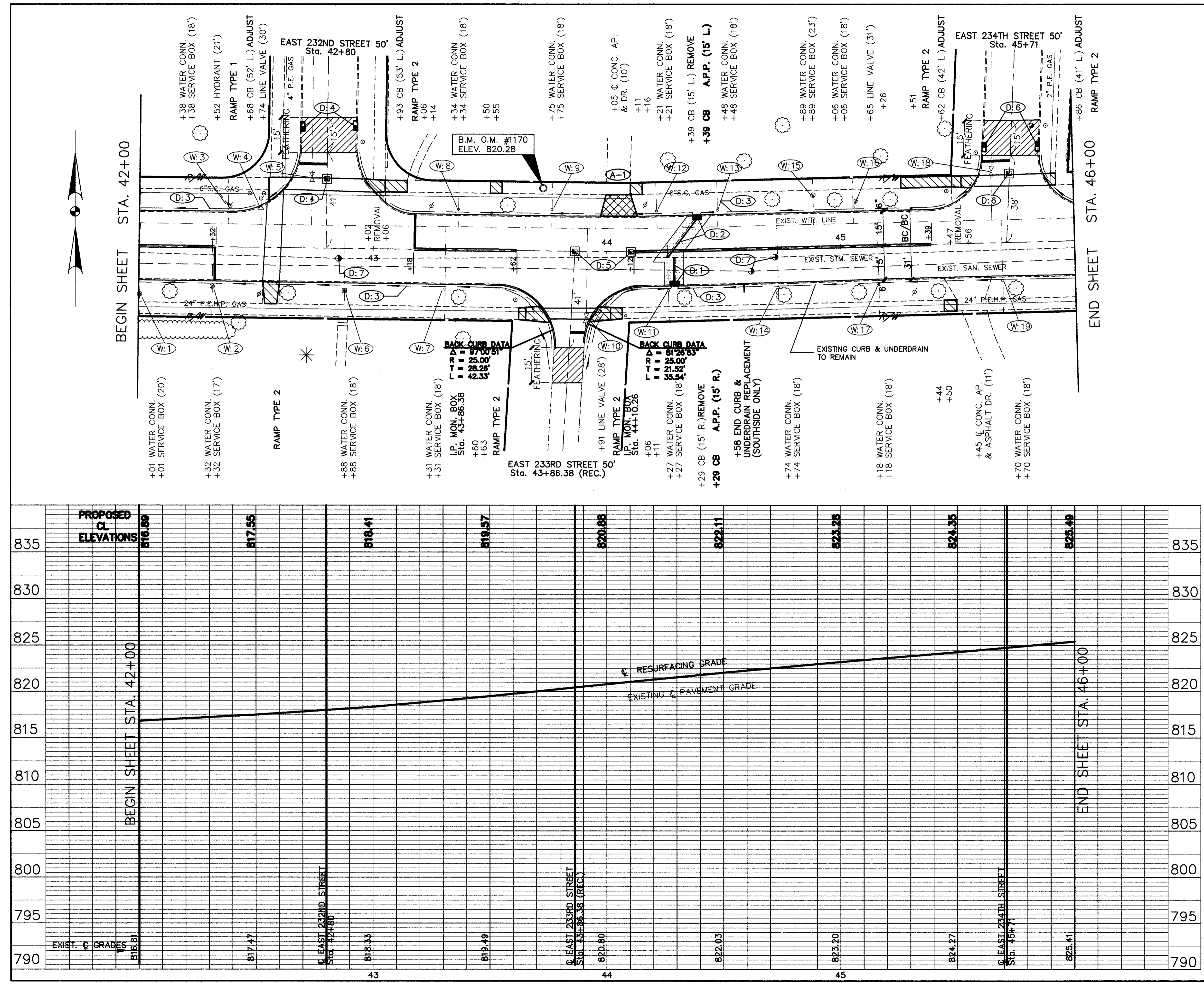
CUYAHOGA COUNTY U.S. 6 CHARDON ROAD

A.P.P. : AS PER PLAN

ESTIMATED DRAINAGE QUANTITIES	605		604		603		202		TOTALS					
	QTY	UNIT	QTY	UNIT	QTY	UNIT	QTY	UNIT						
6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	675	L.F.							675'					
MONUMENT BOX ADJUSTED TO GRADE	1	EA.	2	EA.					4					
CATCH BASIN ADJUSTED TO GRADE	2	EA.	2	EA.					4					
MANHOLE ADJUSTED TO GRADE		EA.		EA.			3		3					
MANHOLE No. 3 WITH OPEN GRATE		EA.		EA.					3					
CATCH BASIN MISCELLANEOUS AS PER PLAN	1	EA.	1	EA.					2					
15" CONDUIT TYPE-B, 706.02 AS PER PLAN		L.F.		L.F.					35'					
12" CONDUIT TYPE-D, 706.02 AS PER PLAN		L.F.		L.F.					35'					
12" CONDUIT TYPE-C, 706.02 AS PER PLAN		L.F.		L.F.					50'					
6" CONDUIT TYPE -F *		L.F.		L.F.					50'					
CATCH BASIN REMOVED	1	EA.	1	EA.					2					
PIPE REMOVED 24" & UNDER	12	L.F.	23	L.F.					35'					
SIDE OFFSET	15	RT.	15	LT.										
STATIONS	FROM	TO												
REFERENCE No.	D1	44+29	D2	44+39	D3	42+00	D4	232nd STREET	D5	43+86.38, 44+10.26	D6	E. 234th STREET	D7	42+86 44+62 & 44+72

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 14 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* TOTALS NOW REPERFORATED, ASTM: D-3034, SDR-35 SS-931 OR SS-5944



CHARDON ROAD PLAN & PROFILE STA. 42+00 TO STA. 46+00

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

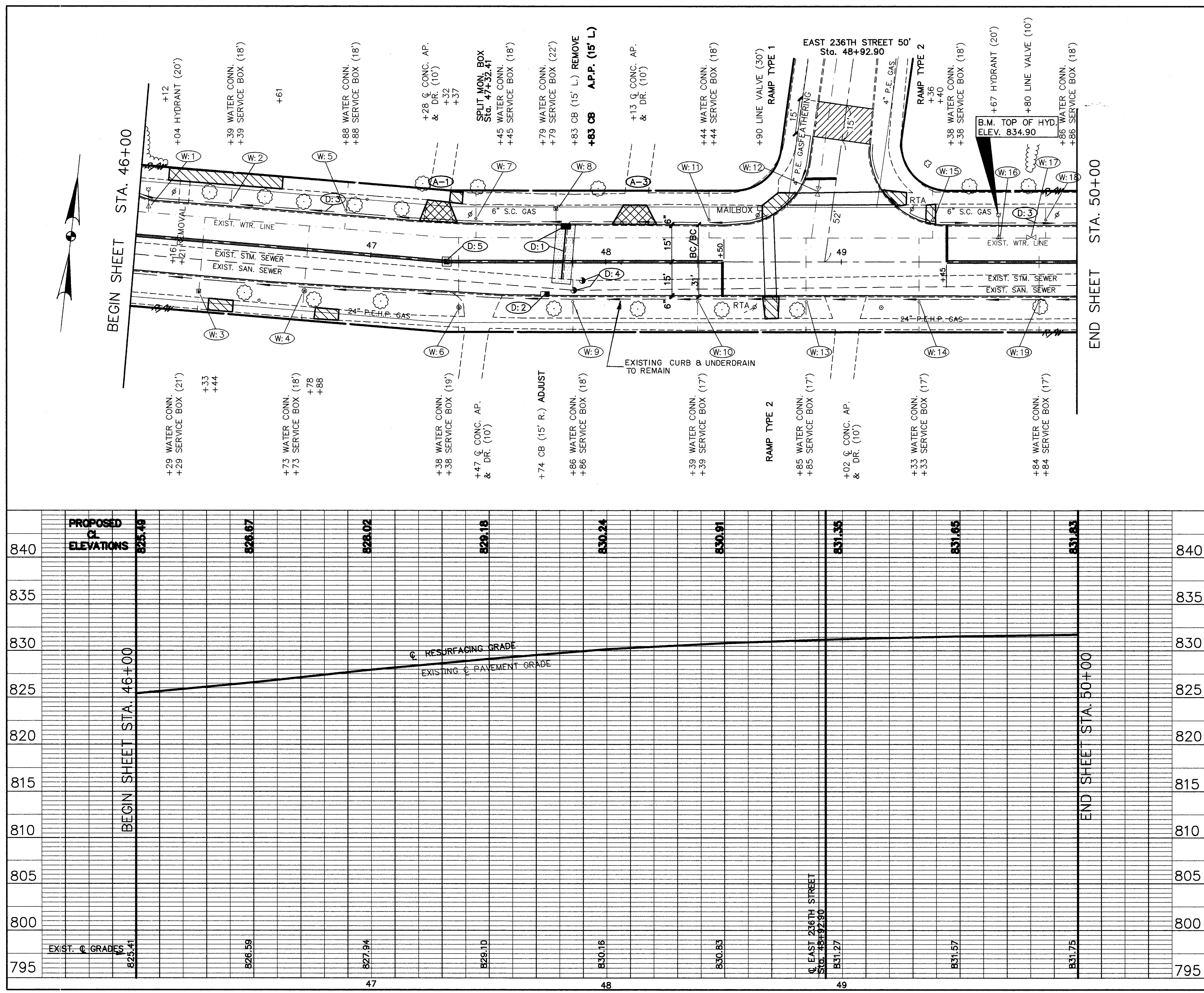
A.P.P.: AS PER PLAN

STATIONS	FROM	TO	ESTIMATED DRAINAGE QUANTITIES		L.F.	EA	L.F.	EA
			605	604				
605			6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.				420	420'
			MONUMENT BOX ADJUSTED TO GRADE			1	1	1
			CATCH BASIN ADJUSTED TO GRADE			1	1	1
			MANHOLE ADJUSTED TO GRADE			2	2	2
			MANHOLE No. 3 WITH OPEN GRATE AS PER PLAN					
603			CATCH BASIN MISCELLANEOUS AS PER PLAN			1	1	1
			15" CONDUIT TYPE-B, 706.02 AS PER PLAN					
			12" CONDUIT TYPE-B, 706.02 AS PER PLAN			24'		24'
			12" CONDUIT TYPE-C, 706.02 AS PER PLAN					
202			6" CONDUIT TYPE -F *			10'		10'
			CATCH BASIN REMOVED			1		1
			PIPE REMOVED 24" & UNDER			24'		24'
			SIDE OFFSET			15' LT. 15' RT.		
TOTALS								

REFERENCE SHEETS

SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 114 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 25 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 36 FOR WATERWORK QUANTITIES.

* TOTAL NON-PERFORATED, ASTM: D-2034, SDR-35, SS-951 DR SS-944



CHARDON ROAD PLAN & PROFILE STA. 46+00 TO STA. 50+00

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

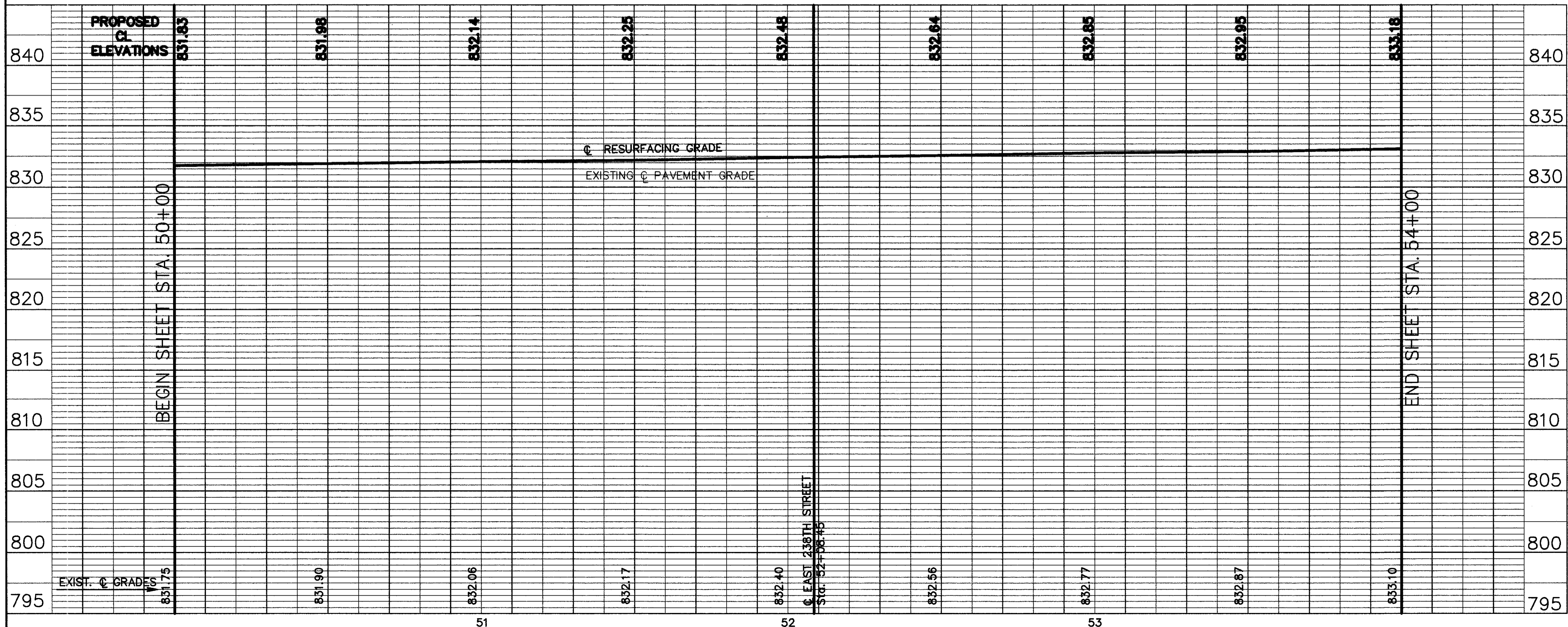
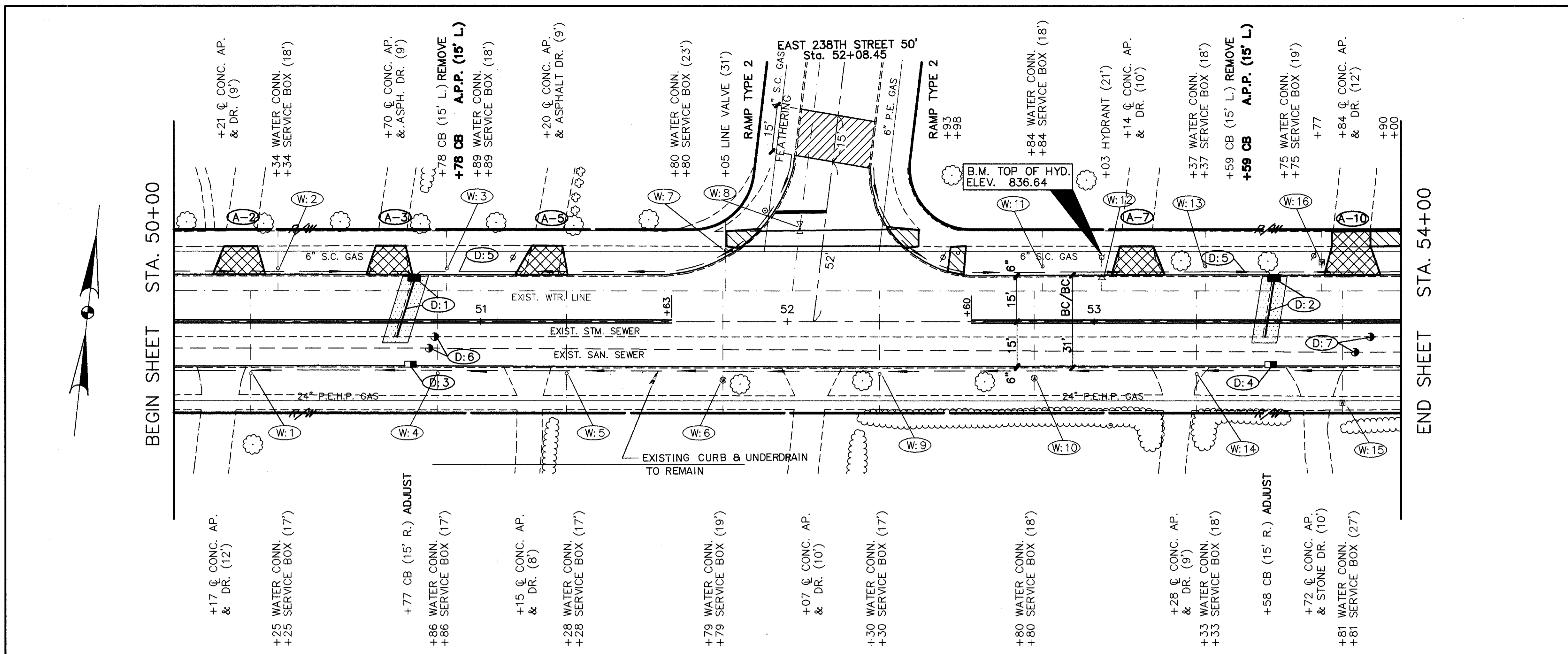
A.P.P. : AS PER PLAN

STATIONS	ESTIMATED DRAINAGE QUANTITIES		L.F.	EA.	L.F.	EA.	L.F.	EA.	L.F.	EA.
	FROM	TO								
605	D1	50+78	15	LT						
	D2	53+59	15	LT						
	D3	50+77	15	RT						
	D4	50+56	15	RT						
	D5	50+00	54+00							
	D6	50+82 & 50+85								
	D7	53+85 & 53+90								
604	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.									390'
	MONUMENT BOX ADJUSTED TO GRADE									
	CATCH BASIN ADJUSTED TO GRADE									2
	MANHOLE ADJUSTED TO GRADE									4
603	MANHOLE No. 3 WITH OPEN GRATE									2
	CATCH BASIN MISCELLANEOUS AS PER PLAN									2
	15" CONDUIT TYPE-B, 706.02 AS PER PLAN									
	12" CONDUIT TYPE-B, 706.02 AS PER PLAN				21'		21'			
202	12" CONDUIT TYPE-C, 706.02 AS PER PLAN									
	6" CONDUIT TYPE - F *									40'
CATCH BASIN REMOVED										2
PIPE REMOVED 24" & UNDER				21'		21'				42'
SIDE OFFSET				15		15				
TOTALS										

REFERENCE SHEETS

SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 114 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 23 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 37 FOR WATERWORK QUANTITIES.

* 107.17 MIN. PERFORATED, ASTM: D-3034, SDR-35, SS-93/DR SS-944

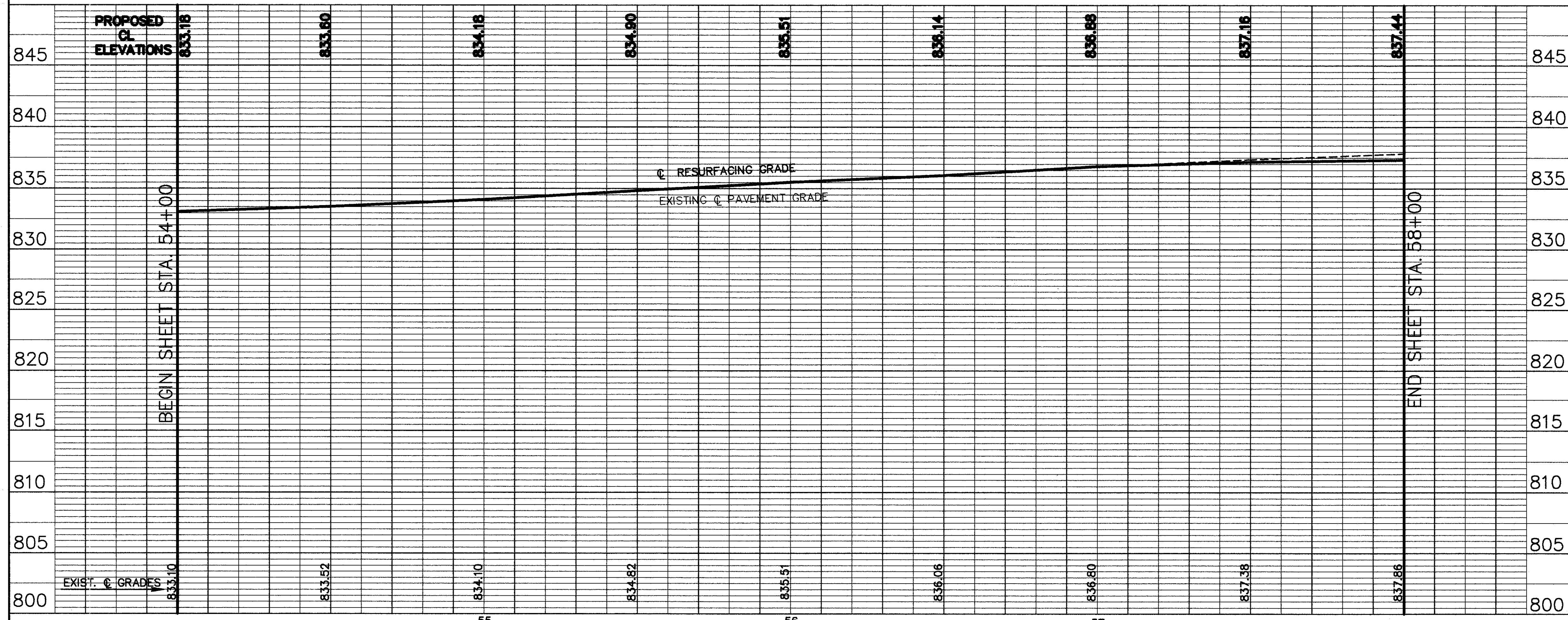
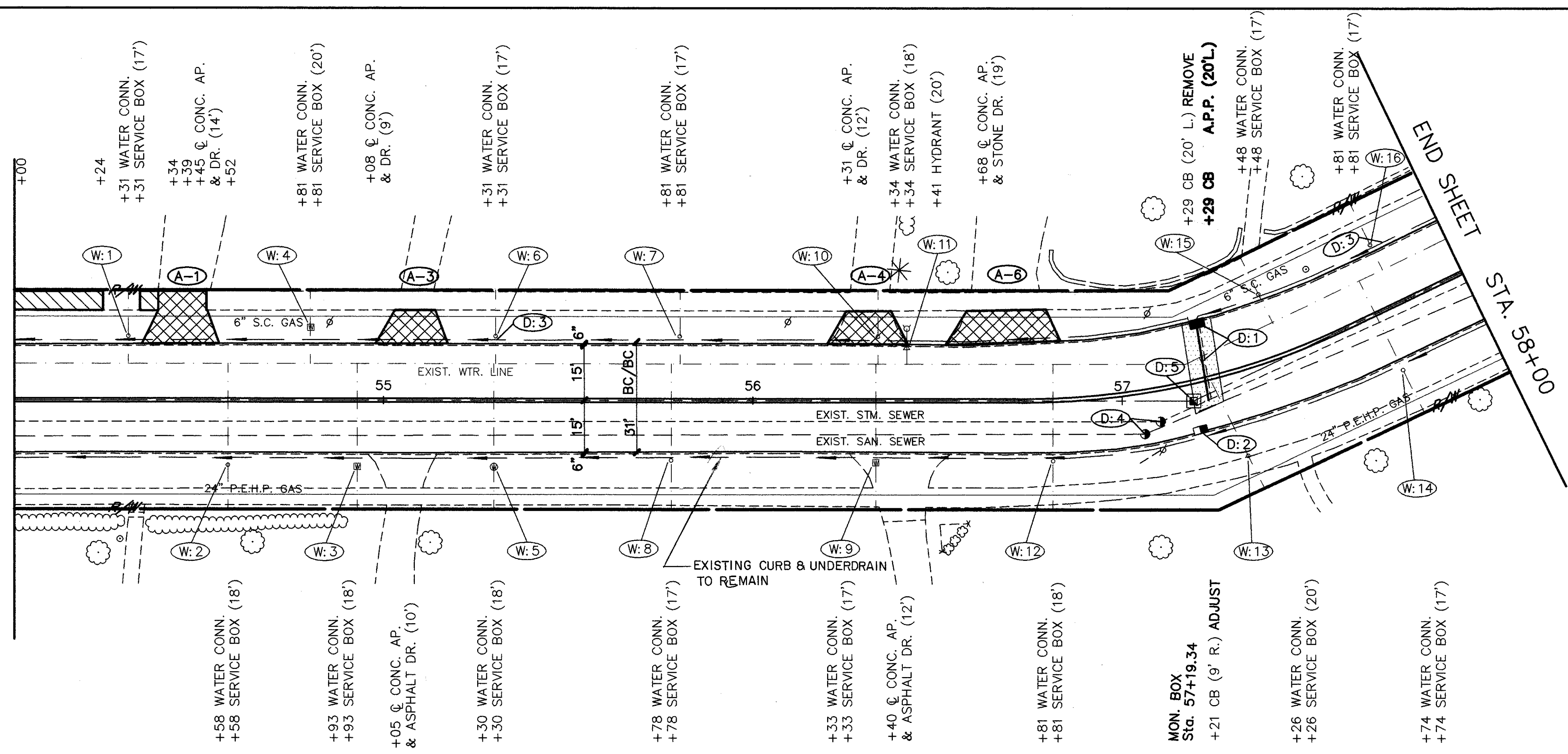


CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P.: AS PER PLAN

BEGIN SHEET STA. 54+00

END SHEET STA. 58+00



ESTIMATED DRAINAGE QUANTITIES		603		604		605	
STATIONS	FROM TO	L.F.	EA.	L.F.	EA.	L.F.	EA.
202	CATCH BASIN REMOVED		1				
	PIPE REMOVED 24" & UNDER	23'					
603	15" CONDUIT TYPE-B, 706.02 AS PER PLAN						
	12" CONDUIT TYPE-B, 706.02 AS PER PLAN	23'					
	12" CONDUIT TYPE-C, 706.02 AS PER PLAN						
	6" CONDUIT TYPE-F *	10'					
604	MANHOLE No. 3 WITH OPEN GRATE		2				
	CATCH BASIN MISCELLANEOUS AS PER PLAN		1				
605	MONUMENT BOX ADJUSTED TO GRADE		1				
	CATCH BASIN ADJUSTED TO GRADE		1				
	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.			390'			
TOTALS							

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. 114 FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 37 FOR WATERWORK QUANTITIES.

* 107.17 ROW RECREATED, ASSTN: D-3034, SDR-35, SS-53/ DR SS-944

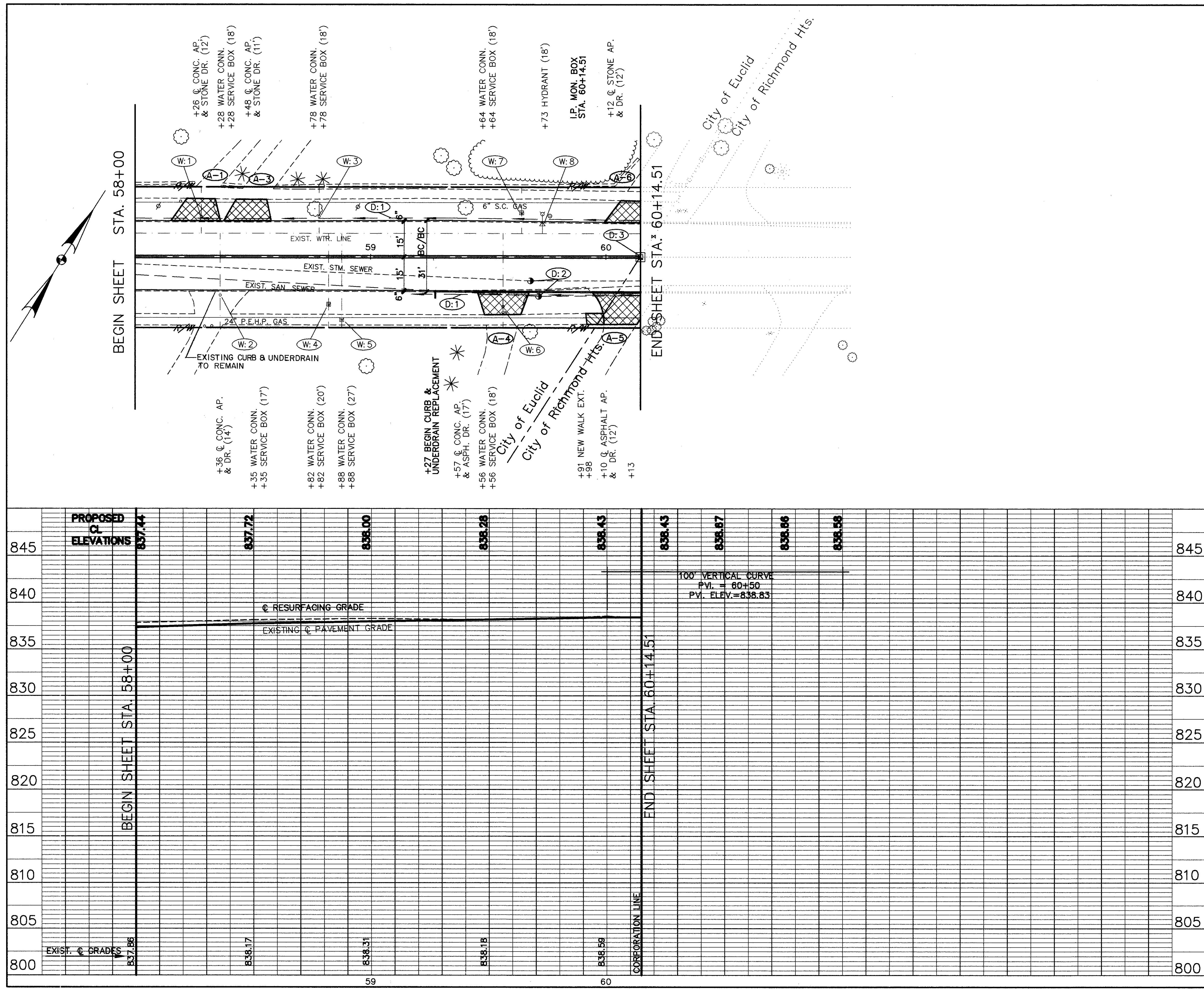
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

A.P.P. : AS PER PLAN

STATIONS	DESCRIPTION	UNIT	QUANTITY	TOTALS
605	6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP, A.P.P.	L.F.	303	303
	MONUMENT BOX ADJUSTED TO GRADE	EA.	1	1
604	CATCH BASIN ADJUSTED TO GRADE	EA.		2
	MANHOLE ADJUSTED TO GRADE	EA.	2	
	MANHOLE No. 3 WITH OPEN GRATE	EA.		
	CATCH BASIN MISCELLANEOUS AS PER PLAN	EA.		
	15" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		
603	12" CONDUIT TYPE-B 706.02 AS PER PLAN	L.F.		
	12" CONDUIT TYPE-C 706.02 AS PER PLAN	L.F.		
	6" CONDUIT TYPE-F *	L.F.		
202	CATCH BASIN REMOVED	EA.		
	PIPE REMOVED 24" & UNDER	L.F.		
SIDE OFFSET		L.F.		
TOTALS				

REFERENCE SHEETS
 SEE SHEET No. 30 FOR DRIVEWAY APRON QUANTITIES.
 SEE SHEET No. 29 FOR CURB AND CURB DRAIN QUANTITIES.
 SEE SHEET No. - FOR CATCH BASIN CONNECTIONS.
 SEE SHEET No. 33 FOR PAVEMENT MARKING QUANTITIES.
 SEE SHEET No. 28 FOR SIDEWALK QUANTITIES.
 SEE SHEET No. 37 FOR WATERWORK QUANTITIES.

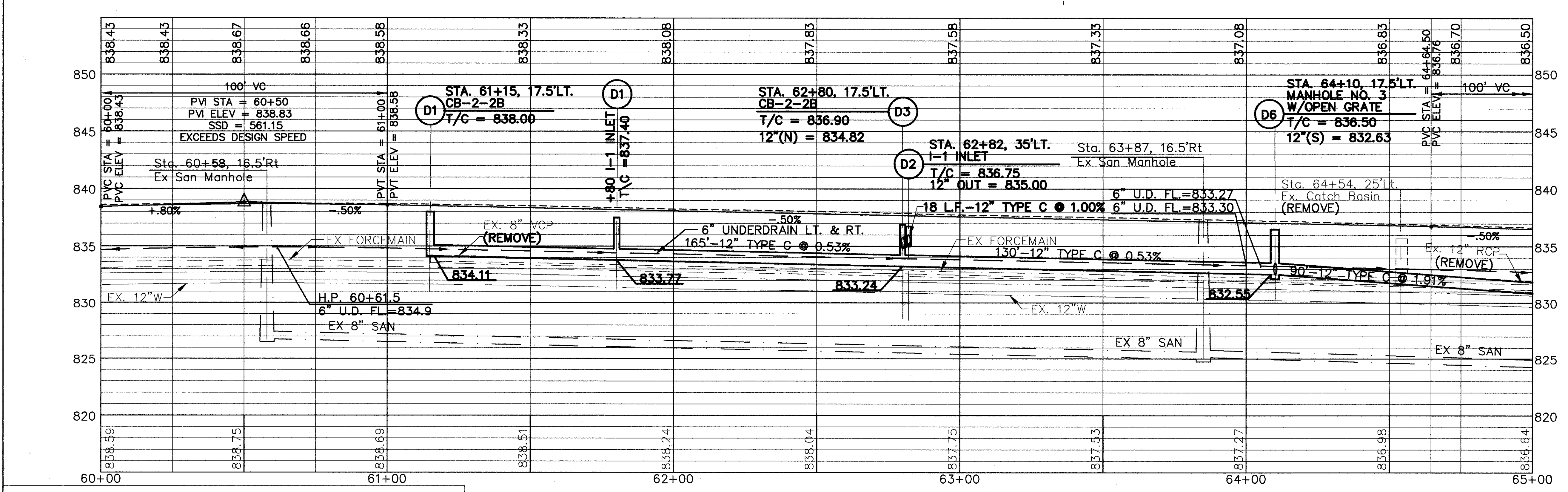
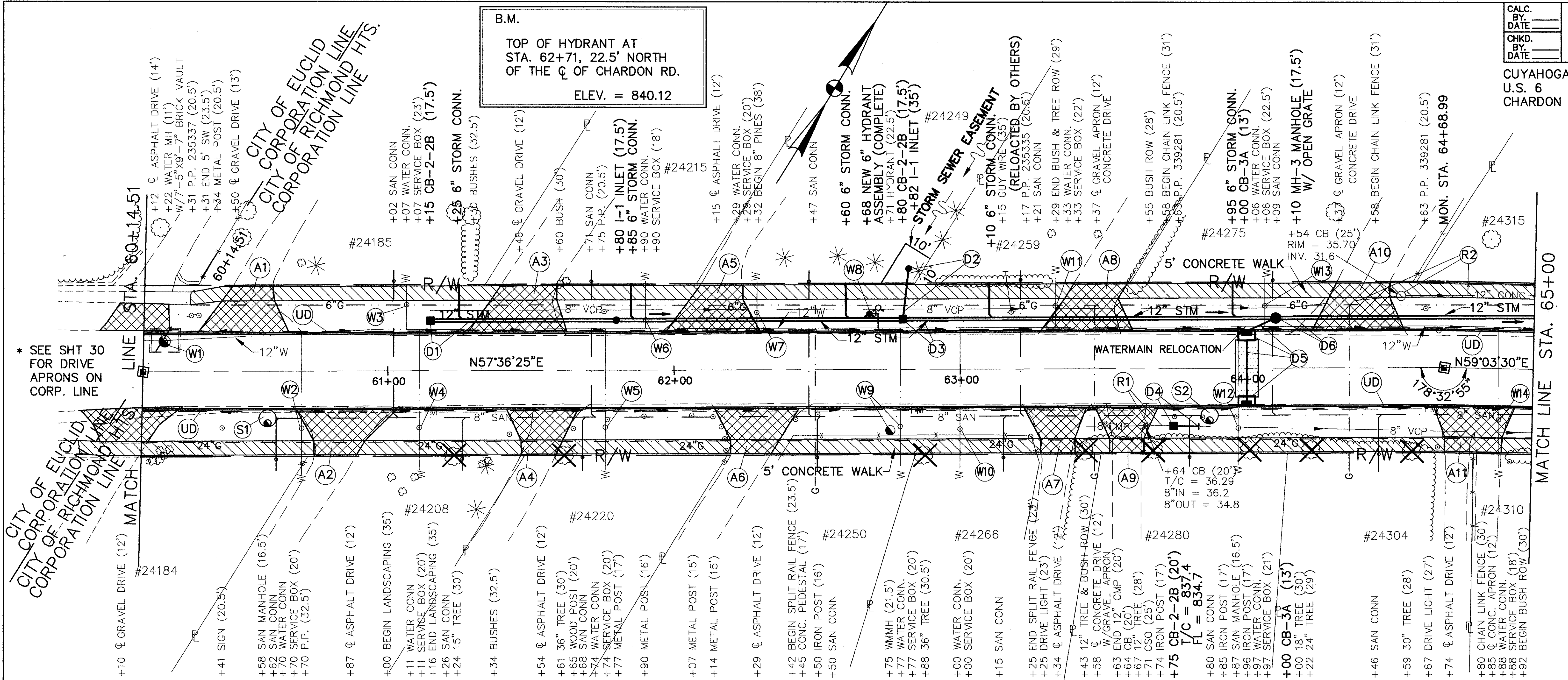
* 107.17 MIN. PERFORATED, ASTM: D-3034, SDR-35, SS-931 DE 33-944



CHARDON ROAD PLAN & PROFILE STA. 58+00 TO STA. 60+14.51

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

LEGEND
 ITEM 608 - CONCRETE WALK
 ITEM 452 - CONCRETE APRONS
 ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES		STATIONS		TOTALS	
ITEM	QUANTITY	FROM	TO	QUANTITY	UNIT
6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN	942	D16+15	D26+80	942	L.F.
MANHOLE ADJ. TO GRADE	2	D16+15	D26+80	2	EA.
INLET, NO. 1	2	D16+15	D26+80	2	EA.
MANHOLE, NO. 3, AS PER PLAN-B	1	D16+15	D26+80	1	EA.
CATCH BASIN, NO. 2-2B AS PER PLAN	3	D16+15	D26+80	3	EA.
CATCH BASIN, NO. 3A W/V GRATE, AS PER PLAN	2	D16+15	D26+80	2	EA.
12" CONDUIT TYPE C, 706.02, AS PER PLAN	165	D16+15	D26+80	165	L.F.
12" CONDUIT TYPE B, 706.02, AS PER PLAN	130	D16+15	D26+80	130	L.F.
6" CONDUIT TYPE F *	20	D16+15	D26+80	20	L.F.
CATCH BASIN REMOVED	1	D16+15	D26+80	1	EA.
PIPE REMOVED 24" & UNDER	385	D16+15	D26+80	385	L.F.
SIDE	397	D16+15	D26+80	397	R
OFFSET	16.5	D16+15	D26+80	16.5	R
TOTALS					

* 707.17 NON-PERFORATED, ASTM D3034 SDR 35, SS931 OR SS944.
 SEE SHT. 107 FOR WATERMAIN RELOCATION DETAIL
 SEE SHT. 38 FOR WATERWORK QUANTITIES
 SEE SHT. 31 FOR DRIVEWAY QUANTITIES

STEPHEN HOVANCSEK & ASSOC., INC.

B.M.
TOP OF HYDRANT
AT STA. 65+76, 24' NORTH
OF THE C OF CHARDON RD.
ELEV. = 837.46

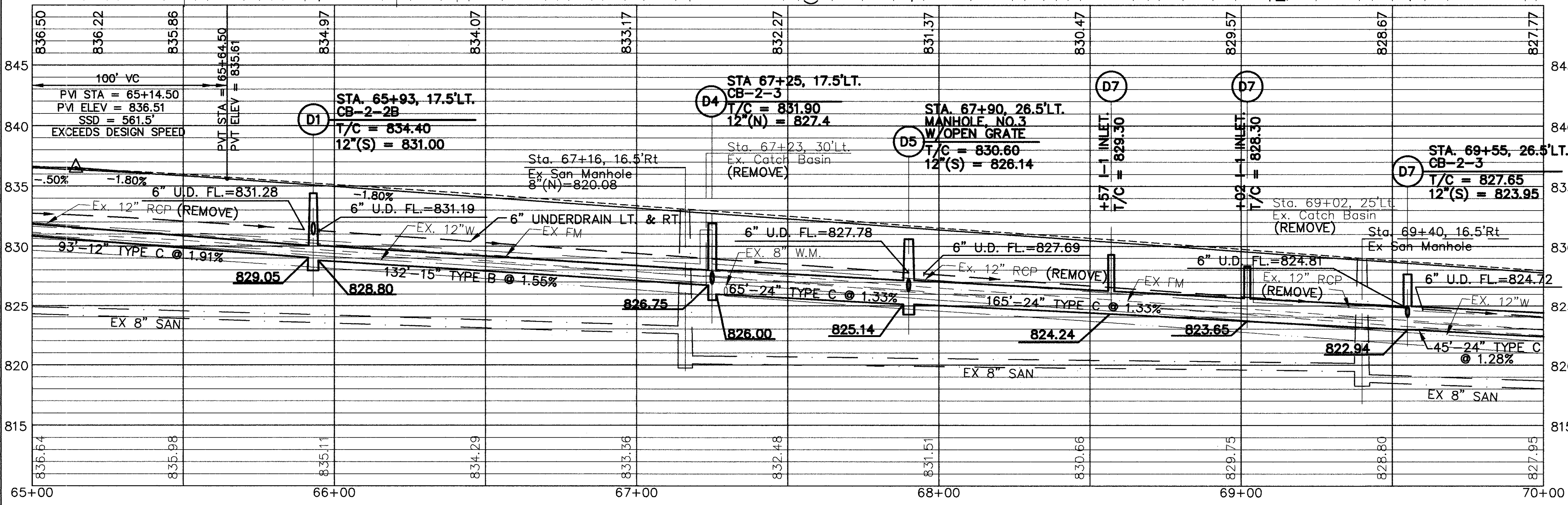
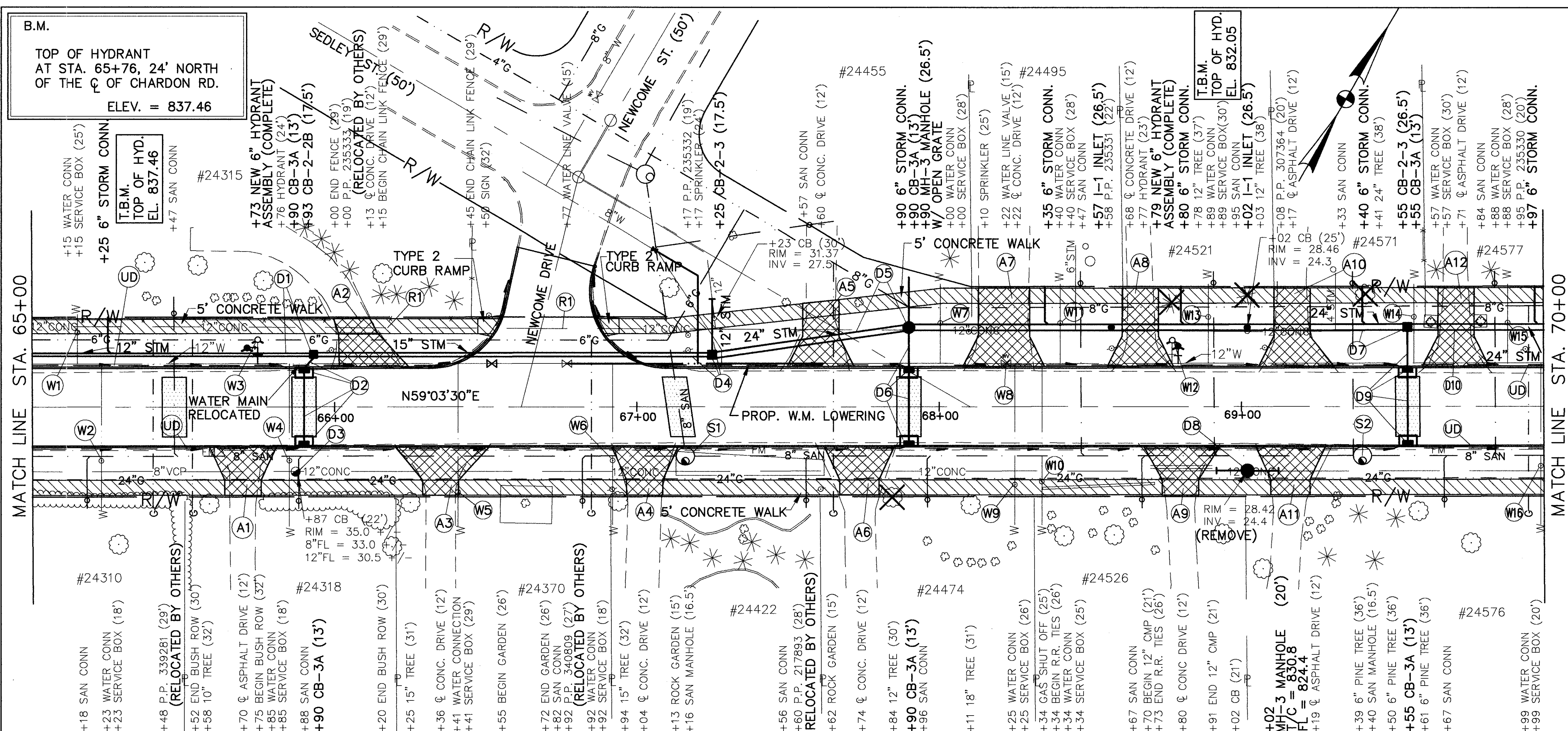
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

LEGEND

ITEM 608 - CONCRETE WALK

ITEM 452 - CONCRETE APRONS

ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES

STATION	DESCRIPTION	UNIT	QUANTITY
605	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN	L.F.	909
	MANHOLE ADJ. TO GRADE	EA.	2
	CATCH BASIN ADJUSTED TO GRADE	EA.	1
	INLET, NO. 1	EA.	2
	MANHOLE, NO. 3 AS PER PLAN - B	EA.	1
	MANHOLE, NO. 3 AS PER PLAN - A	EA.	1
	CATCH BASIN NO. 2-3, AS PER PLAN	EA.	1
	CATCH BASIN NO. 2-2B AS PER PLAN	EA.	1
	CATCH BASIN, NO. 3A W/ V GRATE AS PER PLAN	EA.	2
	24" CONDUIT TYPE C, 706.02 AS PER PLAN	L.F.	65
	15" CONDUIT TYPE B, 706.02 AS PER PLAN	L.F.	132
	12" CONDUIT TYPE C, 706.02 AS PER PLAN	L.F.	20
	12" CONDUIT TYPE B, 706.02 AS PER PLAN	L.F.	14
	6" CONDUIT TYPE F *	L.F.	26
	6" CONDUIT TYPE F *	L.F.	26
	6" CONDUIT TYPE F *	L.F.	26
	PIPE REMOVED 24" & UNDER	L.F.	290
	SIDE	L.F.	290
	OFFSET	L.F.	26
	TOTALS		

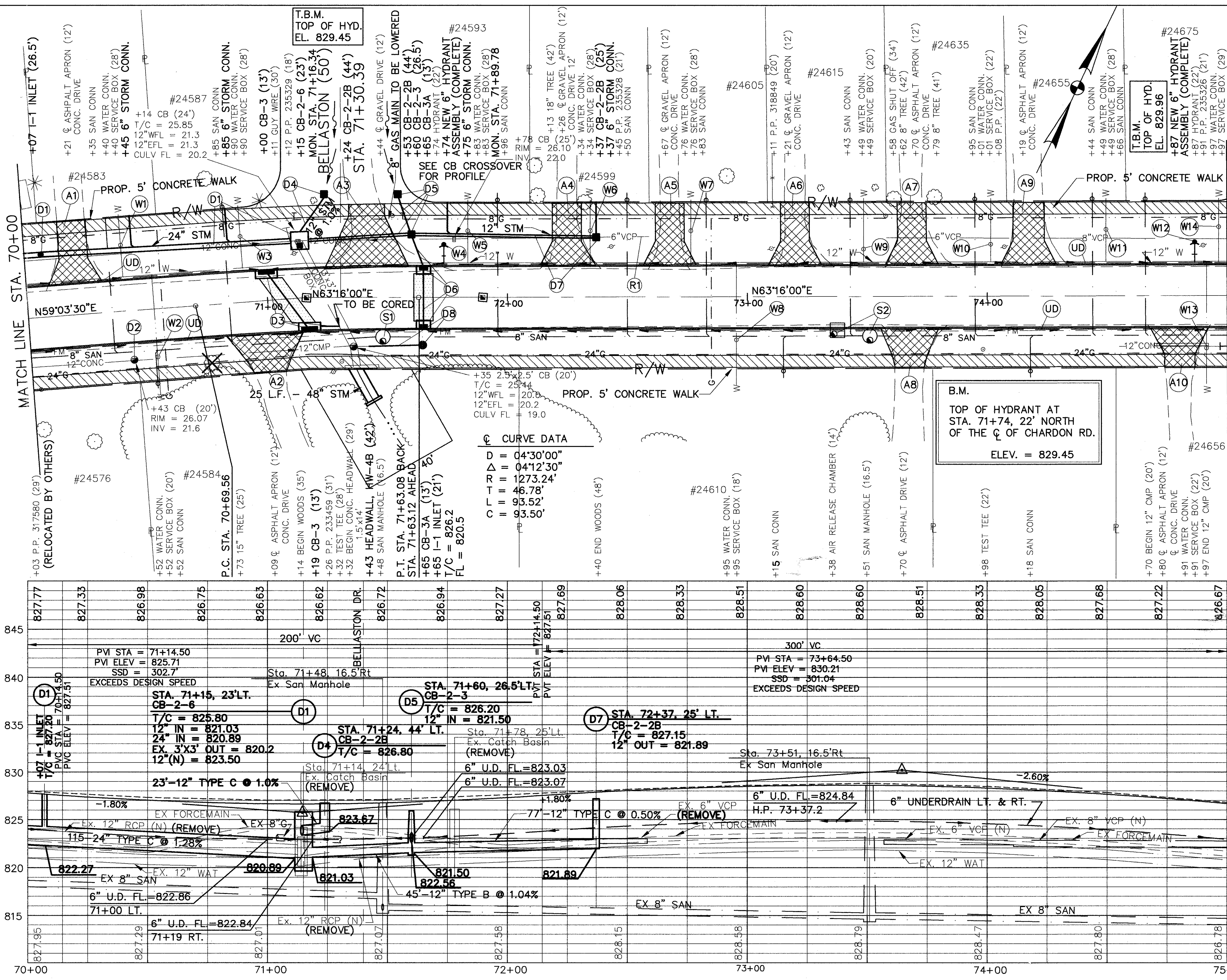
STEPHEN HOVANCSEK & ASSOC., INC.

* 707.17 NON-PERFORATED, ASTM D3034 SDR35, SS931 OR SS944

SEE SHT. 38 FOR WATERWORK QUANTITIES
SEE SHT. 31 FOR DRIVEWAY QUANTITIES
SEE SHT. 107 FOR WATERMAIN RELOCATION DETAIL
SEE SHT. 122 FOR WATERMAIN LOWERING DETAIL
SEE SHT. 101 FOR EXTRA AREA DETAIL

LEGEND

	ITEM 608 - CONCRETE WALK
	ITEM 452 - CONCRETE APRONS
	ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES

STATIONS	ITEM	QTY	UNIT
STA. 70+00 TO STA. 75+00	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN	940	LF
	MANHOLE ADJ. TO GRADE	1	EA.
	CATCH BASIN RECONSTRUCTED TO GRADE	1	EA.
	INLET, NO.1	1	EA.
	CATCH BASIN, NO. 2-6 AS PER PLAN	1	EA.
	CATCH BASIN, NO. 2-3, AS PER PLAN	1	EA.
	CATCH BASIN, NO. 2-2B AS PER PLAN	1	EA.
	CATCH BASIN, NO. 3A W/ V GRATE AS PER PLAN	2	EA.
	CATCH BASIN, NO. 3, W/ V GRATE AS PER PLAN	2	EA.
	24" CONDUIT TYPE C, 706.02, AS PER PLAN	115	LF
	12" CONDUIT TYPE C, 706.02, AS PER PLAN	44	LF
	12" CONDUIT TYPE B, 706.02, AS PER PLAN	45	LF
	6" CONDUIT TYPE F *	26	LF
	PIPE REMOVED 24" & UNDER	40	LF
	SIDE OFFSET	22	LF
TOTALS			

* 707.17 NON-PERFORATED ASTM D3034 SDR35, SS931 OR SS944
 SEE SHT. 108 FOR CULVERT DETAILS & QUANTITIES
 SEE SHT. 38 FOR WATERWORK QUANTITIES
 SEE SHT. 31 FOR DRIVEWAY QUANTITIES

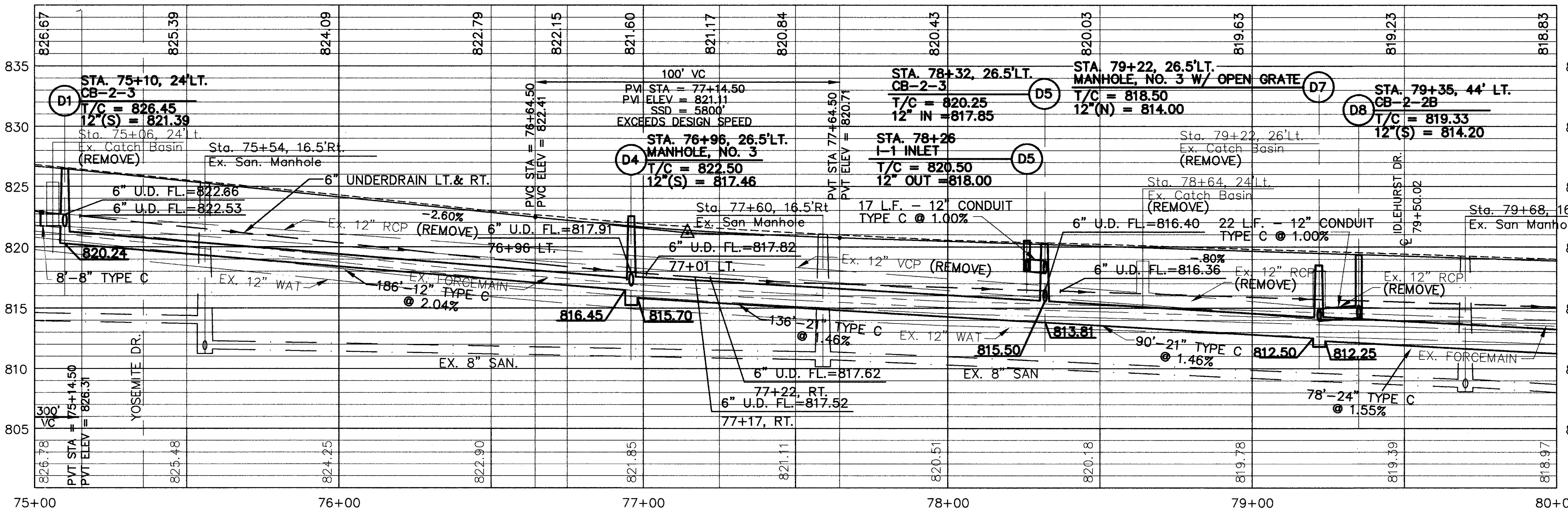
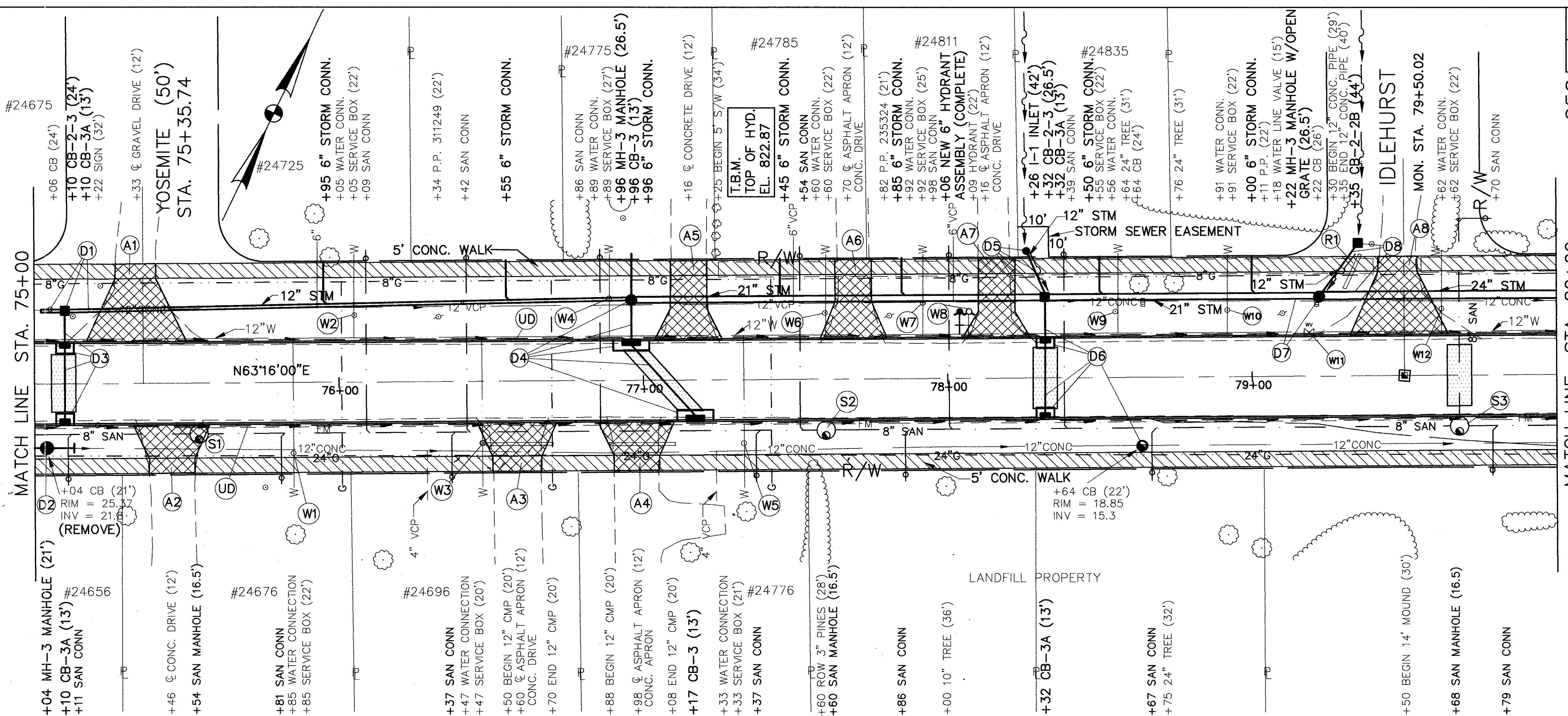
STEPHEN HOVANCSEK & ASSOC., INC.

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

LEGEND

	ITEM 608 - CONCRETE WALK
	ITEM 452 - CONCRETE APRONS
	ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



MATCH LINE STA. 75+00

MATCH LINE STA. 80+00

ESTIMATED DRAINAGE QUANTITIES

STATIONS	TO	FROM	REFERENCE NO.	QUANTITY
805	805	805	D1	13
810	810	810	D2	13
815	815	815	D3	13
820	820	820	D4	13
825	825	825	D5	13
830	830	830	D6	13
835	835	835	D7	13
840	840	840	D8	13
845	845	845	D9	13
850	850	850	D10	13
855	855	855	D11	13
860	860	860	D12	13
865	865	865	D13	13
870	870	870	D14	13
875	875	875	D15	13
880	880	880	D16	13
885	885	885	D17	13
890	890	890	D18	13
895	895	895	D19	13
900	900	900	D20	13
905	905	905	D21	13
910	910	910	D22	13
915	915	915	D23	13
920	920	920	D24	13
925	925	925	D25	13
930	930	930	D26	13
935	935	935	D27	13
940	940	940	D28	13
945	945	945	D29	13
950	950	950	D30	13
955	955	955	D31	13
960	960	960	D32	13
965	965	965	D33	13
970	970	970	D34	13
975	975	975	D35	13
980	980	980	D36	13
985	985	985	D37	13
990	990	990	D38	13
995	995	995	D39	13
1000	1000	1000	D40	13
TOTALS				13

* 707.17 NON PERFORATED ASTM D3034 SDR35, SS931 OR SS944

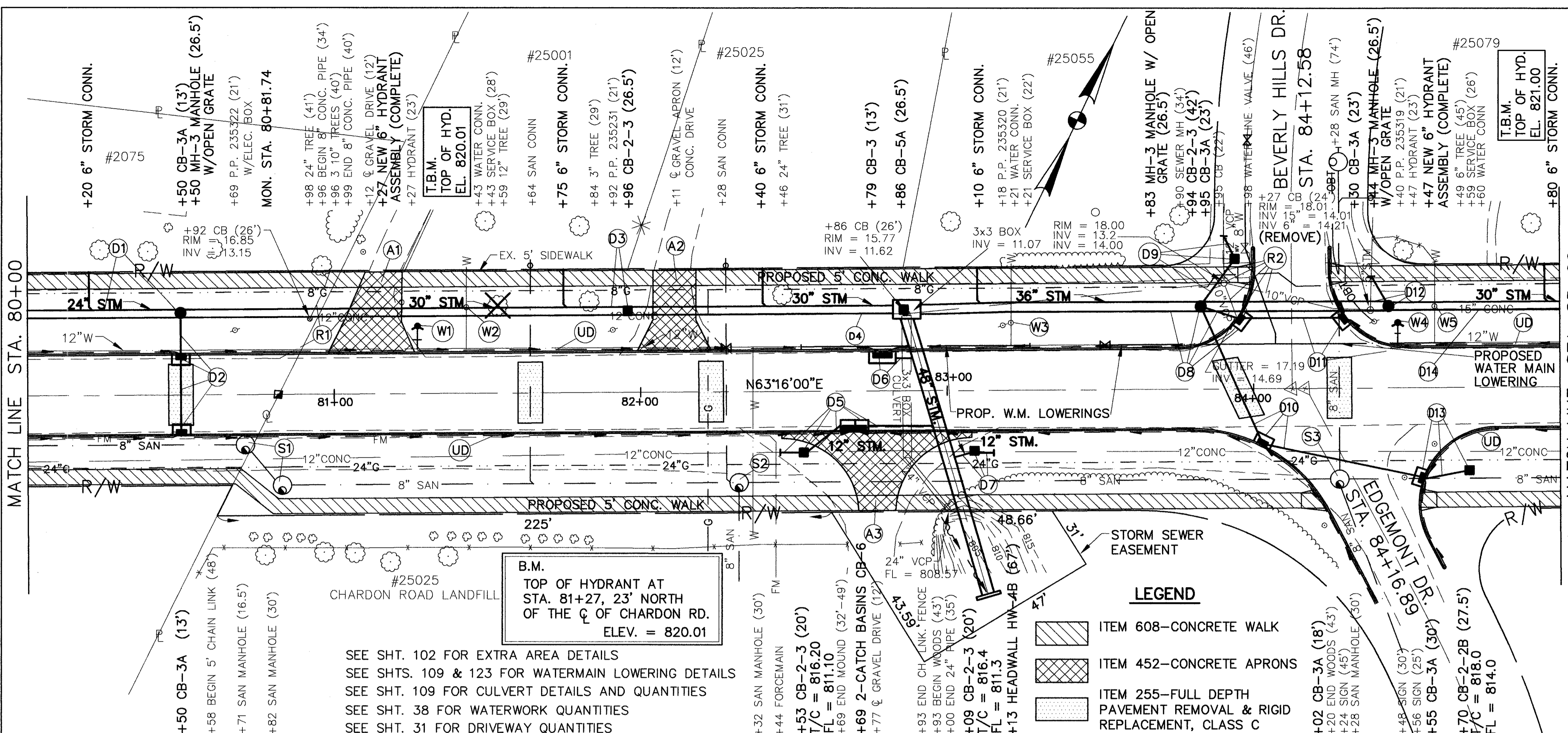
SEE SHT. 38 FOR WATERWORK QUANTITIES
SEE SHT. 31 FOR DRIVEWAY QUANTITIES

STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD PLAN STA. 75+00 TO STA. 80+00

CHARDON ROAD

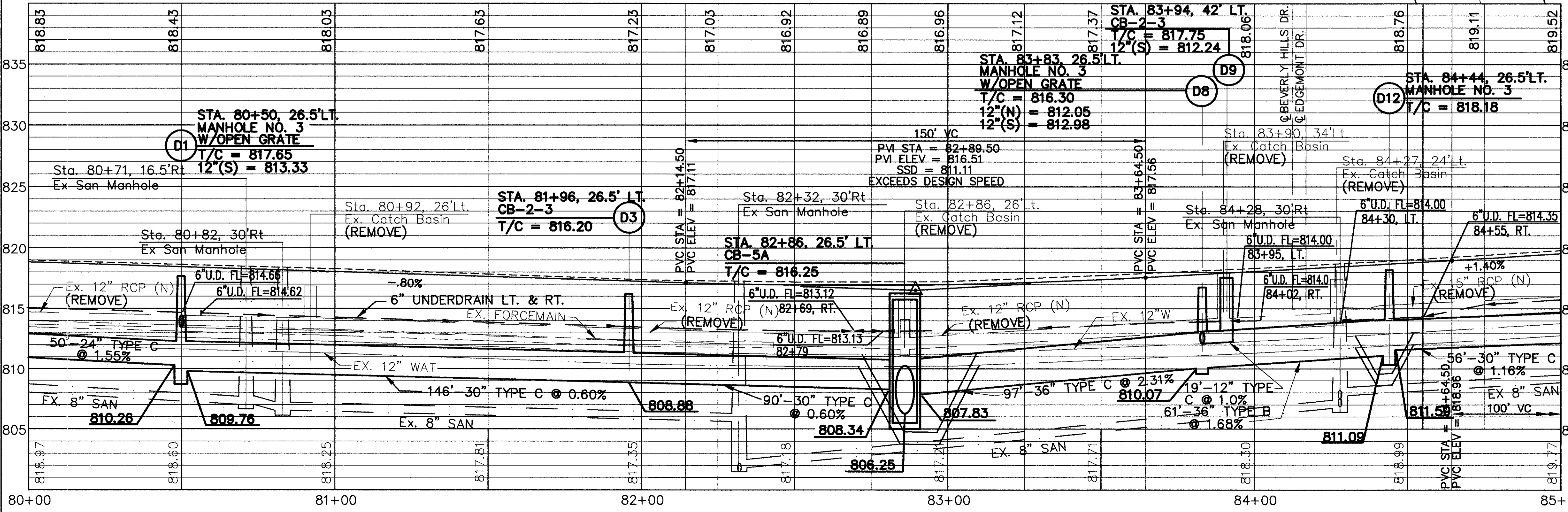
CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



B.M.
 TOP OF HYDRANT AT
 STA. 81+27, 23' NORTH
 OF THE C OF CHARDON RD.
 ELEV. = 820.01

SEE SHT. 102 FOR EXTRA AREA DETAILS
 SEE SHTS. 109 & 123 FOR WATERMAIN LOWERING DETAILS
 SEE SHT. 109 FOR CULVERT DETAILS AND QUANTITIES
 SEE SHT. 38 FOR WATERWORK QUANTITIES
 SEE SHT. 31 FOR DRIVEWAY QUANTITIES

- LEGEND**
- ITEM 608-CONCRETE WALK
 - ITEM 452-CONCRETE APRONS
 - ITEM 255-FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES		STATIONS		TOTALS	
FROM STA.	TO STA.	STATION	QUANTITY	UNIT	REFERENCE NO.
805	805	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN	929	L.F.	D1
805	805	MANHOLE ADJ. TO GRADE	2	EA.	D2
805	805	MANHOLE NO. 3 AS PER PLAN B	1	EA.	D3
805	805	CATCH BASIN NO. 6 AS PER PLAN	2	EA.	D4
805	805	CATCH BASIN NO. 2-3 AS PER PLAN	1	EA.	D5
805	805	CATCH BASIN NO. 2-2B AS PER PLAN	1	EA.	D6
805	805	CATCH BASIN NO. 3A, W/V GRATE AS PER PLAN	1	EA.	D7
805	805	CATCH BASIN NO. 3, W/V GRATE AS PER PLAN	1	EA.	D8
805	805	36" CONDUIT TYPE C, 706.02 AS PER PLAN	97	L.F.	D9
805	805	36" CONDUIT TYPE B, 706.02 AS PER PLAN	61	L.F.	D10
805	805	30" CONDUIT TYPE C, 706.02 AS PER PLAN	292	L.F.	D11
805	805	24" CONDUIT TYPE C, 706.02 AS PER PLAN	50	L.F.	D12
805	805	12" CONDUIT TYPE C, 706.02 AS PER PLAN	14	L.F.	D13
805	805	12" CONDUIT TYPE B, 706.02 AS PER PLAN	26	L.F.	D14
805	805	6" CONDUIT TYPE F *	120	L.F.	D15
805	805	6" CONDUIT TYPE C, PS46, 707.19 AS PER PLAN	10	L.F.	D16
805	805	MANHOLE REMOVED	1	EA.	D17
805	805	CATCH BASIN REMOVED	1	EA.	D18
805	805	PIPE REMOVED 24" & UNDER	45	L.F.	D19
805	805	SIDE	34	L	D20
805	805	OFFSET	30	L	D21
805	805	TOTALS	52	L	D22

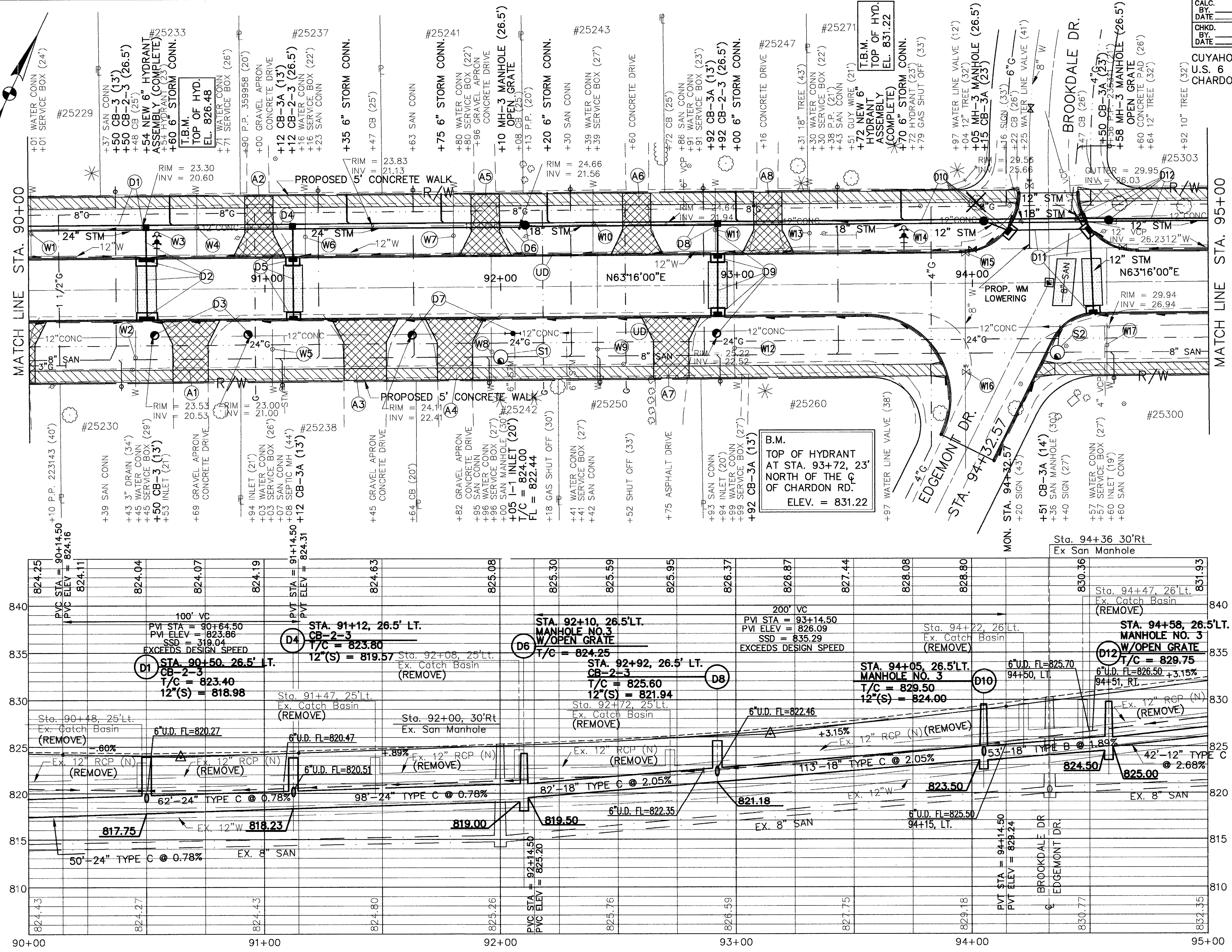
STEPHEN HOVANCSEK & ASSOC., INC.

* 707.17 NON-PERFORATED ASTM D3034 SDR35, SS931 OR SS944

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

- LEGEND**
- ITEM 608 - CONCRETE WALK
 - ITEM 452 - CONCRETE APRONS
 - ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES

STATIONS	ITEM	QUANTITY	UNIT	TOTALS
STA. 90+00 TO STA. 95+00	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN		LF.	944
	MANHOLE ADJ. TO GRADE		EA.	2
	CATCH BASIN ADJ. TO GRADE	2	EA.	4
	INLET, NO. 1		EA.	1
	MANHOLE, NO.3 AS PER PLAN - B		EA.	2
	MANHOLE NO. 3 AS PER PLAN - A		EA.	1
	CATCH BASIN NO. 2-3, AS PER PLAN	1	EA.	3
	CATCH BASIN, NO.3A W/ V GRATE, AS PER PLAN	2	EA.	7
	CATCH BASIN, NO. 3, W/ V GRATE AS PER PLAN	2	EA.	2
	24" CONDUIT TYPE C, 706.02 AS PER PLAN	50	LF.	210
18" CONDUIT TYPE C, 706.02 AS PER PLAN	62	LF.	195	
18" CONDUIT TYPE B, 706.02 AS PER PLAN	98	LF.	53	
12" CONDUIT TYPE B, 706.02 AS PER PLAN	82	LF.	103	
12" CONDUIT TYPE B, 706.02 AS PER PLAN	113	LF.	53	
6" CONDUIT TYPE F *	72	LF.	130	
	8	EA.	130	
SIDE				
OFFSET				
TOTALS				

REFERENCE NO.
* 707.17 NON-PERFORATED, ASTM D3034 SDR35, SS931 OR SS944

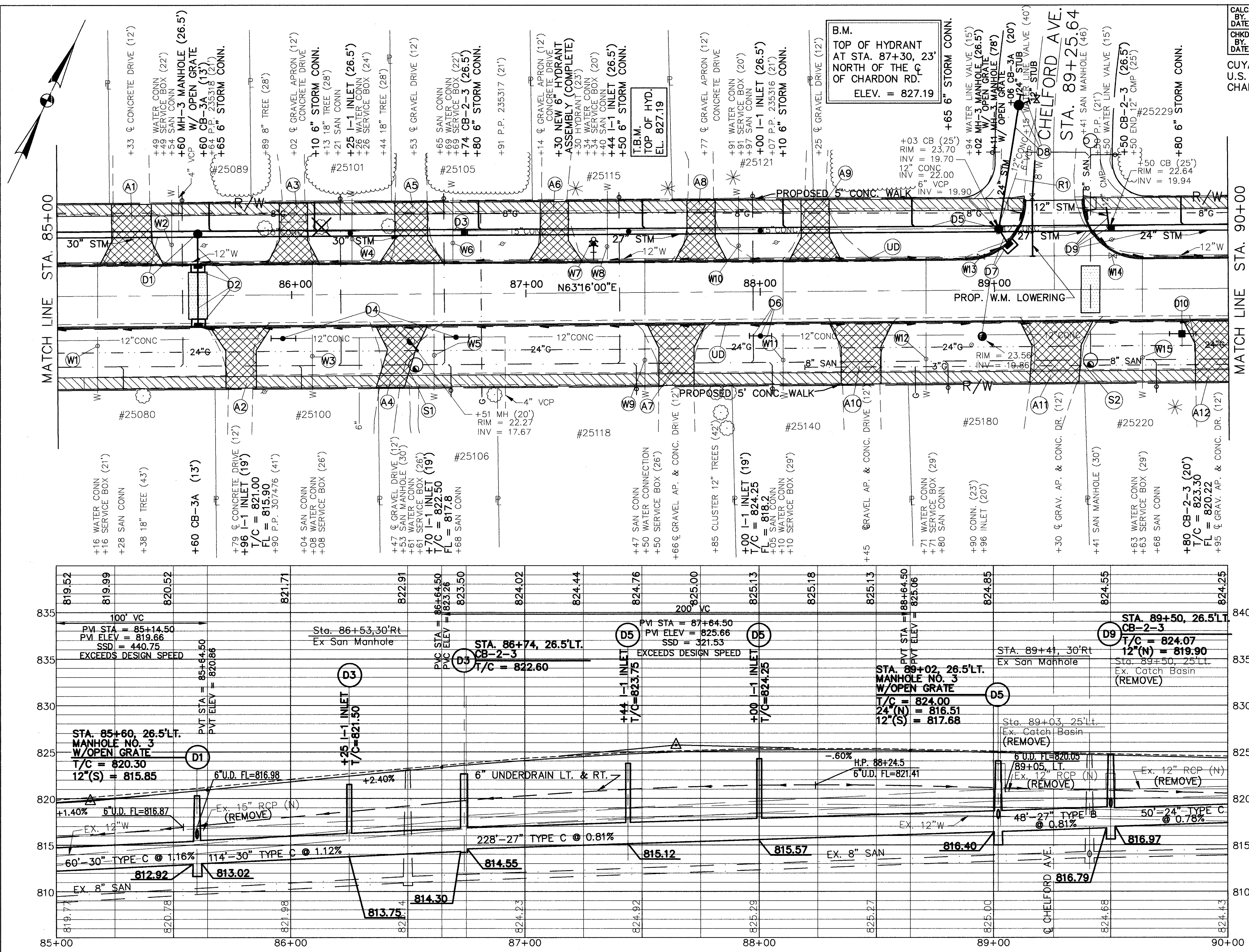
SEE SHT. 104 FOR EXTRA AREA DETAIL
SEE SHT. 124 FOR WATERMAIN LOWERING DETAIL
SEE SHT. 38 FOR WATERWORK QUANTITIES
SEE SHT. 31 FOR DRIVEWAY QUANTITIES

STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD

LEGEND

- ITEM 608 - CONCRETE WALK
- ITEM 452 - CONCRETE APRONS
- ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



ESTIMATED DRAINAGE QUANTITIES

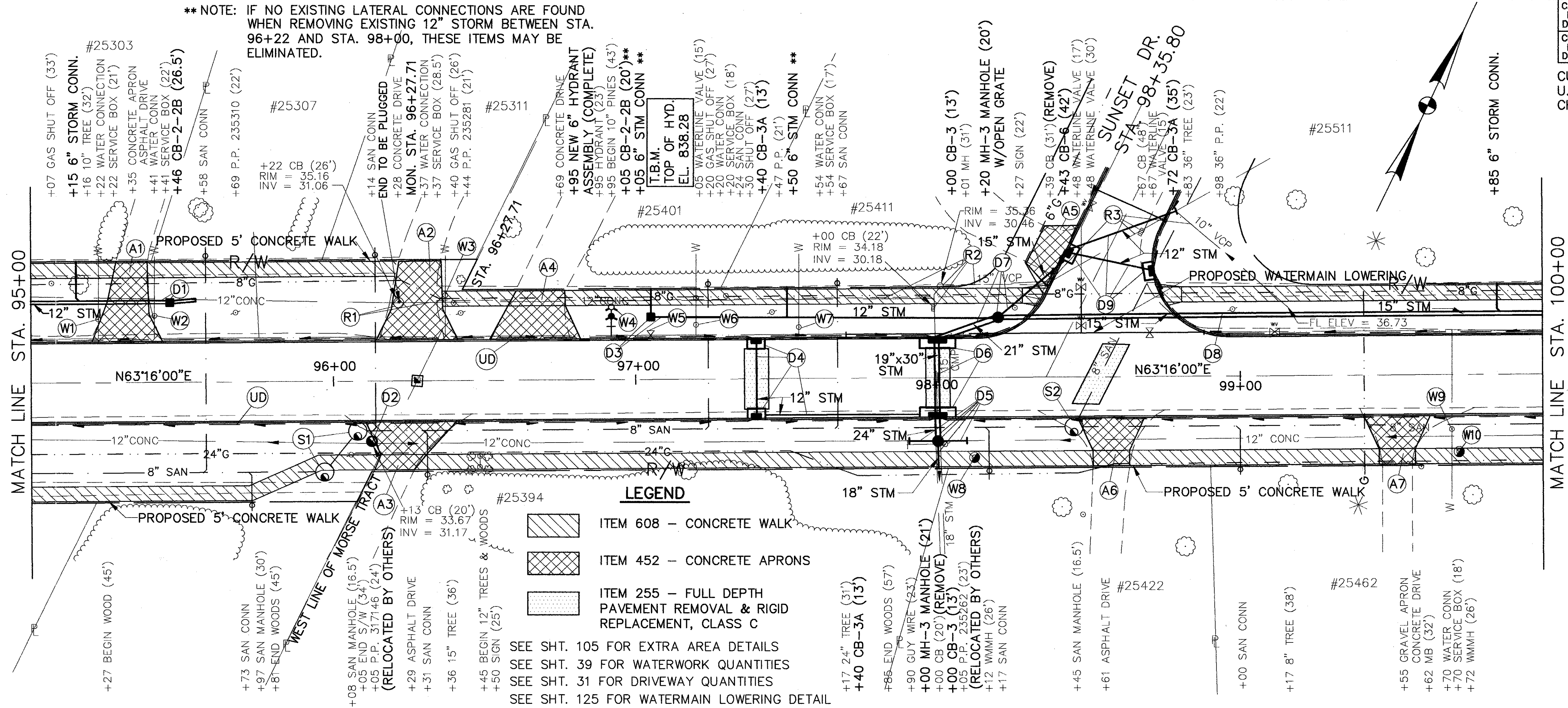
STATION	DESCRIPTION	EA.	EA.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	TOTALS
605	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN										964
	MANHOLE ADJ. TO GRADE										3
	CATCH BASIN ADJUSTED TO GRADE										1
604	INLET, NO. 1										6
	MANHOLE, NO. 3 AS PER PLAN B										3
	CATCH BASIN, NO. 2-3, AS PER PLAN										3
	CATCH BASIN, NO. 3A W/V GRATE AS PER PLAN										3
	30" CONDUIT TYPE C, 706.02 AS PER PLAN										174
	27" CONDUIT TYPE C, 706.02 AS PER PLAN										228
	27" CONDUIT TYPE B, 706.02 AS PER PLAN										48
	24" CONDUIT TYPE C, 706.02 AS PER PLAN										108
	12" CONDUIT TYPE C, 706.02 AS PER PLAN										66
	12" CONDUIT TYPE B, 706.02 AS PER PLAN										26
	6" CONDUIT TYPE F *										40
202	PIPE REMOVED 24" & UNDER										65
	SIDE OFFSET										
	TOTALS										

STEPHEN HOVANCSEK & ASSOC., INC.

* 707.17 NON-PERFORATED, ASTM D3034 SDR 35, SS931 OR SS944
 SEE SHT. 103 FOR EXTRA AREA DETAIL
 SEE SHT. 124 FOR WATERMAIN LOWERING DETAIL
 SEE SHT. 38 FOR WATERWORK QUANTITIES
 SEE SHT. 31 FOR DRIVEWAY QUANTITIES

**** NOTE: IF NO EXISTING LATERAL CONNECTIONS ARE FOUND WHEN REMOVING EXISTING 12" STORM BETWEEN STA. 96+22 AND STA. 98+00, THESE ITEMS MAY BE ELIMINATED.**

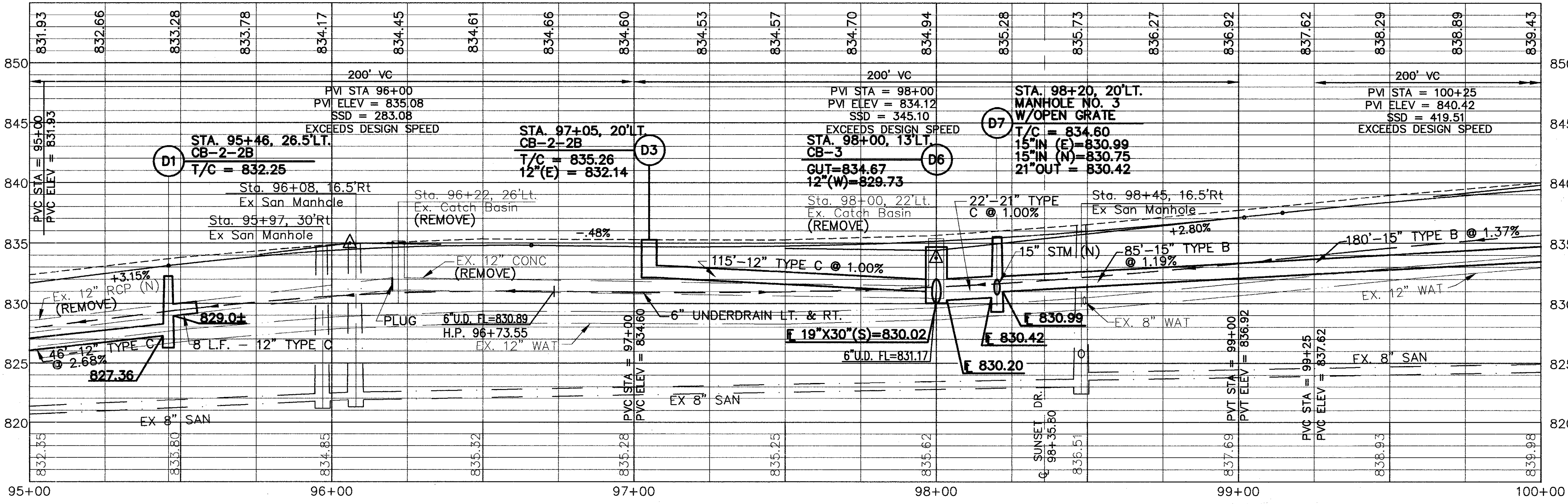
CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



LEGEND

- ITEM 608 - CONCRETE WALK
- ITEM 452 - CONCRETE APRONS
- ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C

SEE SHT. 105 FOR EXTRA AREA DETAILS
 SEE SHT. 39 FOR WATERWORK DETAILS
 SEE SHT. 31 FOR DRIVEWAY QUANTITIES
 SEE SHT. 125 FOR WATERMAIN LOWERING DETAIL



STATION	DESCRIPTION	QUANTITY	UNIT	ESTIMATED QUANTITIES
605	6" SHALLOW PIPE UNDERDRAN W/FABRIC WRAP, AS PER PLAN		L.F.	958
	MANHOLE ADJ. TO GRADE	2	EA.	3
	CATCH BASIN ADJ. TO GRADE	1	EA.	1
	MANHOLE, NO. 3, AS PER PLAN-B	1	EA.	1
604	MANHOLE, NO. 3, AS PER PLAN-A	1	EA.	1
	CATCH BASIN, NO. 2-2B	1	EA.	1
	CATCH BASIN, NO. 3A W/V GRATE, AS PER PLAN	2	EA.	2
	CATCH BASIN, NO. 3, W/V GRATE, AS PER PLAN	2	EA.	2
	19" x 30" CONDUIT, TYPE C, 706.02, AS PER PLAN	26	L.F.	26
	24" CONDUIT, TYPE C, 706.02, AS PER PLAN	8	L.F.	8
	21" CONDUIT, TYPE C, 706.02, AS PER PLAN	22	L.F.	22
	18" CONDUIT, TYPE C, 706.02, AS PER PLAN	8	L.F.	8
	15" CONDUIT, TYPE C, 706.02, AS PER PLAN	31	L.F.	31
	15" CONDUIT, TYPE B, 706.02, AS PER PLAN	180	L.F.	180
	12" CONDUIT, TYPE C, 706.02, AS PER PLAN	54	L.F.	54
	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	115	L.F.	115
	12" CONDUIT, TYPE B, 706.02, AS PER PLAN	16	L.F.	16
	6" CONDUIT TYPE F *	90	L.F.	90
202	MANHOLE REMOVED	1	EA.	1
	CATCH BASIN REMOVED	2	EA.	2
	PIPE REMOVED 24" & UNDER	178	L.F.	178
	SIDE	76	L.F.	76
	OFFSET	98	L.F.	98
	TOTALS	326		326

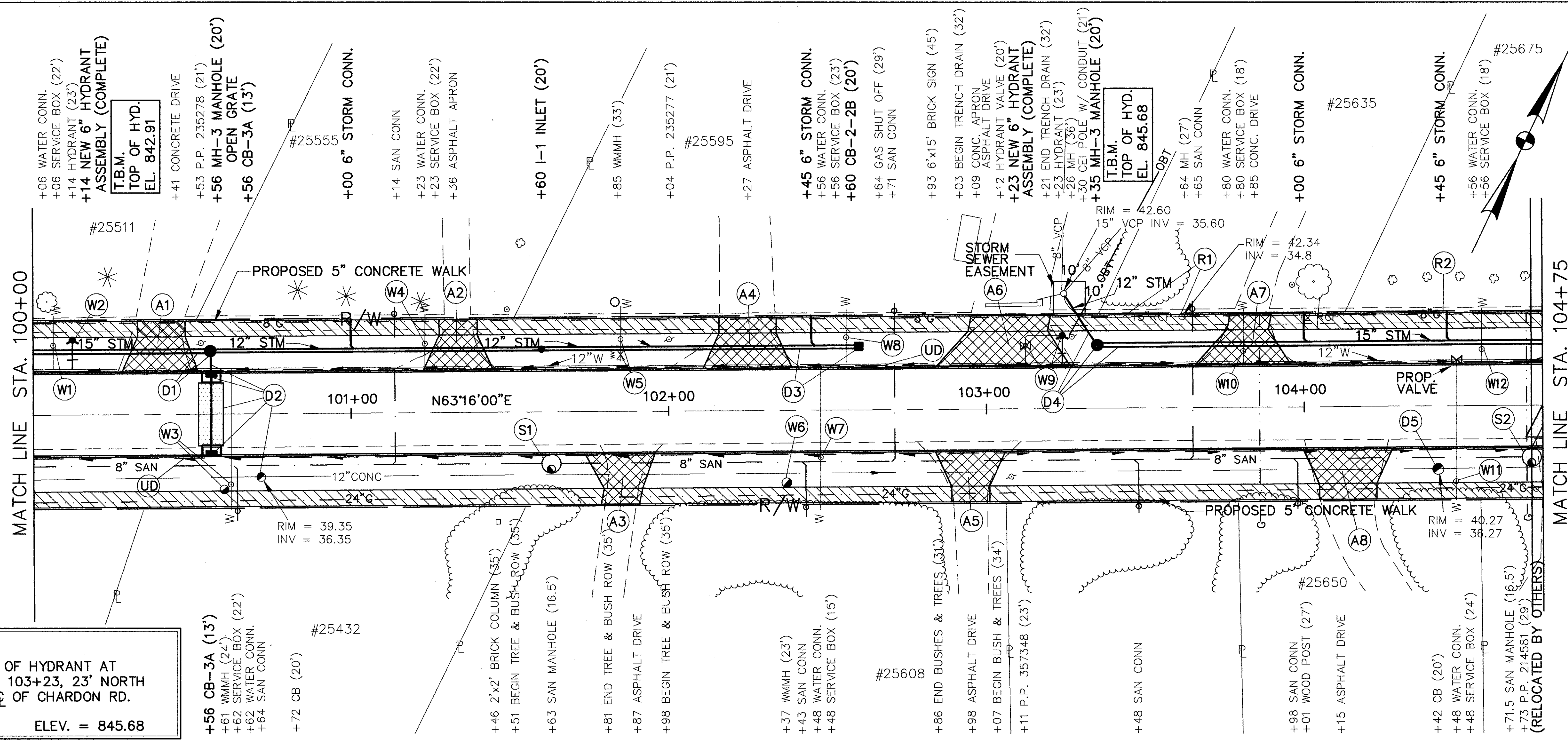
* 707.17 NON-PERFORATED, ASTM D3034 SDR 35, SS931 OR SS944

CALC. BY: DATE: CHKD. BY: DATE:

CUYAHOGA COUNTY U.S. 6 CHARDON ROAD

LEGEND

- ITEM 608 - CONCRETE WALK
ITEM 452 - CONCRETE APRONS
ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C



B.M. TOP OF HYDRANT AT STA. 103+23, 23' NORTH OF C OF CHARDON RD. ELEV. = 845.68

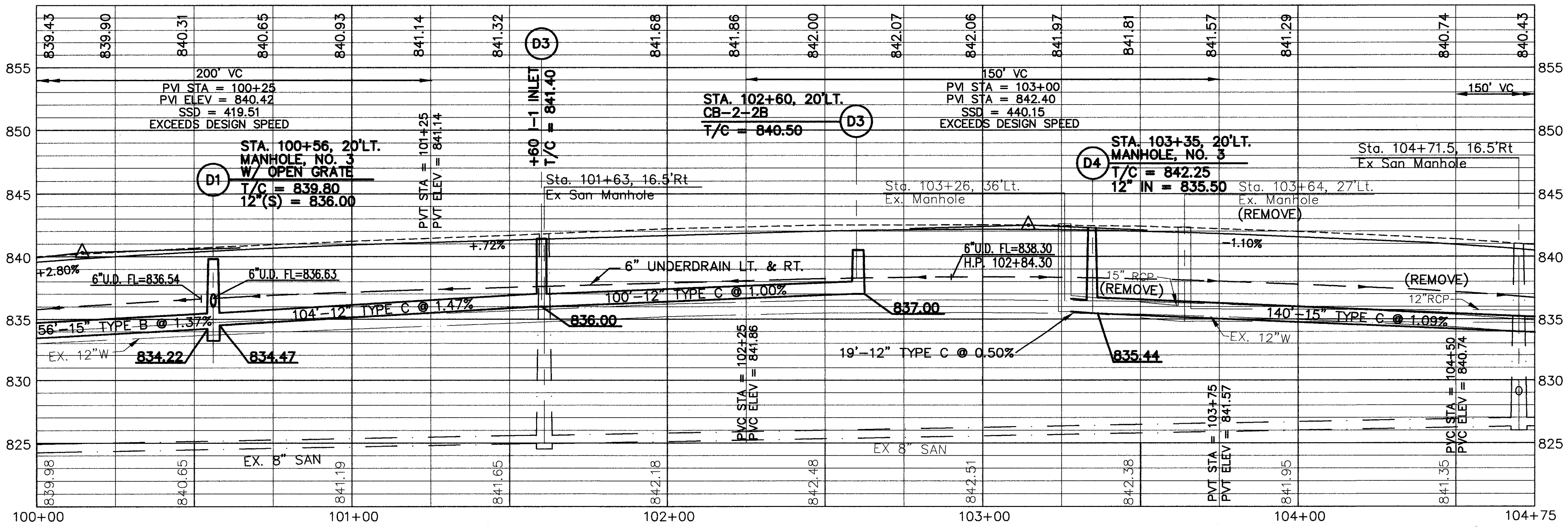


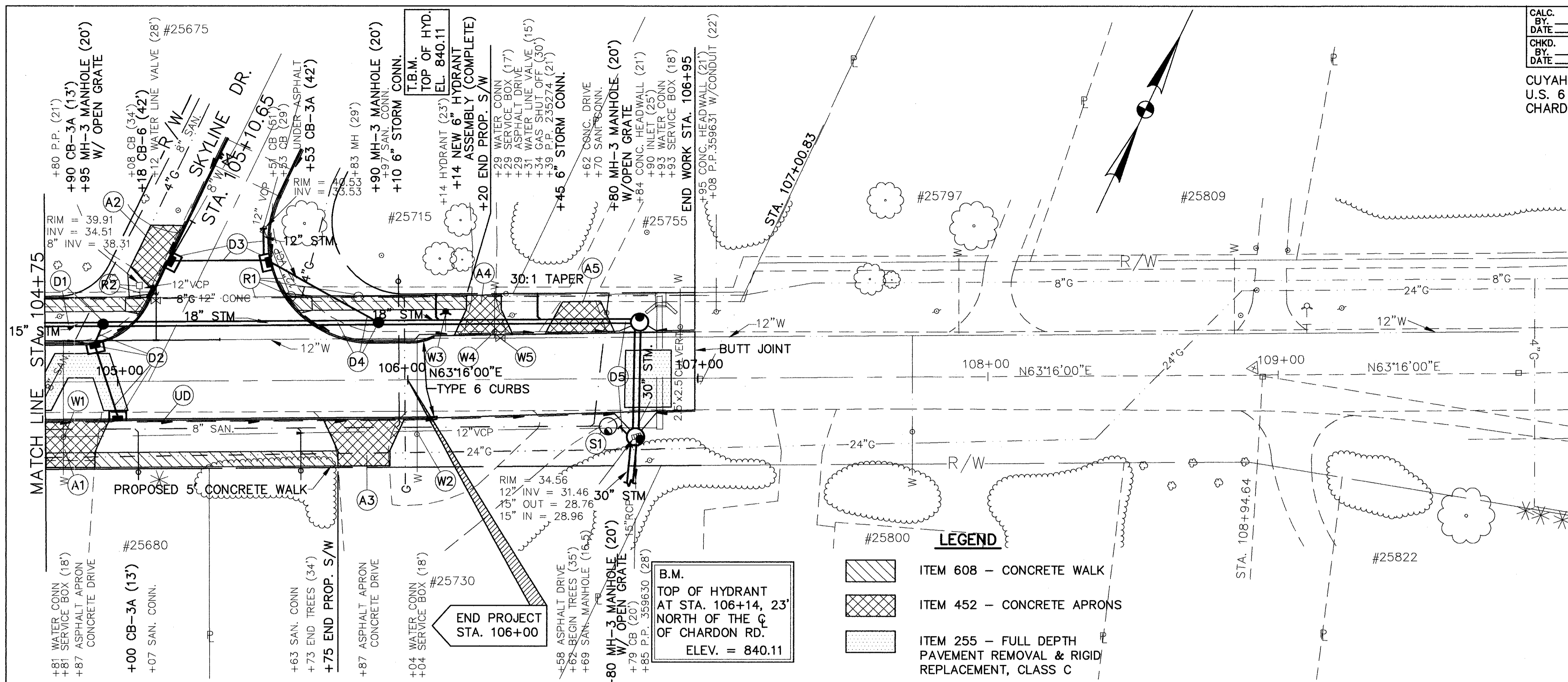
Table with columns: ESTIMATED DRAINAGE QUANTITIES, STATIONS, and various pipe/manhole types.

* 707.17 NON PERFORMATED, ASTM D3034 SDR35, SS931 OR SS944

SEE SHT. 39 FOR WATERWORK QUANTITIES
SEE SHT. 31 FOR DRIVEWAY QUANTITIES

CHARDON ROAD

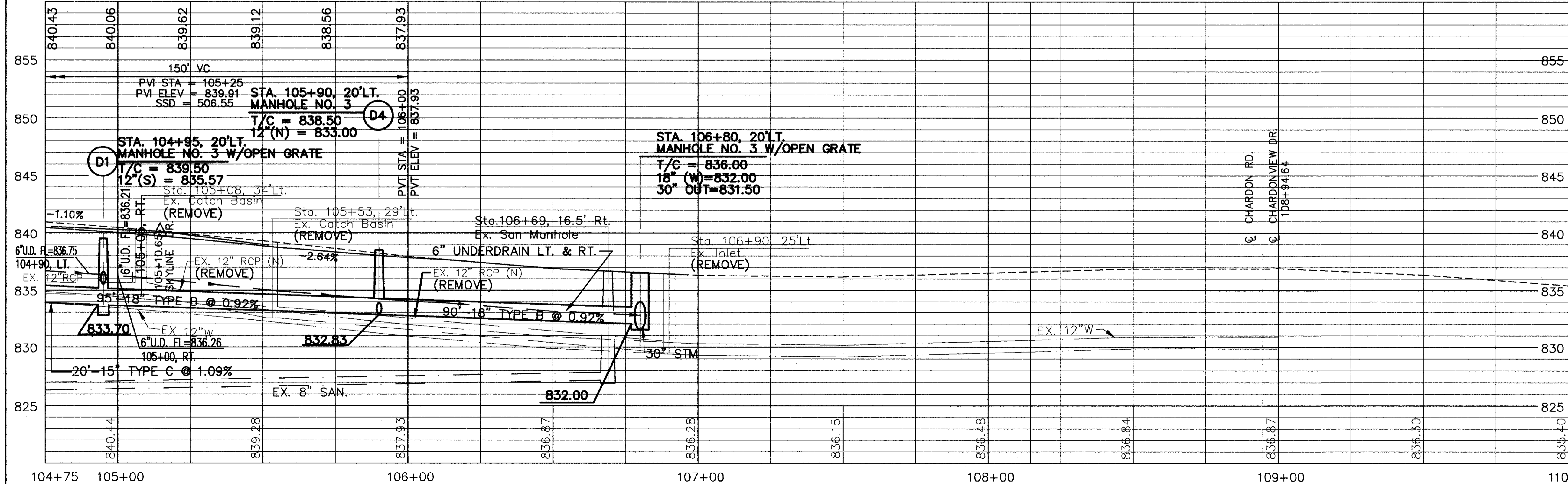
CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



LEGEND

- ITEM 608 - CONCRETE WALK
- ITEM 452 - CONCRETE APRONS
- ITEM 255 - FULL DEPTH PAVEMENT REMOVAL & RIGID REPLACEMENT, CLASS C

B.M.
 TOP OF HYDRANT
 AT STA. 106+14, 23'
 NORTH OF THE C
 OF CHARDON RD.
 ELEV. = 840.11



STATION	DESCRIPTION	UNIT	QUANTITY
605	6" SHALLOW PIPE UNDERDRAIN W/FABRIC WRAP, AS PER PLAN	L.F.	268
	MANHOLE ADJ. TO GRADE	EA.	1
	MANHOLE NO. 3 AS PER PLAN-B	EA.	1
604	MANHOLE, NO. 3 AS PER PLAN-A	EA.	1
	CATCH BASIN NO. 6 AS PER PLAN	EA.	1
	CATCH BASIN NO. 3A W/V GRATE AS PER PLAN	EA.	3
	18" CONDUIT TYPE 'C', 706.02 AS PER PLAN	L.F.	90
	18" CONDUIT TYPE 'B', 706.02 AS PER PLAN	L.F.	95
	15" CONDUIT TYPE 'C', 706.02 AS PER PLAN	L.F.	20
	12" CONDUIT TYPE 'C', 706.02 AS PER PLAN	L.F.	9
	12" CONDUIT TYPE 'B', 706.02 AS PER PLAN	L.F.	44
	6" CONDUIT TYPE 'F' *	L.F.	50
	MANHOLE REMOVED	EA.	1
202	CATCH BASIN REMOVED	EA.	1
	PIPE REMOVED 24" & UNDER	L.F.	215
	SIDE	L	10
	OFFSET	L	22.5
	STATIONS	R	16.5
	TOTALS		225

* 707.17 NON-PERFORATED, ASTM D3034 SDR 35, SS931 OR SS944
 SEE SHT. 110 FOR CULVERT QUANTITIES AND DETAILS
 SEE SHT. 39 FOR WATERWORK QUANTITIES
 SEE SHT. 32 FOR DRIVEWAY QUANTITIES
 SEE SHT. 126 FOR WATERMAIN LOWERING DETAILS
 SEE SHT. 106 FOR EXTRA AREA DETAILS

STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD

SEEDING
END SQ.
WIDTH YDS.

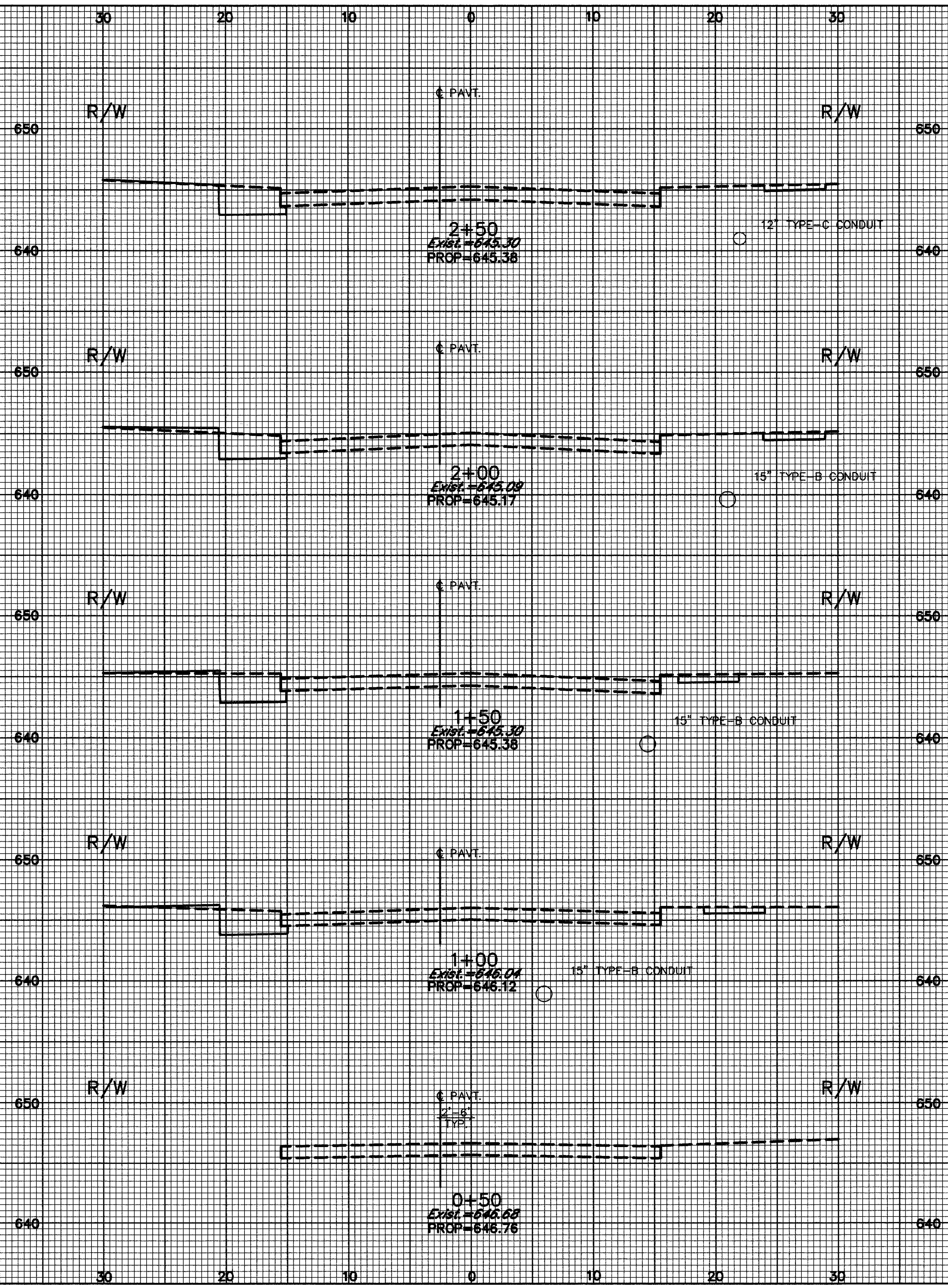
CALC.
BY
DATE
CHKD.
BY
DATE

CUY-6-25.94

OHIO
FHWA
REGION

74
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
32.5			
		41.5	
12.3			
		21.9	
11.3			
		19.7	
10.0			
		9.3	
0.0			

CROSS SECTIONS 0+00 TO 2+50

SEEDING
END SQ.
WIDTH MDTYH YDS.

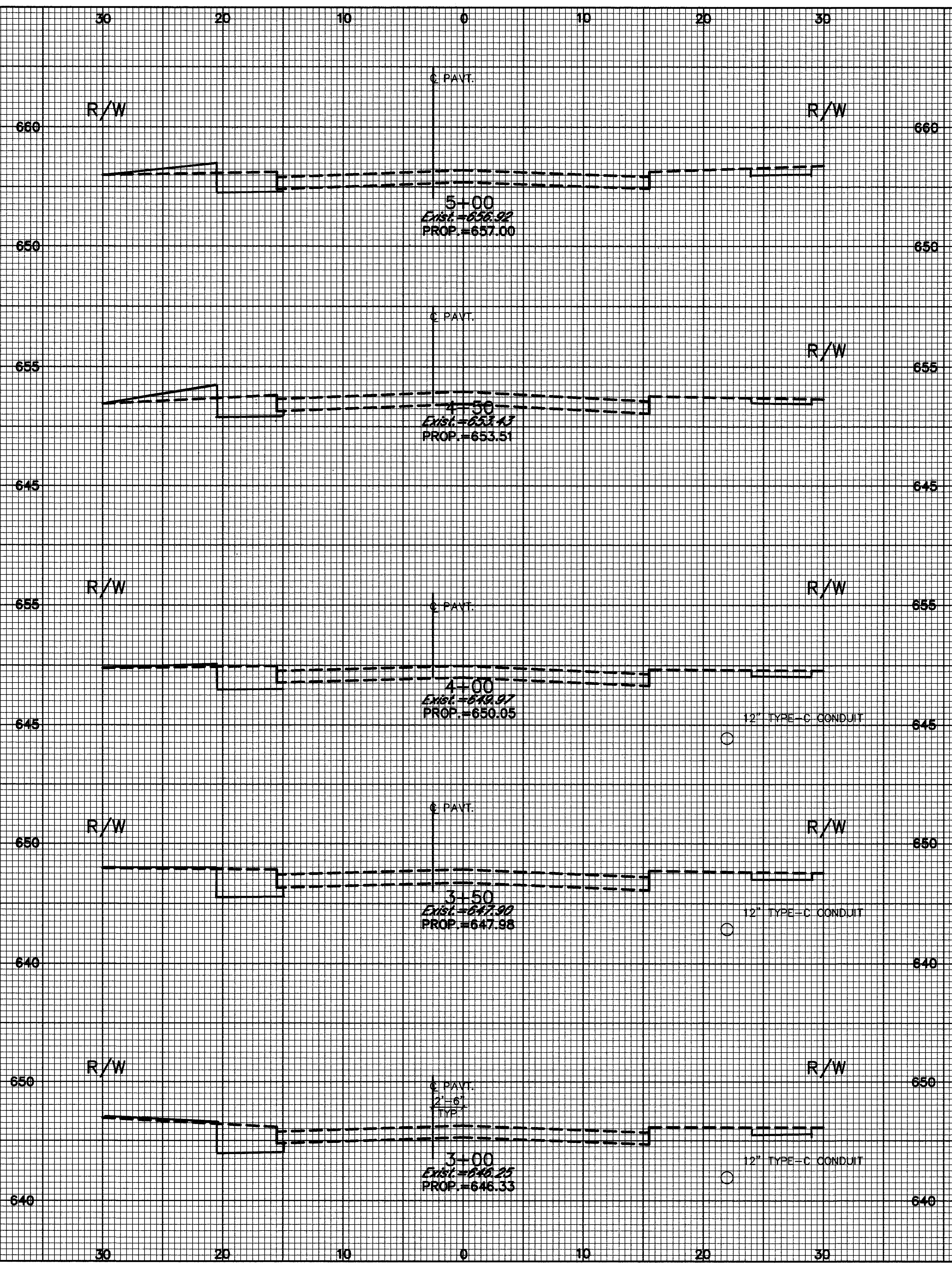
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BY
DATE
CHKD.
BY
DATE

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OHIO
FHWA
REGION

75
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



END	AREA	VOLUME	
CUT	FILL	CUT	FILL
10.0	5.0		
		17.6	9.1
9.0	4.8		
		18.8	4.4
11.3	0.0		
		21.9	
12.3			
		48.0	
39.5			
		66.7	

CROSS SECTIONS 3+00 TO 5+00

SEEDING
END WIDTH SQ. YDS.

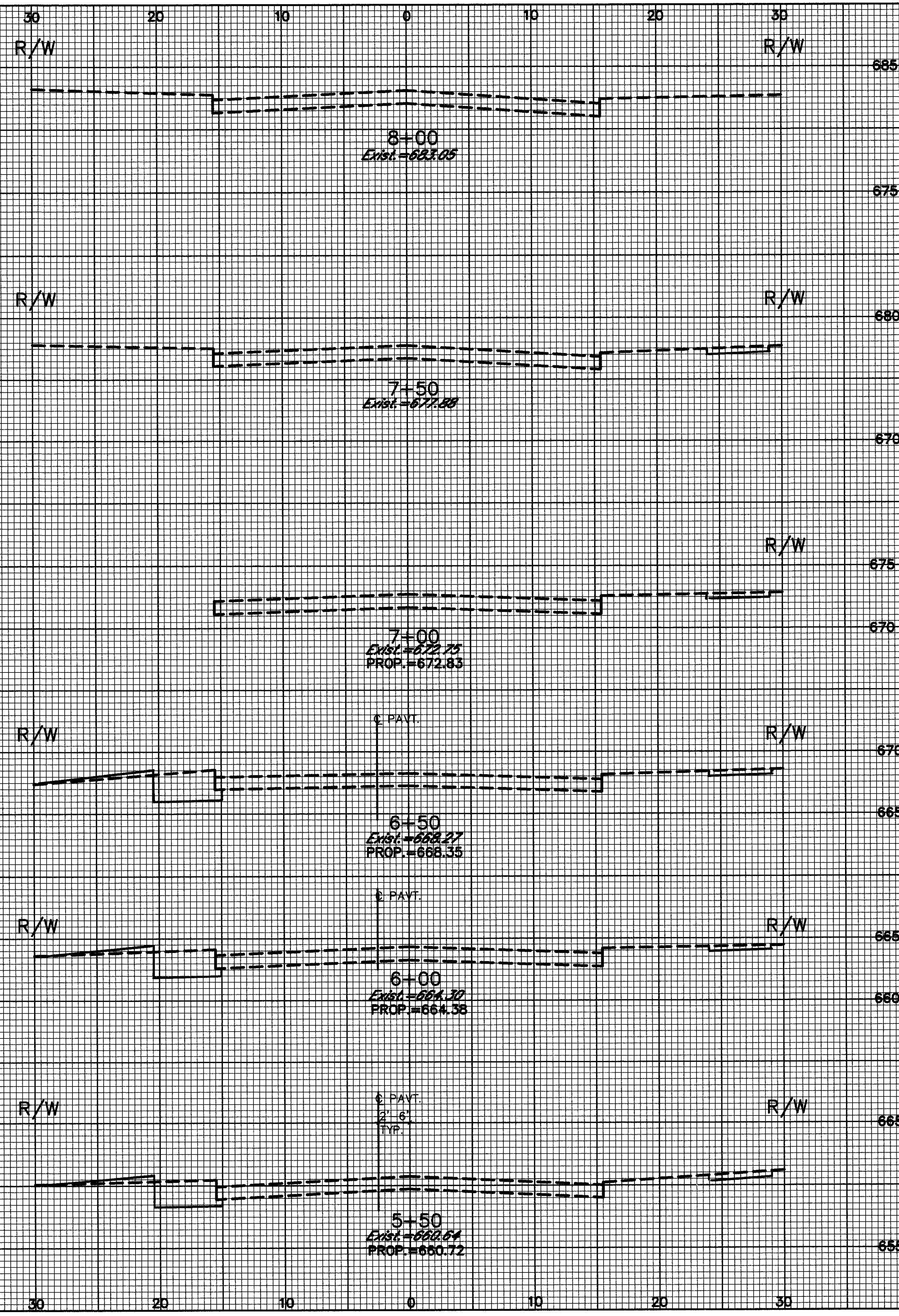
CALC. BY _____
DATE _____
CHKD. BY _____
DATE _____

OHIO
FHWA REGION

76
126

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CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



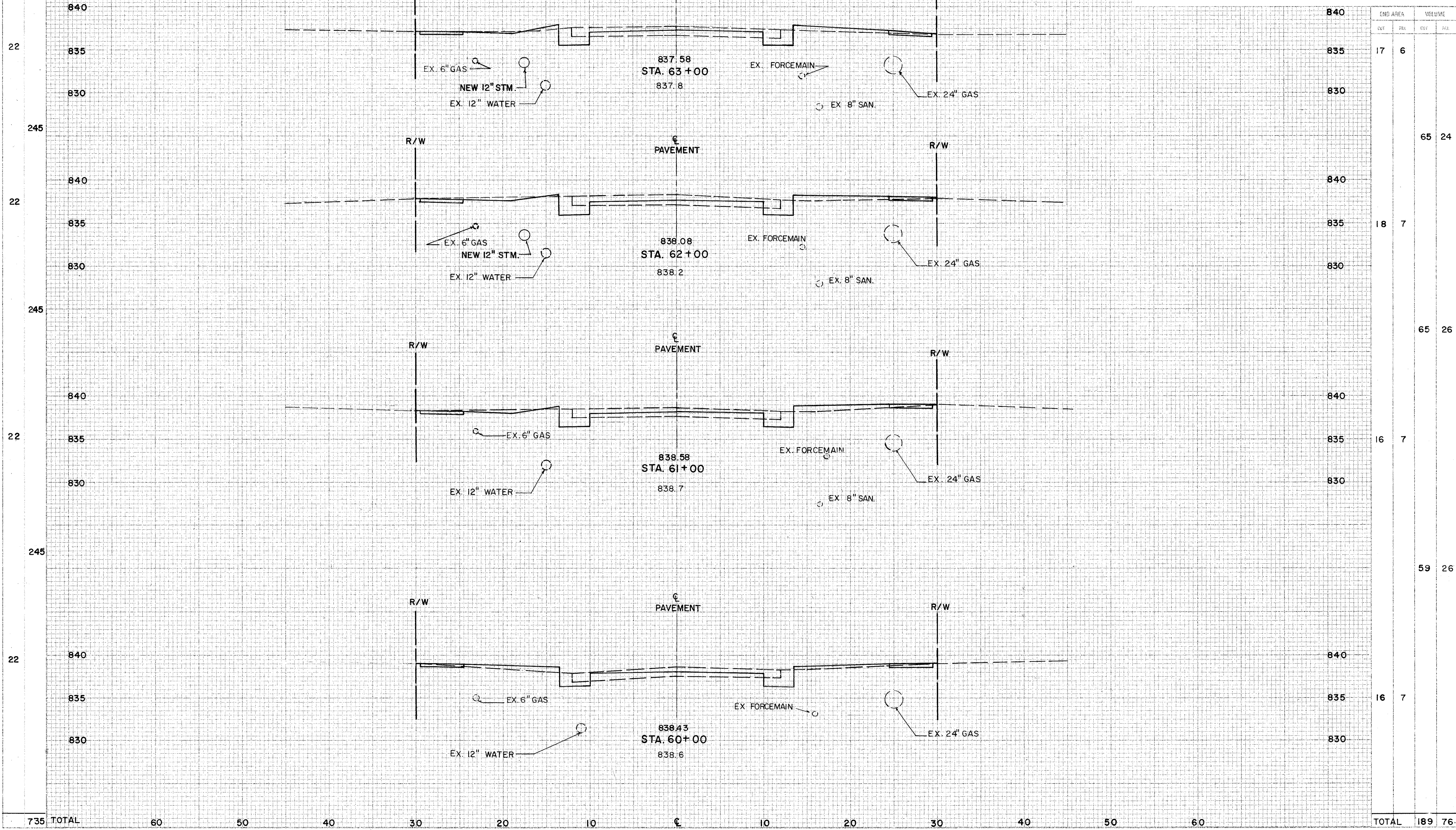
END AREA		VOLUME	
CUT	FILL	CUT	FILL
		0.0	0.0
		10.5	2.6
		11.3	2.8
		20.6	6.1
		11.0	3.8
		20.2	6.8
		10.8	3.5
		19.3	7.9

CROSS SECTIONS 5+50 TO 8+00

SODDING
END WIDTH
25 YRS

OHIO
FHWA REGION 77
126
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CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



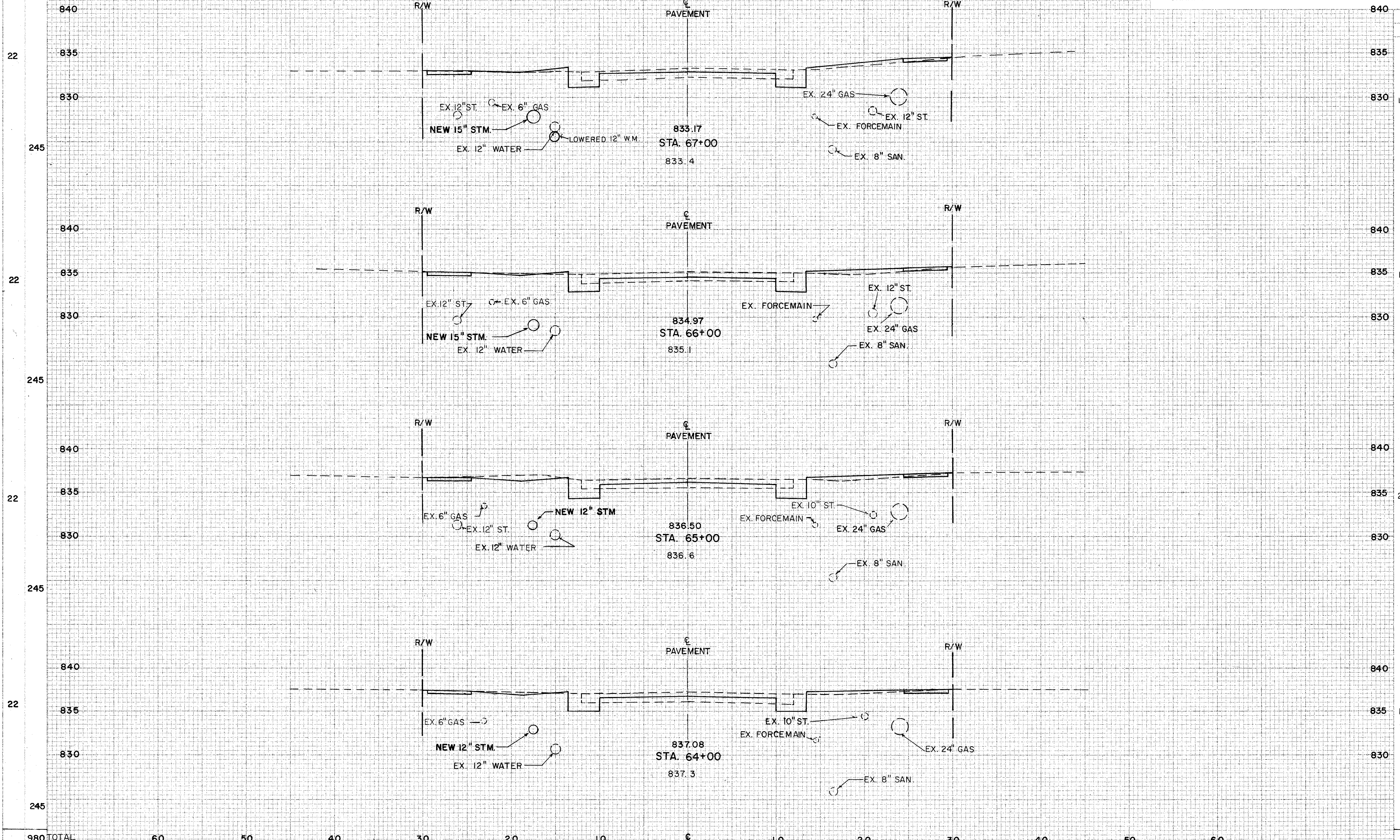
CROSS SECTIONS STA. 60+00 to 63+00

CHARDON ROAD

SODDING
 END WIDTH
 SQ. YDS.

CUY-6-25.94

CUYAHOGA COUNTY
 U.S. 6
 CHARDON RD.



AREA		VOLUME	
CUT	FILL	CUT	FILL
14	5		
		56	20
16	6		
		69	22
21	6		
		72	17
18	3		
		65	17
TOTALS		262	76

CROSS SECTIONS STA. 64+00 TO 67+00

CHARDON ROAD

SODDING
 HRS. 32
 MIN. 00
 YDS. 00

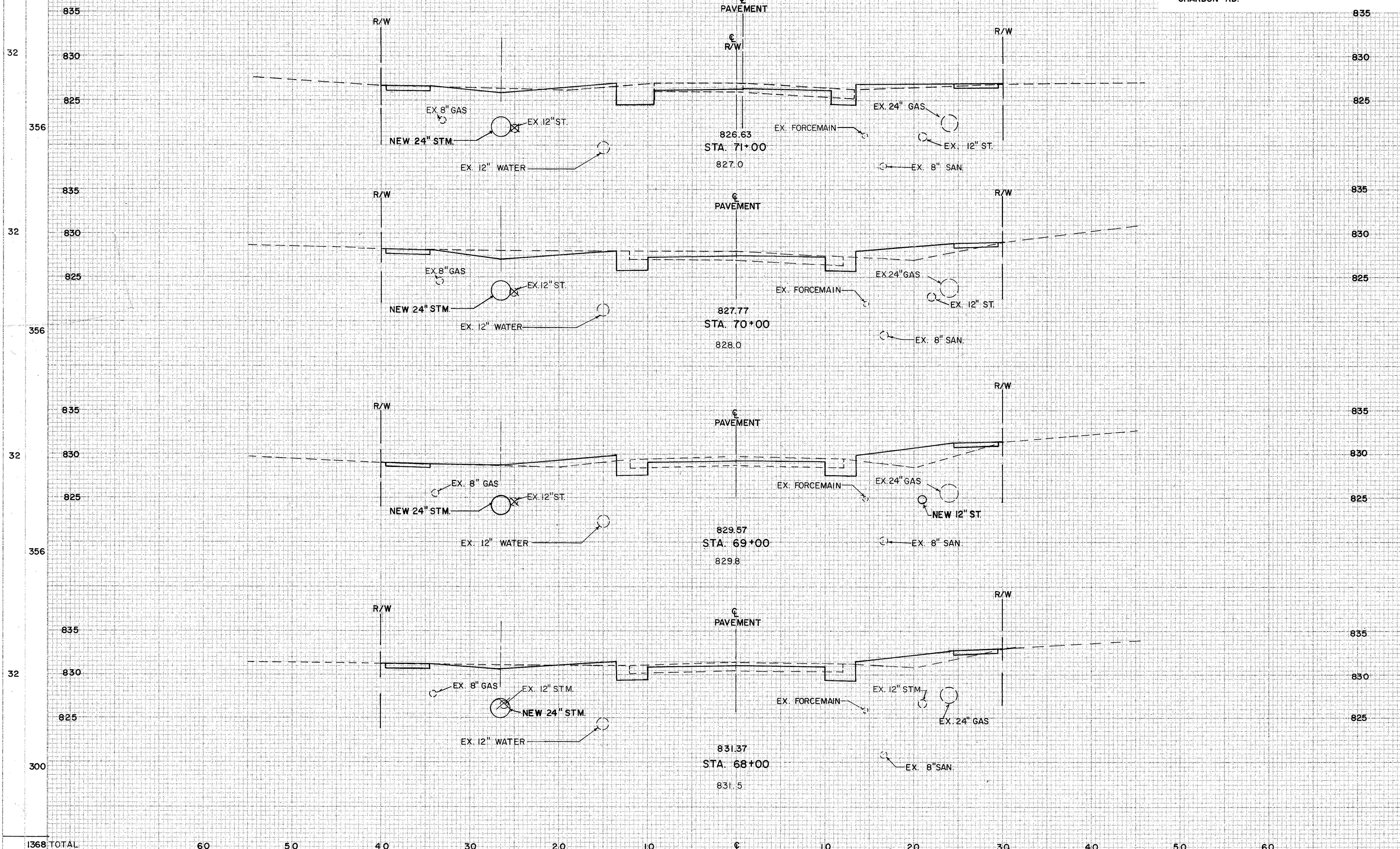
CALC. BY
 DATE
 CHKD. BY
 DATE

CUY-6-25.94

OHIO
 FHWA
 REGION

79
 126

CUYAHOGA COUNTY
 U.S. 6
 CHARDON RD.



AREA		VOLUME	
CUT	FILL	CUT	FILL
16	8	72	41
23	14	69	74
14	26	56	72
16	13	56	33
TOTAL	58	253	220

1368 TOTAL 60 50 40 30 20 10 0 10 20 30 40 50 60

CROSS SECTIONS STA. 68+00 TO 71+00

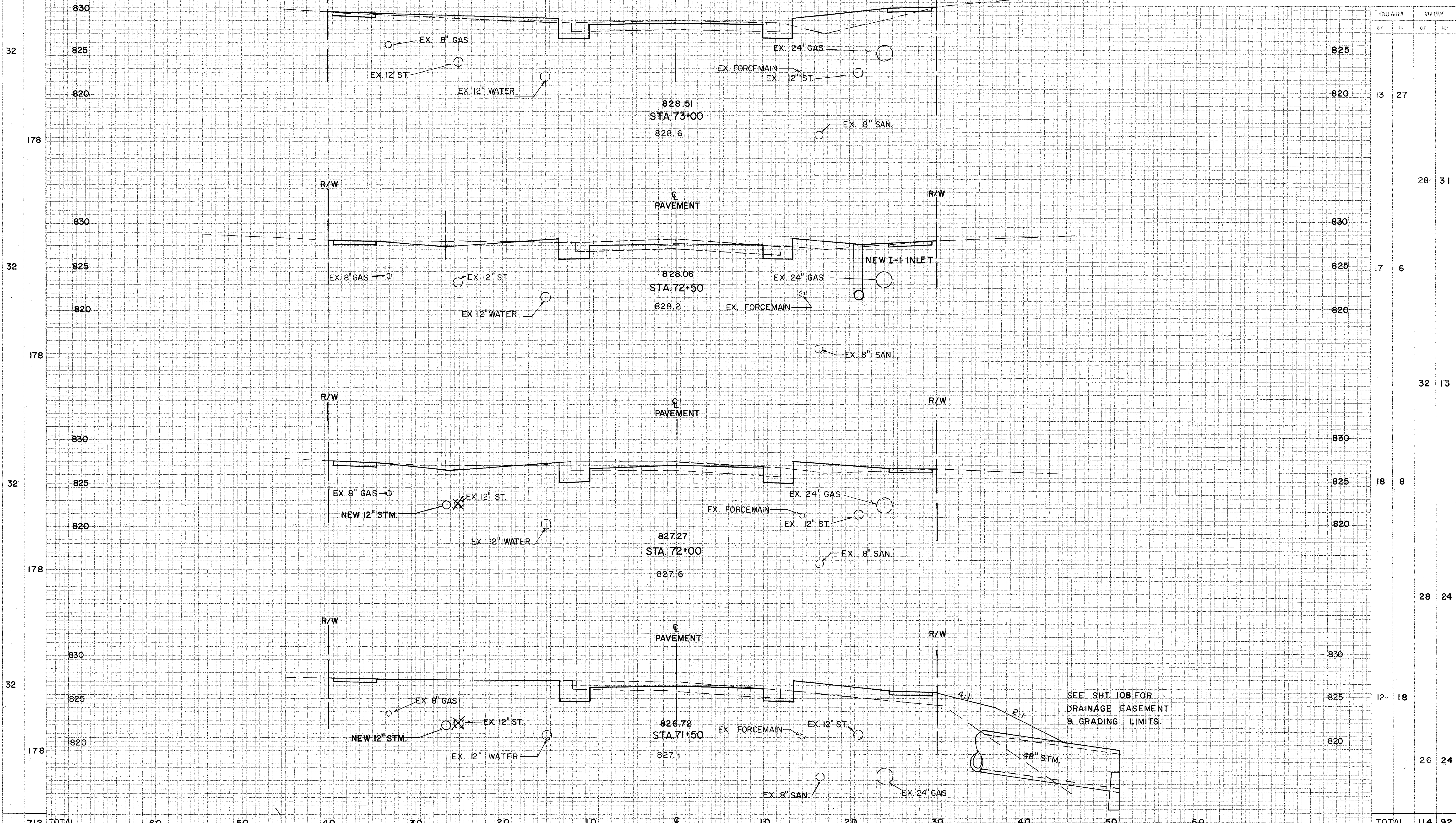
CHARDON ROAD

SODDING
 END W/PT. DATE
 SIG. YRS.

OHIO
 FHWA REGION 80
 126

CUY-6-25.94

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
13	27		
		28	31
17	6		
		32	13
18	8		
		28	24
12	18		
		26	24
TOTAL	114	TOTAL	92

CROSS SECTIONS STA. 71+50 TO 73+00

CHARDON ROAD

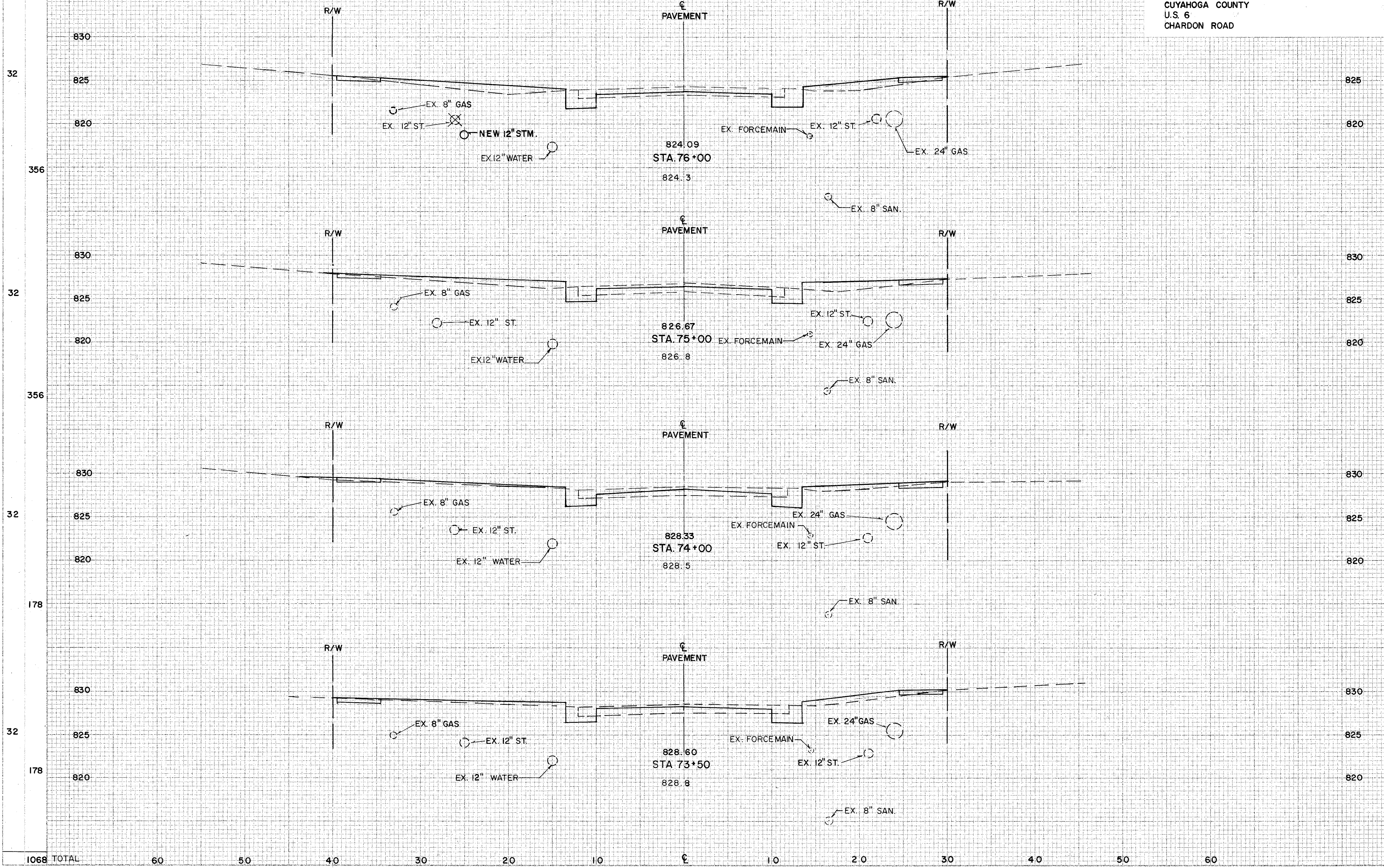
SODDING
 END DATE
 END DATE

CALC.
 BY
 DATE
 CHKD.
 BY
 DATE

CUY-6-25.94

OHIO
 FHWA REGION
 81
 126

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
14	21		
		48	78
12	21		
		50	56
15	9		
		26	21
13	14		
		24	38
TOTAL		148	193

CROSS SECTIONS STA. 73+50 TO 76+00

CHARDON ROAD

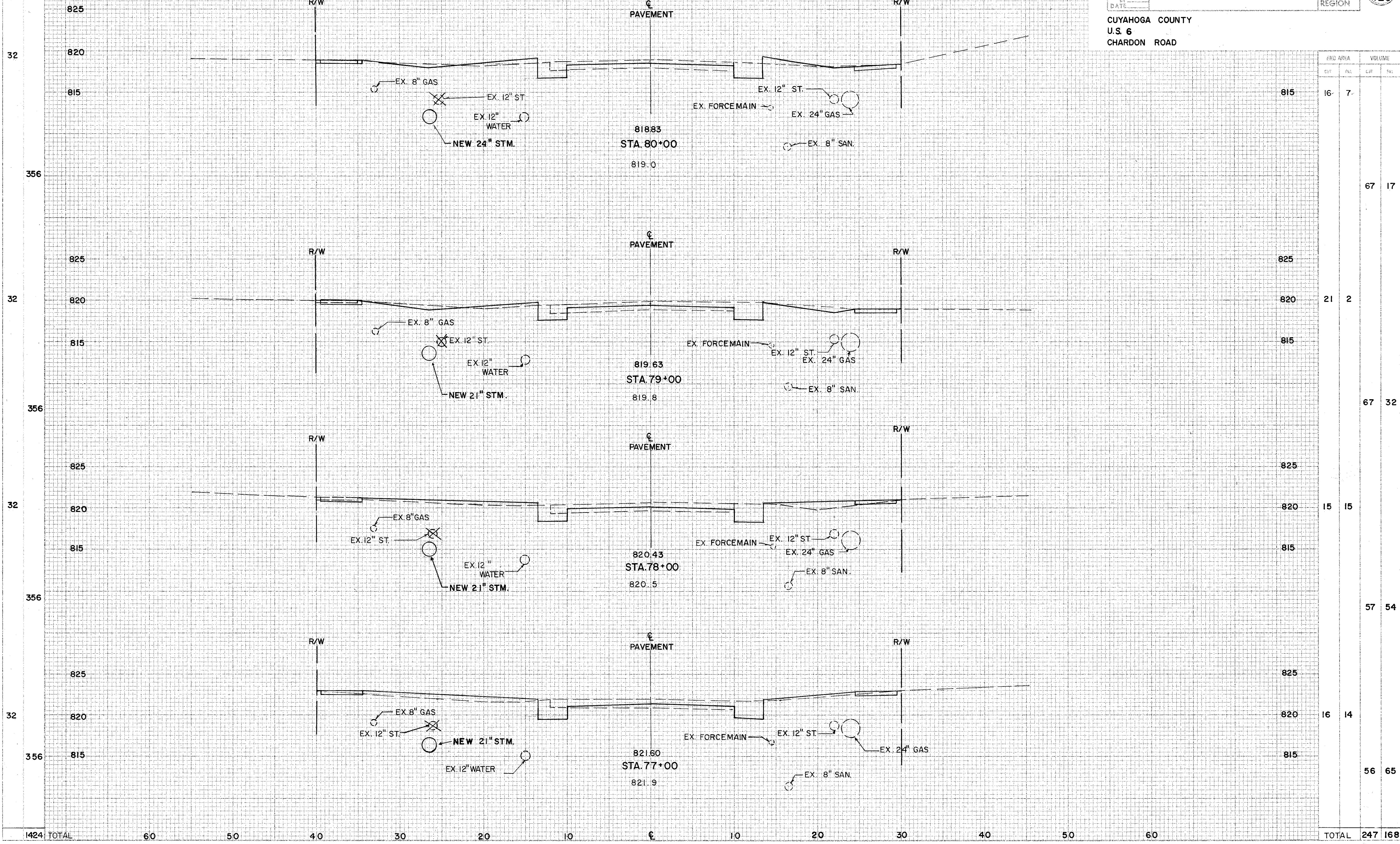
SODDING
 END WIDTH
 SS
 YDS

CALC. BY
 DATE
 CHKD. BY
 DATE

OHIO
 FHWA REGION
 82
 126

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CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



CROSS SECTION	AREA		VOLUME	
	CUT	FILL	CUT	FILL
815	16	7		
356			67	17
825				
820	21	2		
815			67	32
356				
825				
820	15	15		
815			57	54
356				
825				
820	16	14		
815			56	65
356				
TOTAL	1424		247	168

CROSS SECTIONS STA. 77+00 TO 80+00

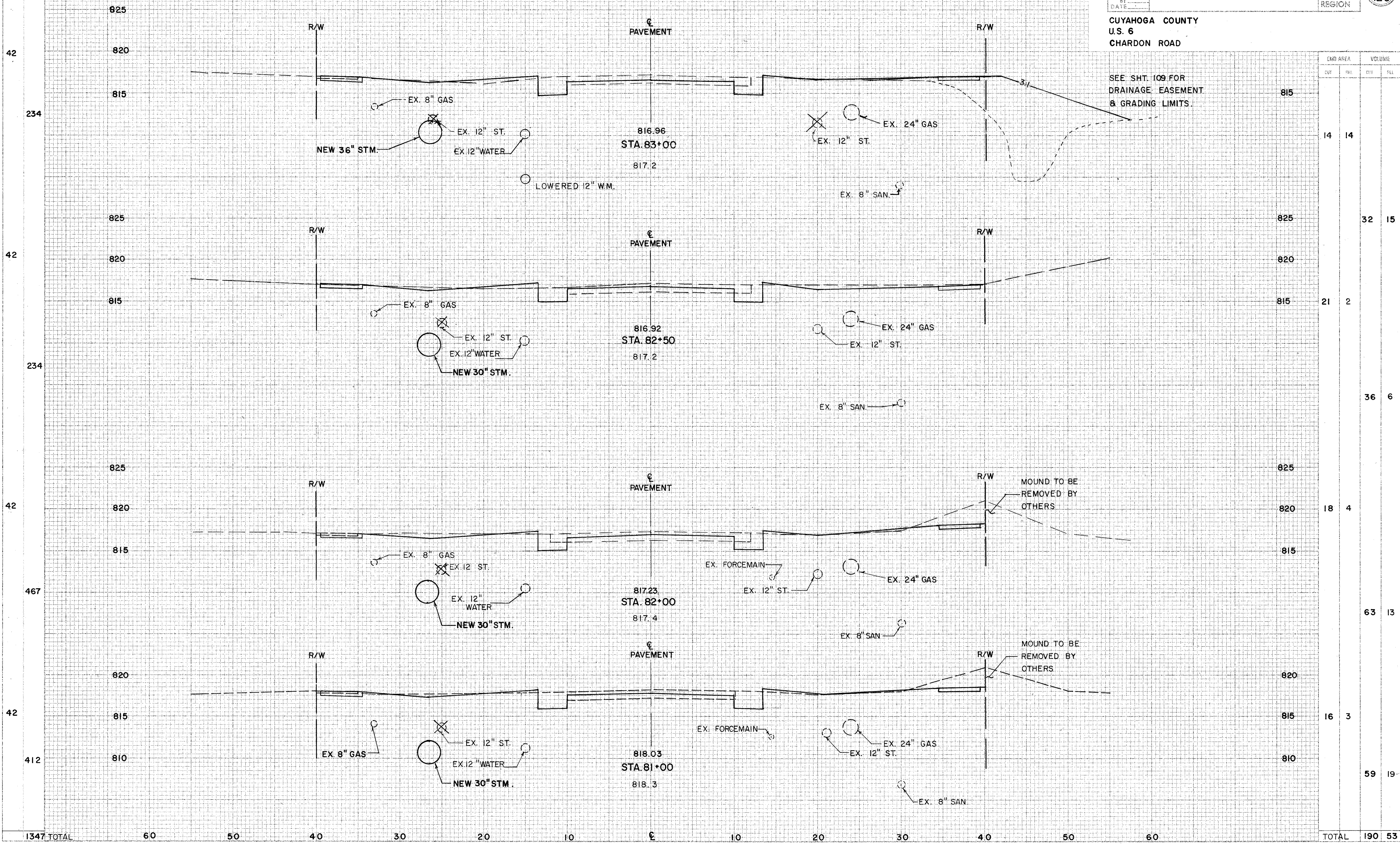
CHARDON ROAD

SODDING

END WIDTH SQ. YDS.

CUY-6-25.94

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



SEE SHT. 109 FOR
 DRAINAGE EASEMENT
 & GRADING LIMITS.

END AREA	VOLUME	
	CUT	FILL
815		
14	14	
825		32
15		
820		
815	21	2
2		
825		36
6		
820		
815	18	4
4		
825		63
13		
820		
815	16	3
3		
820		
810		59
19		
TOTAL	190	53

CROSS SECTIONS STA. 81+00 TO 83+00

CHARDON ROAD

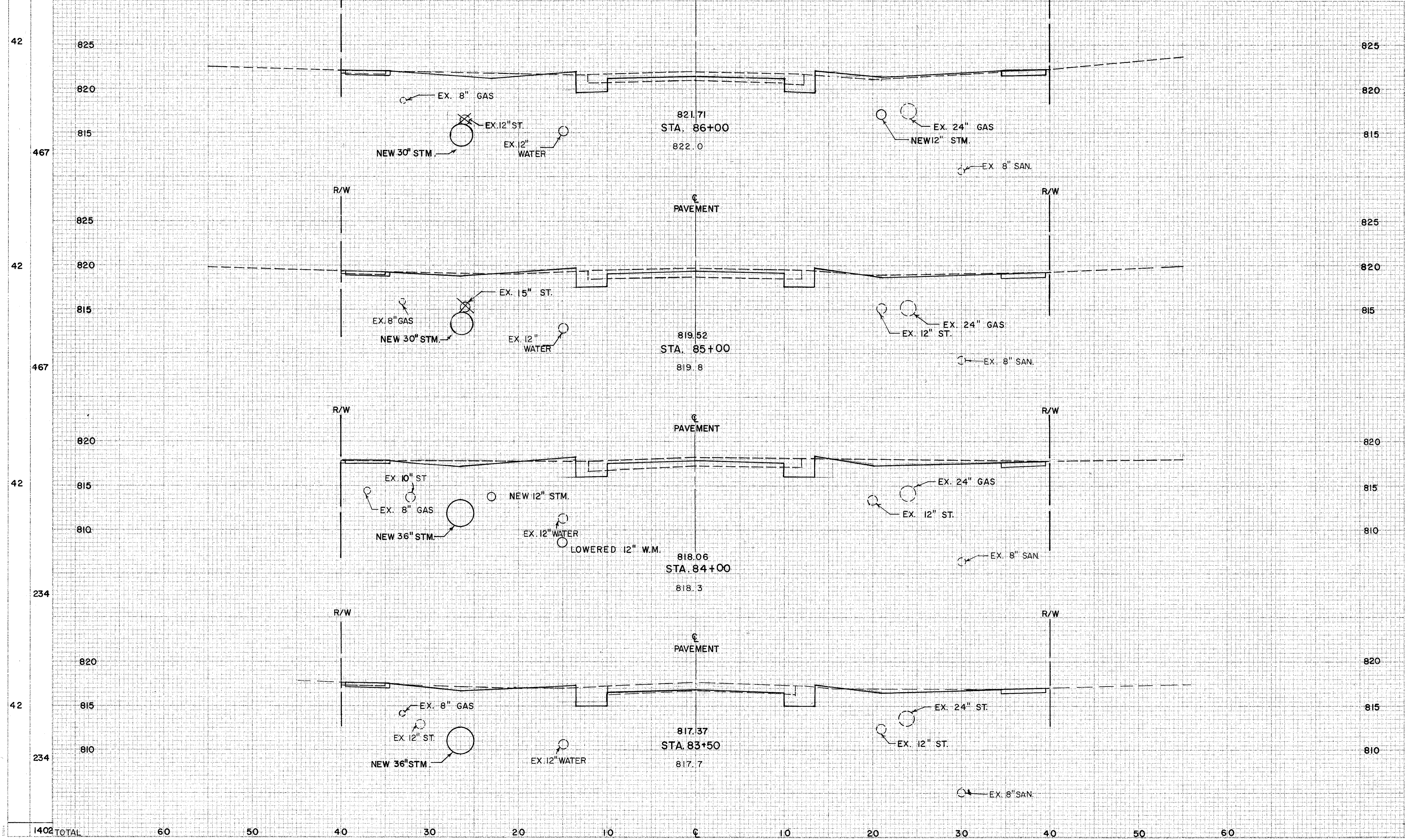
SODDING
 ENG. W/STN. SC. YCS.

CALC. BY
 DATE
 CHKD. BY
 DATE

CUY-6-25.94

OHIO
 FHWA REGION
 84
 126

CUYAHOGA COUNTY
 U.S. 6
 CHARDON RD.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
18	6		
		67	15
18	2		
		81	9
26	3		
		44	5
22	2		
		33	15
TOTAL		225	44

1402 TOTAL 60 50 40 30 20 10 0 10 20 30 40 50 60

CROSS SECTIONS STA. 83+50 TO 86+00

CHARDON ROAD

SODDING

DATE: _____
BY: _____

CUY-6-25.94

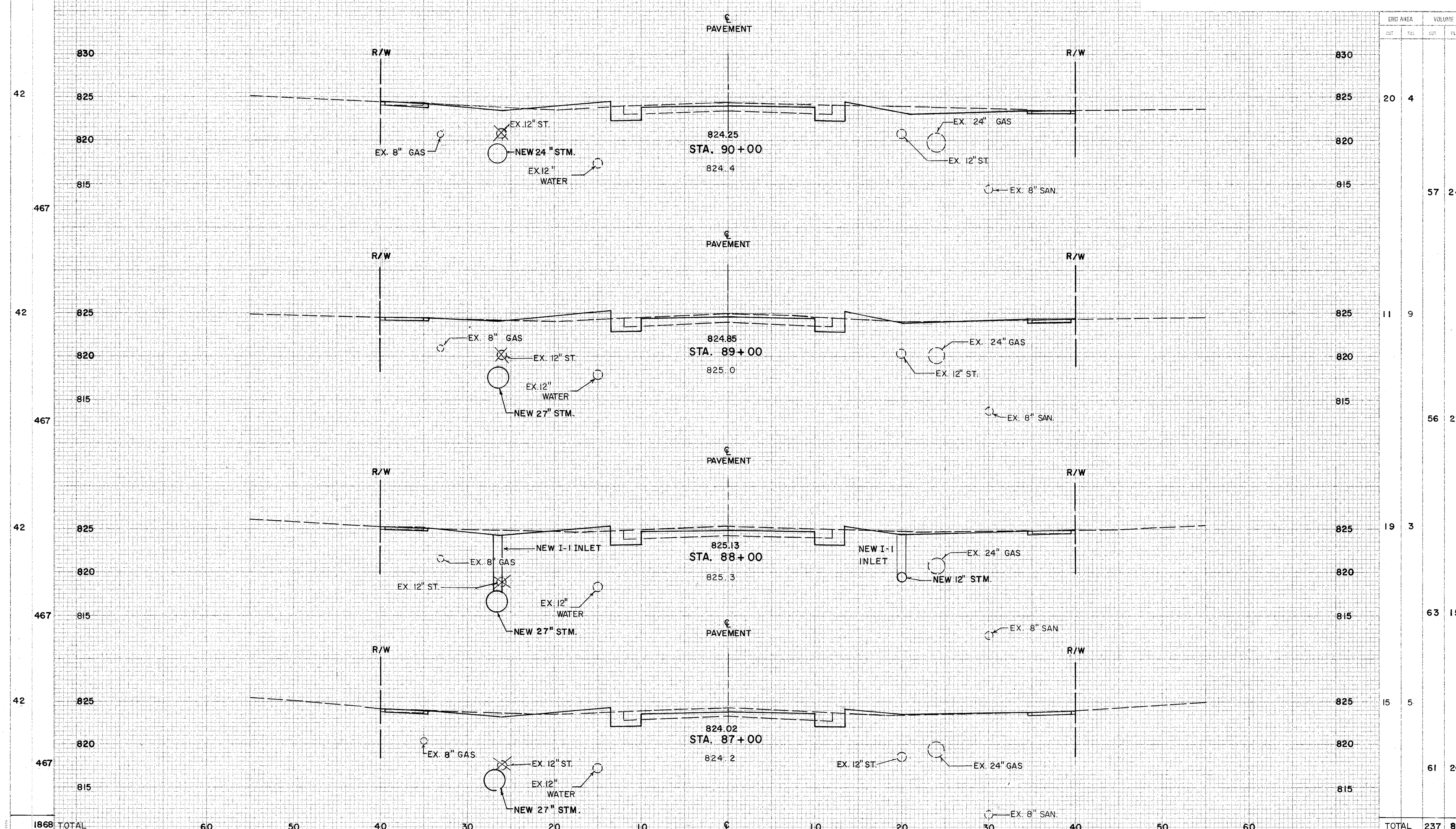
OHIO

85

REGION

126

CUYAHOGA COUNTY
U.S. 6
CHARDON RD.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
20	4		
		57	24
11	9		
		56	22
19	3		
		63	15
15	5		
		61	20
TOTAL		237	81

CROSS SECTIONS STA. 87+00 TO 90+00

CHARDON ROAD

1868 TOTAL

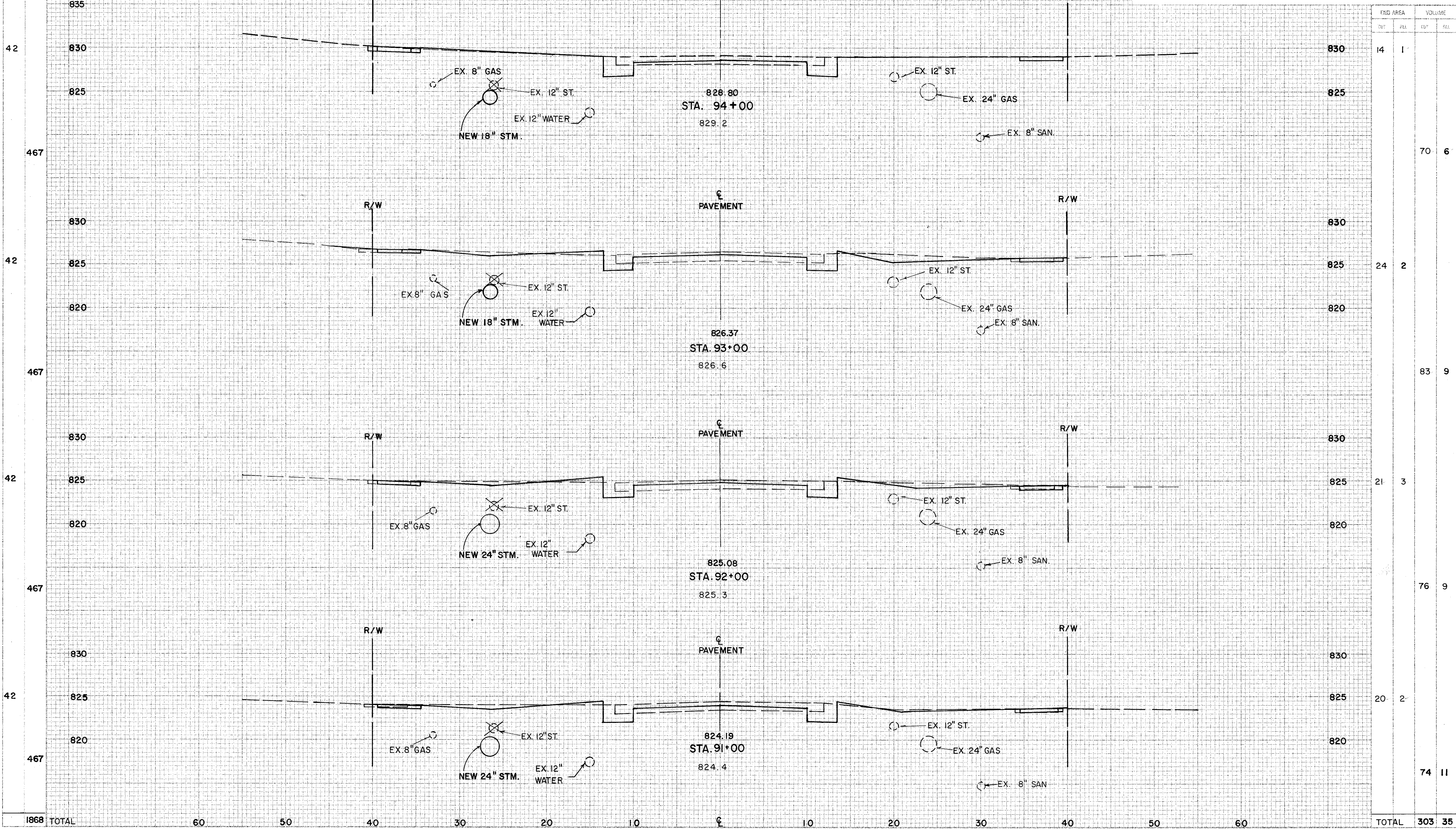
60 50 40 30 20 10 0 10 20 30 40 50 60

SODDING

3/8
WIDTH
5/8
PDS

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CUYAHOGA COUNTY
U.S. 6
CHARDON RD.



END AREA	VOLUME	
	CUT	FILL
14	1	
		70 6
24	2	
		83 9
21	3	
		76 9
20	2	
		74 11
TOTAL	303	35

1868 TOTAL 60 50 40 30 20 10 0 10 20 30 40 50 60 CROSS SECTIONS STA. 91+00 TO 94+00

CHARDON ROAD

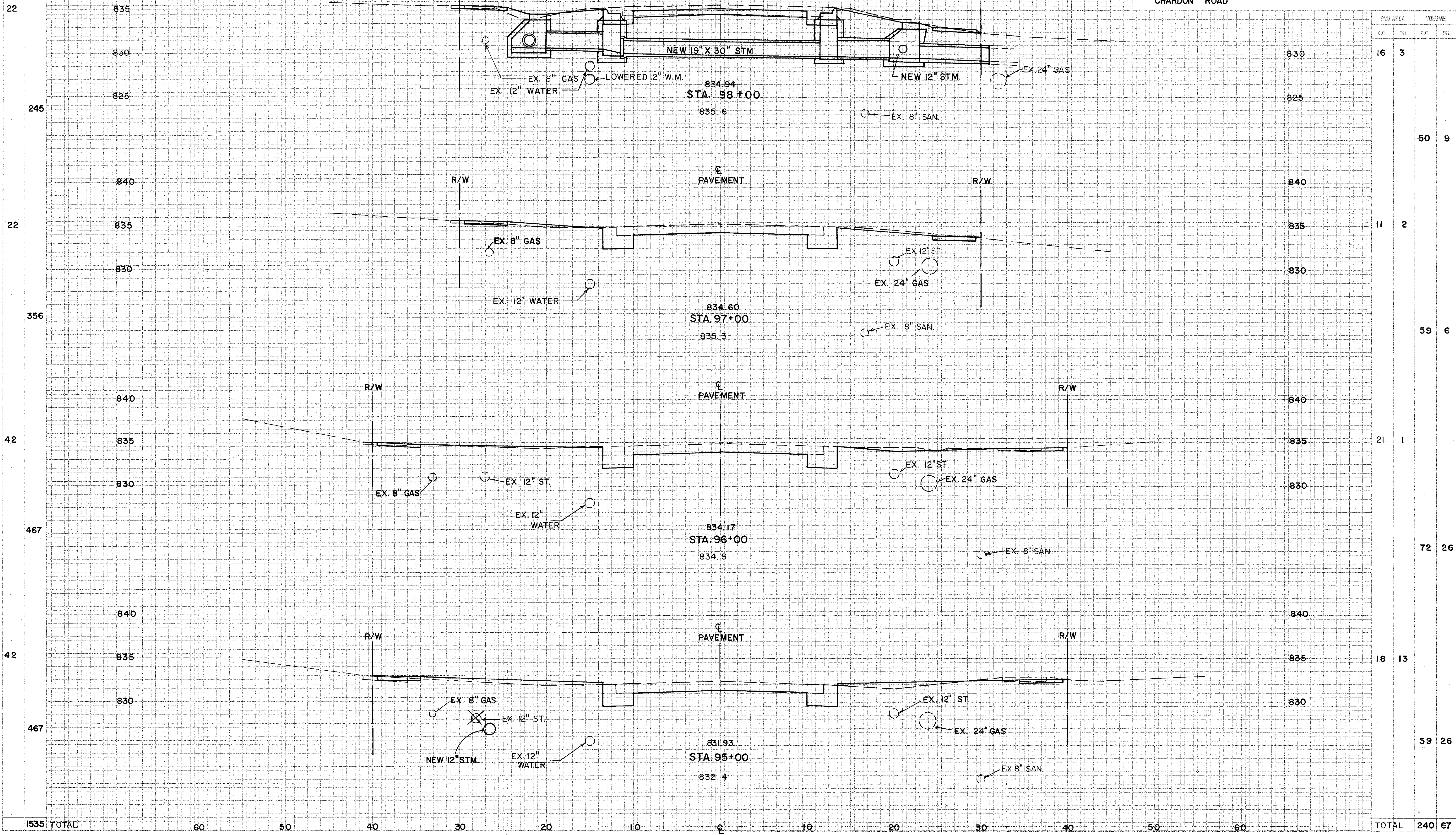
SODDING
 END WIDTH
 SQ YDS

CALC. BY
 DATE
 CHKD. BY
 DATE

OHIO
 FHWA REGION
 87
 126

CUY-6-25.94

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

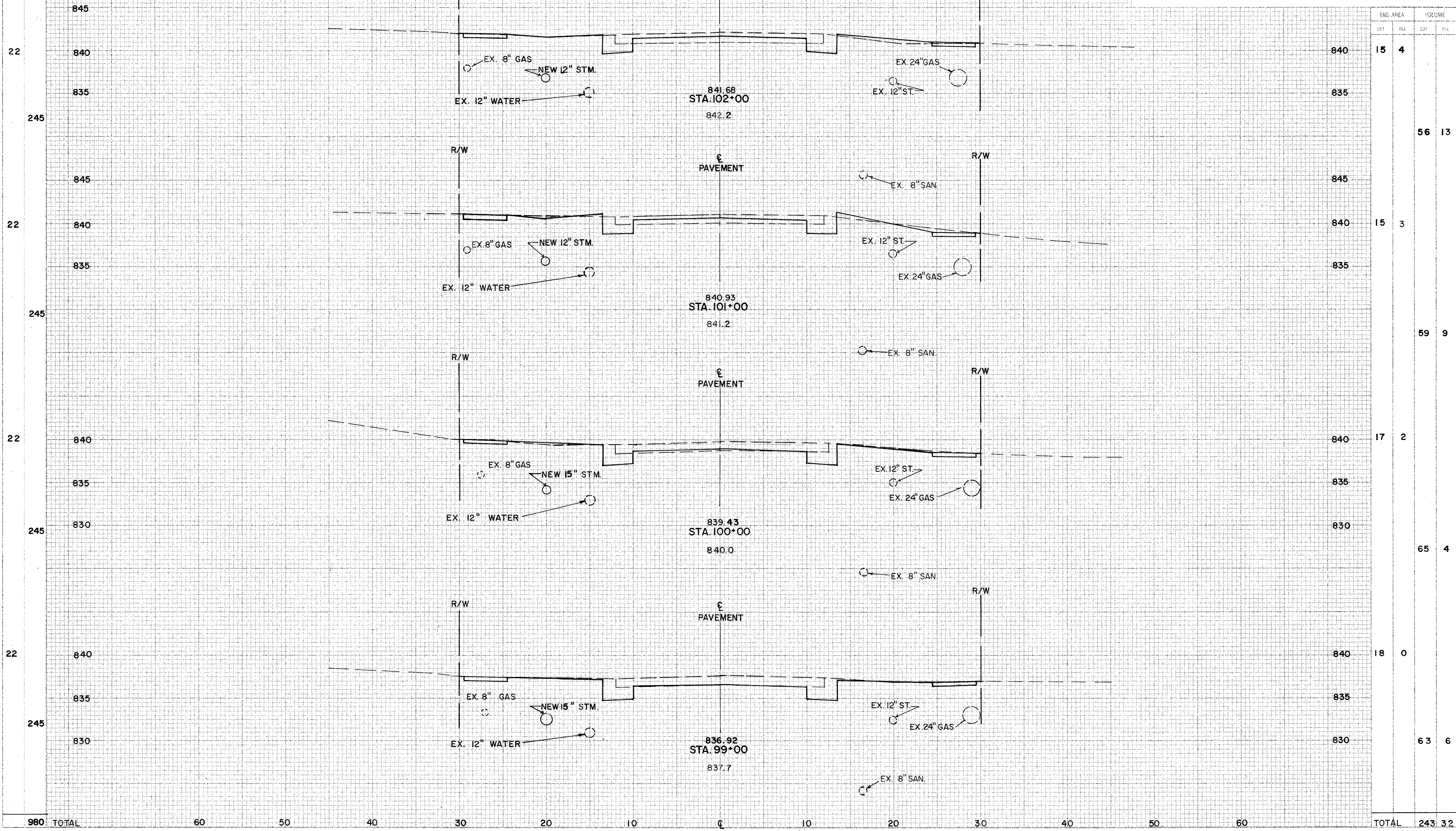


CROSS AREA		VOLUME	
CUT	FILL	CUT	FILL
16	3		
		50	9
11	2		
		59	6
21	1		
		72	26
18	13		
		59	26
TOTAL		240	67

CROSS SECTIONS STA. 95+00 TO 98+00

CHARDON ROAD

SODDING
 END WIDTH
 SEE PLS



END AREA		VOLUME	
CUT	FILL	CUT	FILL
15	4		
		56	13
15	3		
		59	9
17	2		
		65	4
18	0		
		63	6
TOTAL		243	32

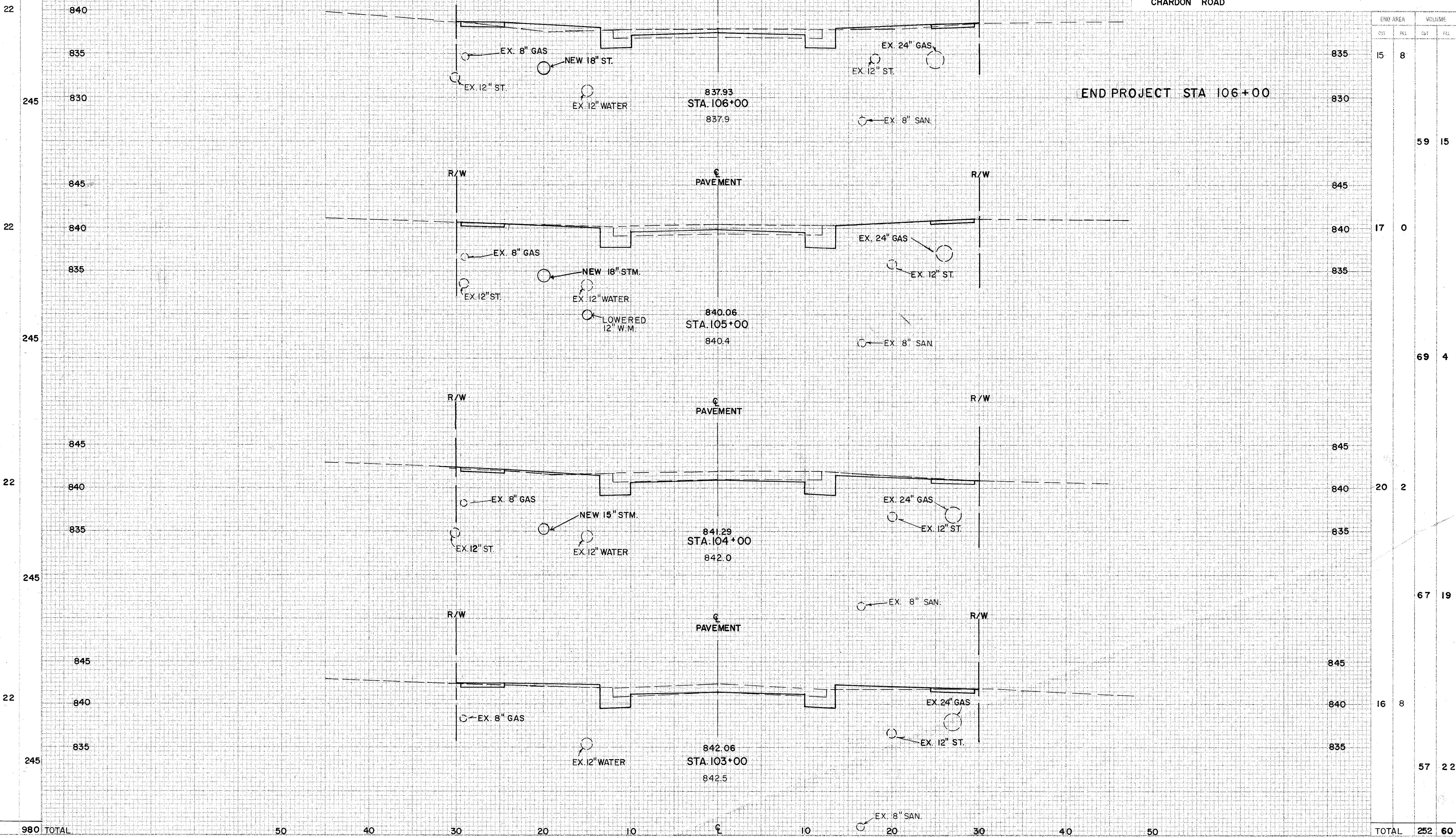
CROSS SECTIONS STA. 99+00 TO 102+00

CHARDON ROAD

SODDING

END WIDTH 8' 8" YDS

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



END AREA		VOLUME	
CUT	FILL	CUT	FILL
15	8		
		59	15
17	0		
		69	4
20	2		
		67	19
16	8		
		57	22
TOTAL		252	60

CROSS SECTIONS STA. 103+00 TO STA. 106+00

CHARDON ROAD

A-4

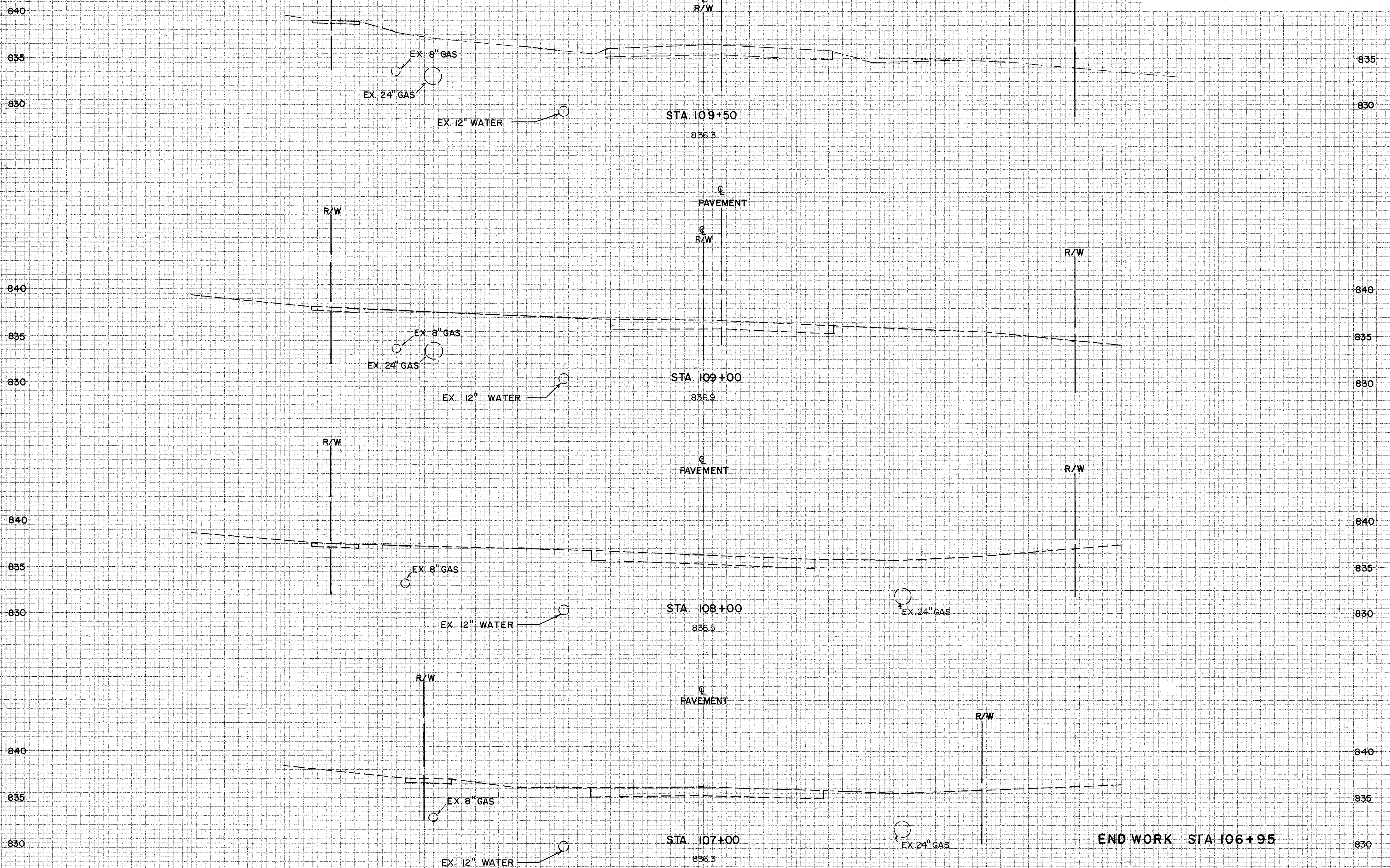
SODDING
ENG. WIDTH SQ. YDS.
YES

OHIO
FHWA REGION 90
126

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

END AREA		VOLUME	
CUT	FILL	CUT	FILL



60 50 40 30 20 10 0 10 20 30 40 50 60

CROSS SECTIONS STA. 107+00 TO 109+50

CHARDON ROAD

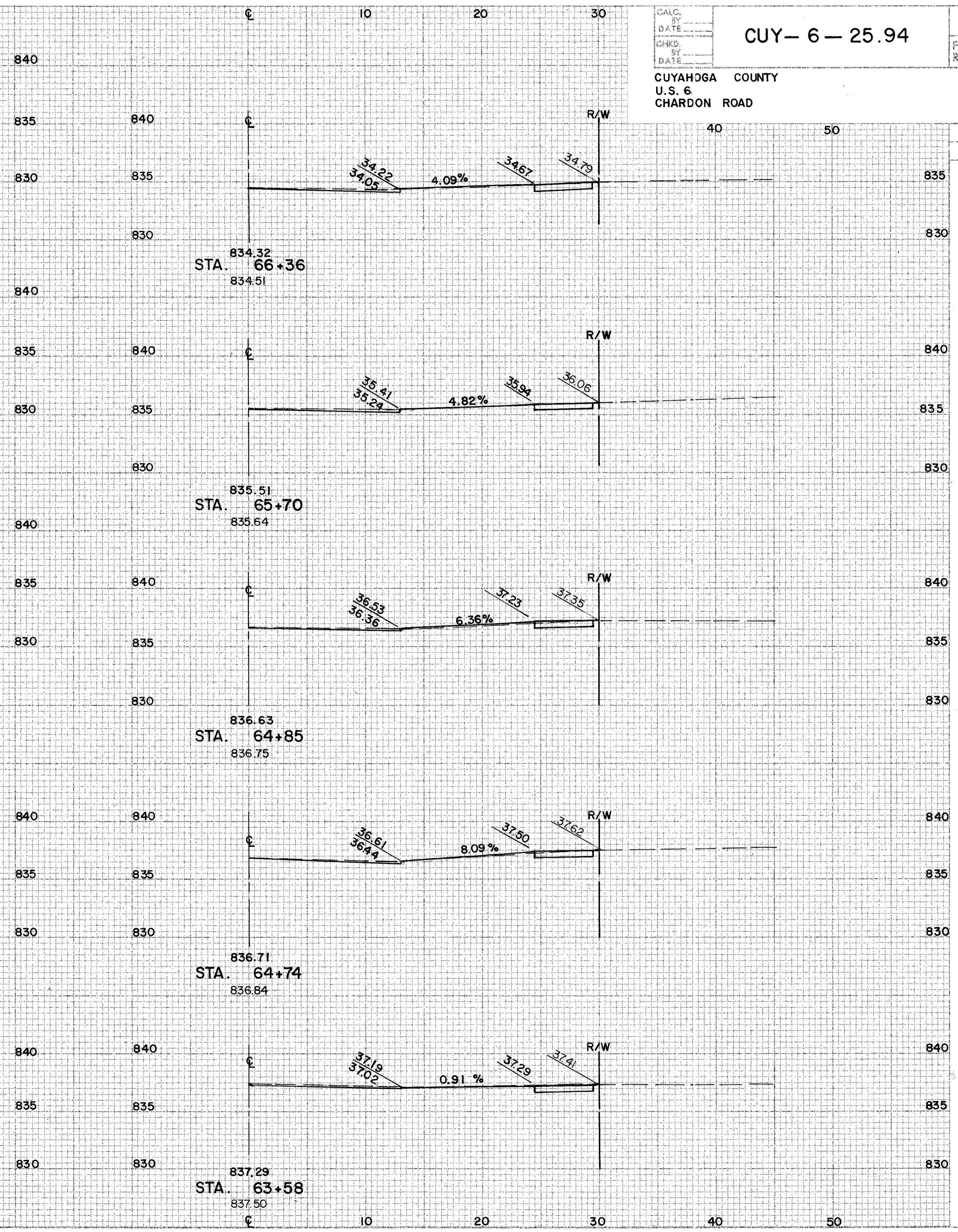
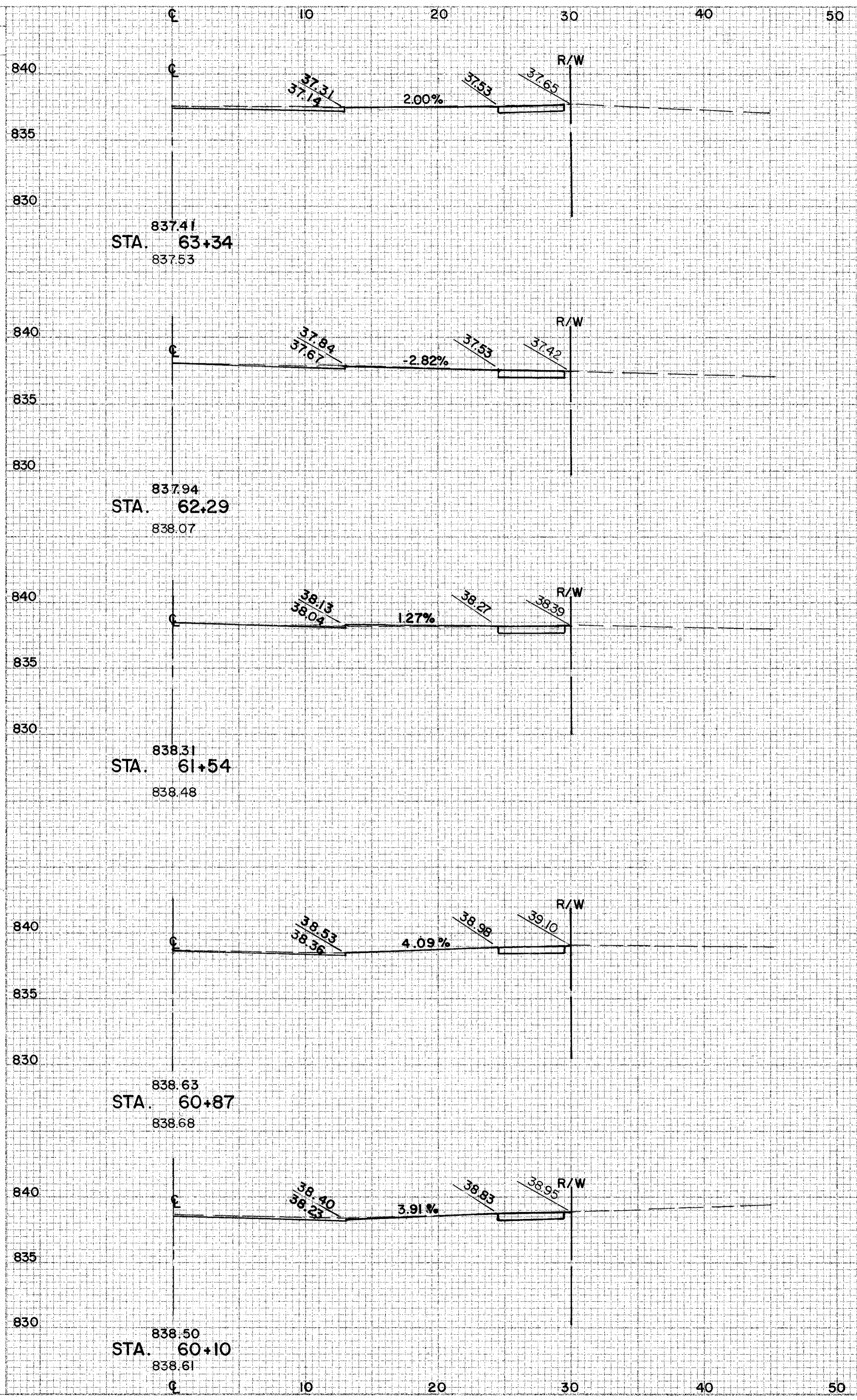
SODDING

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CALC. BY _____
DATE _____
CHKD. BY _____
DATE _____
OHIO
FHWA REGION 91
126

CUY-6-25.94

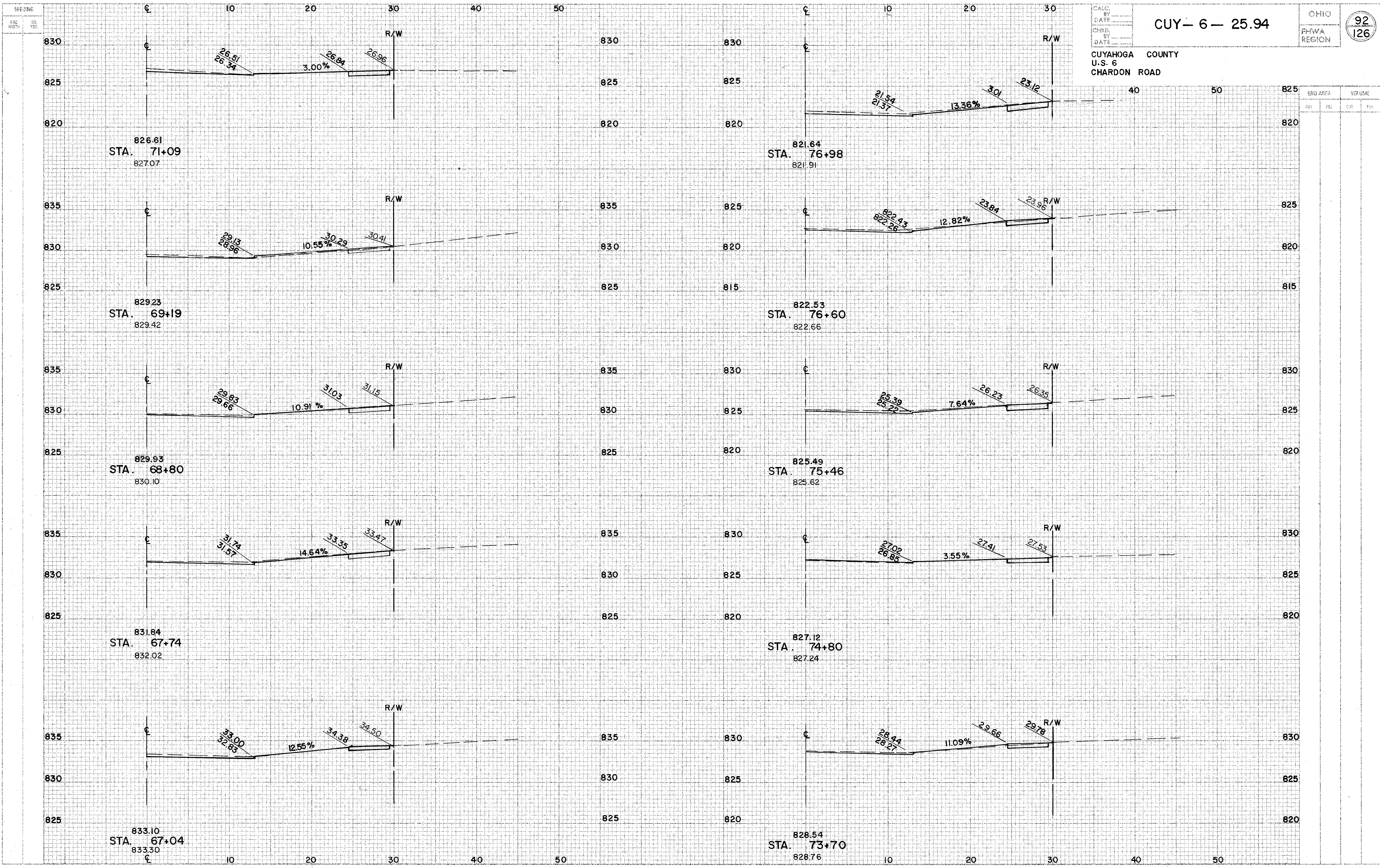
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



EMB. AREA
CUT FILL
VOLUME
CUT FILL

CHARDON ROAD DRIVE PROFILE RIGHT STA. 60+10 TO STA. 66+36

CHARDON ROAD



CALC. BY _____
 DATE _____
 CHND. BY _____
 DATE _____

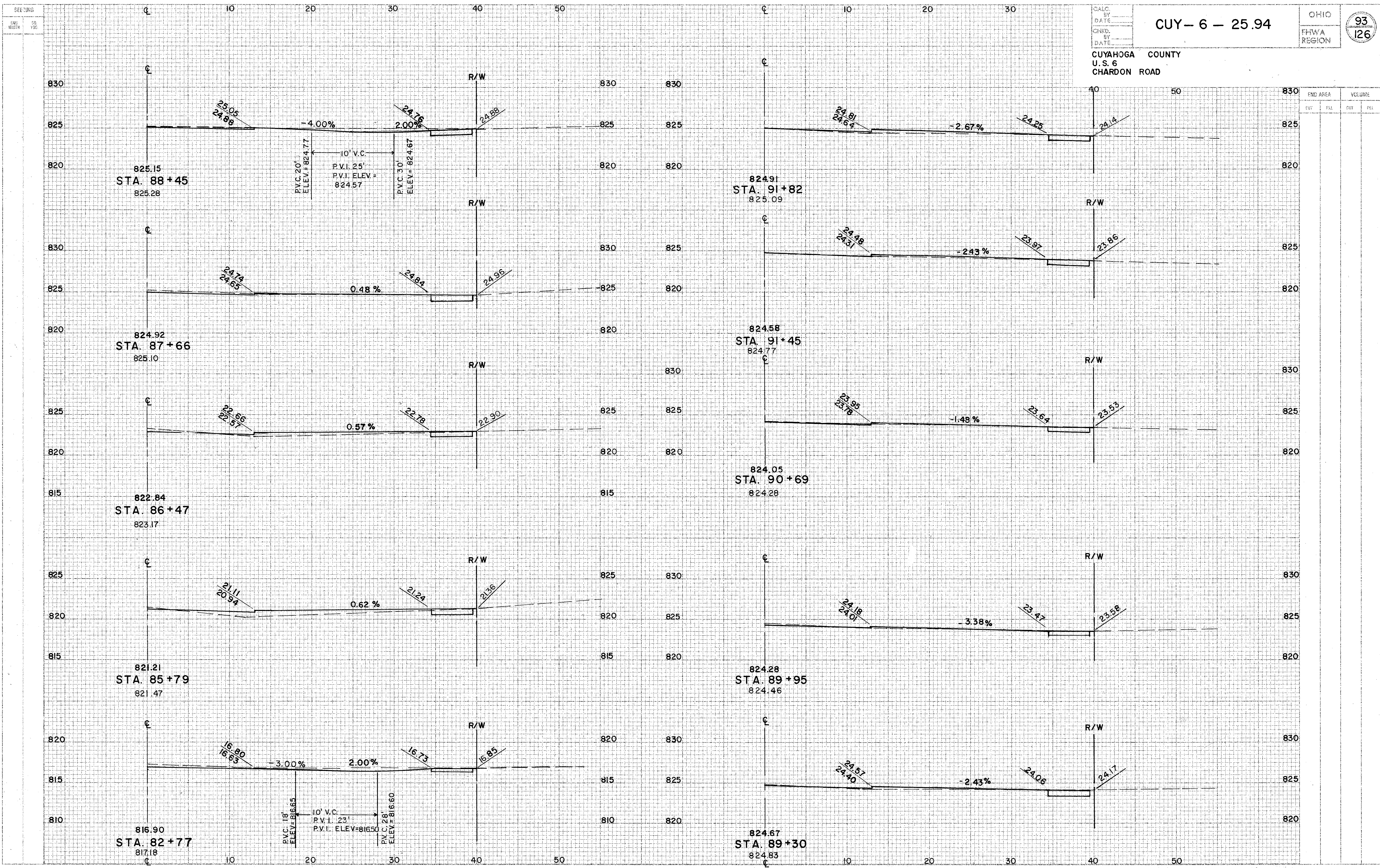
CUY-6-25.94

OHIO
 FHWA REGION
 CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

92
126

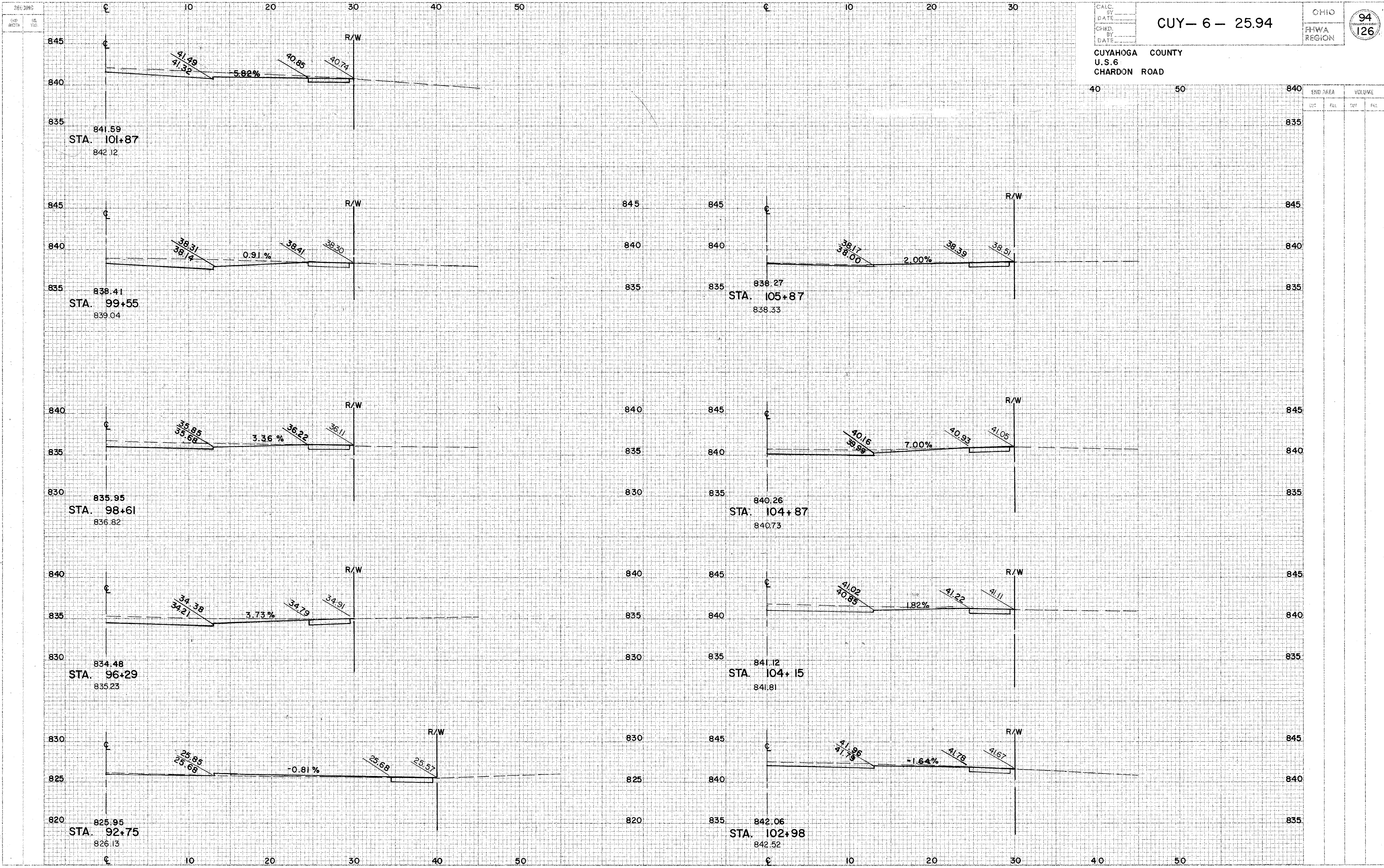
CHARDON ROAD ... DRIVE PROFILE ... RIGHT STA. 67+04 TO STA. 76+98

CHARDON ROAD



CHARDON ROAD DRIVE PROFILE RIGHT STA. 82+79 TO STA. 91+82

CHARDON ROAD

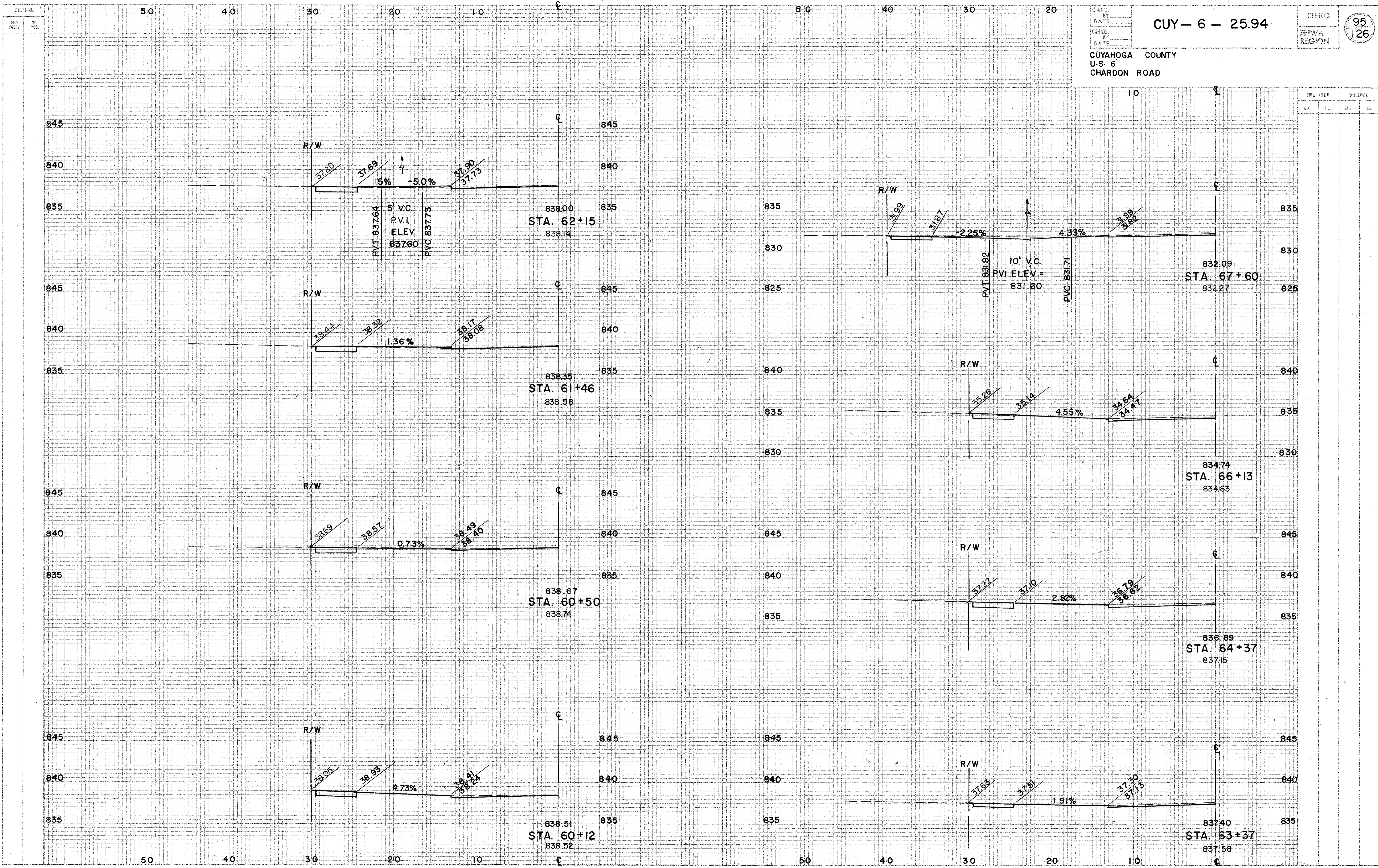


CALC. BY DATE CHKD. BY DATE	CUY-6-25.94	OHIO FHWA REGION	
CUYAHOGA COUNTY U.S.6 CHARDON ROAD			

END AREA	VOLUME	
	CUT	FILL
840		
835		
845		
840		
835		
845		
840		
835		
845		
840		
835		
845		
840		
835		
845		
840		
835		
845		
840		
835		

CHARDON ROAD ... DRIVE PROFILE ... RIGHT STA. 92+75 TO STA. 106+58

CHARDON ROAD



CALC. BY _____
 DATE _____
 CHRD. BY _____
 DATE _____

CUY-6-25.94

OHIO
 FHWA REGION 95
 126

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

CHARDON ROAD... DRIVE PROFILE... LEFT STA. 60+12 TO STA. 67+60

SEPARING
END
NO. 10
SQ.
FOOT

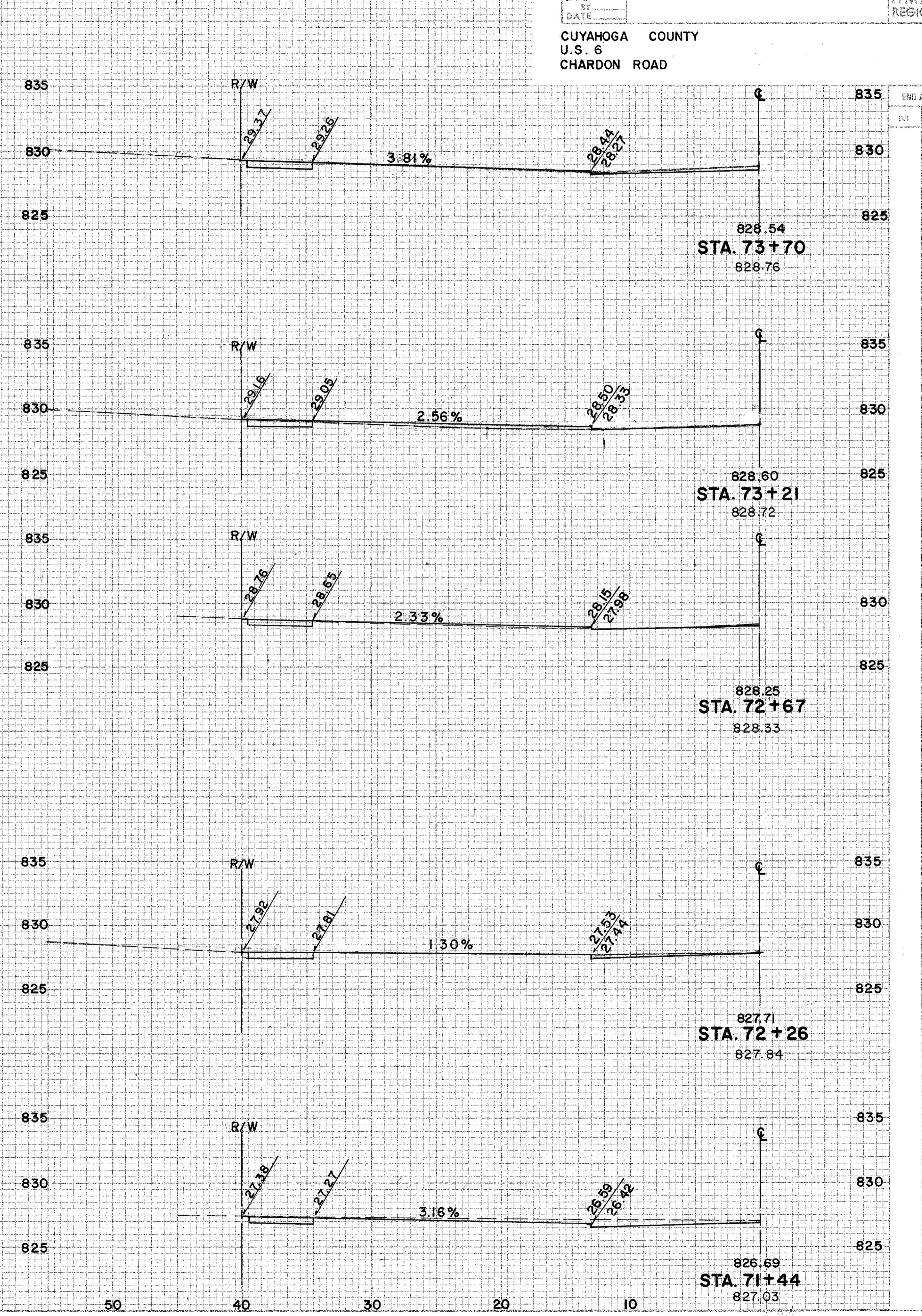
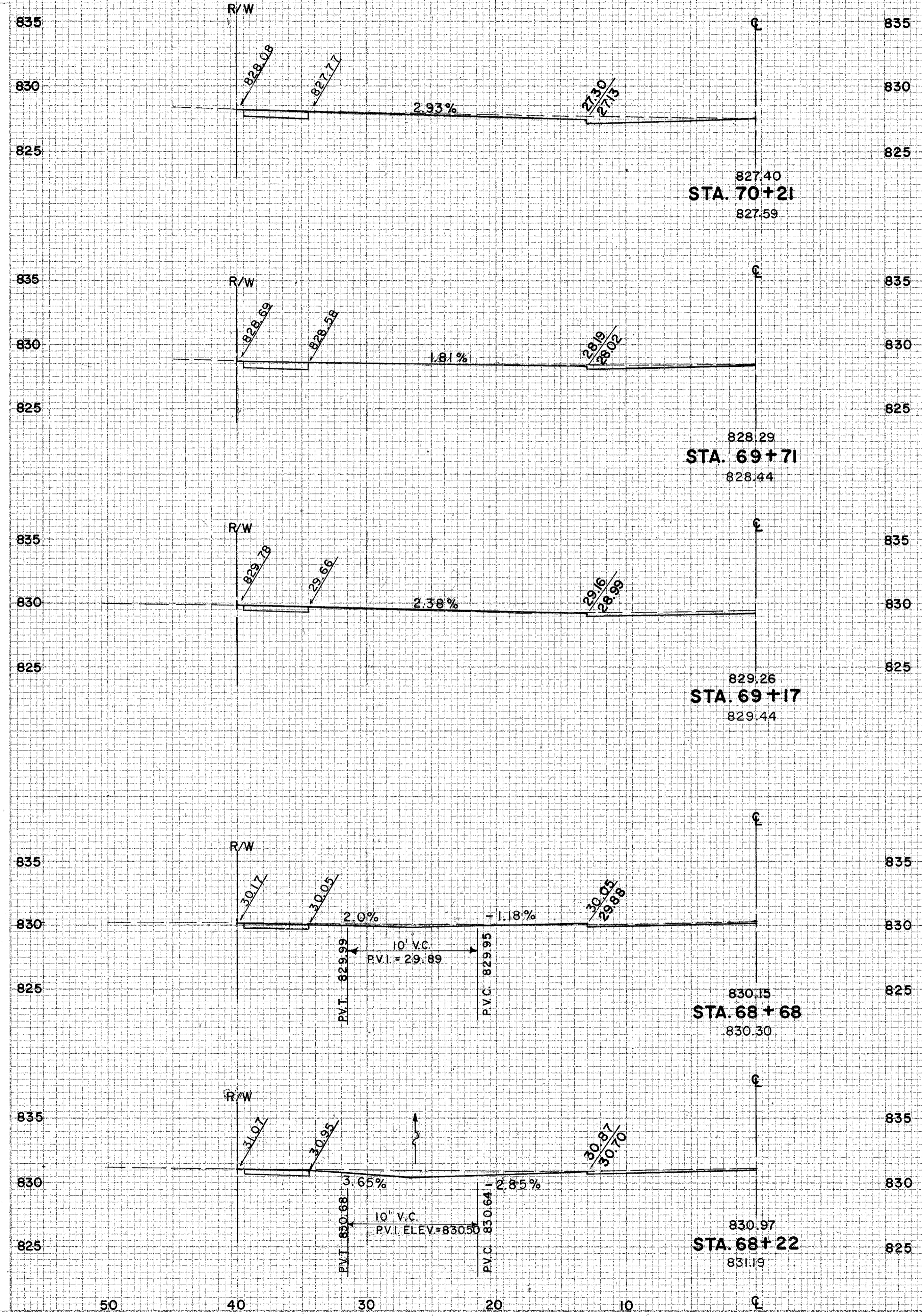
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DATE _____
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DATE _____

OHIO
FHWA
REGION

96
126

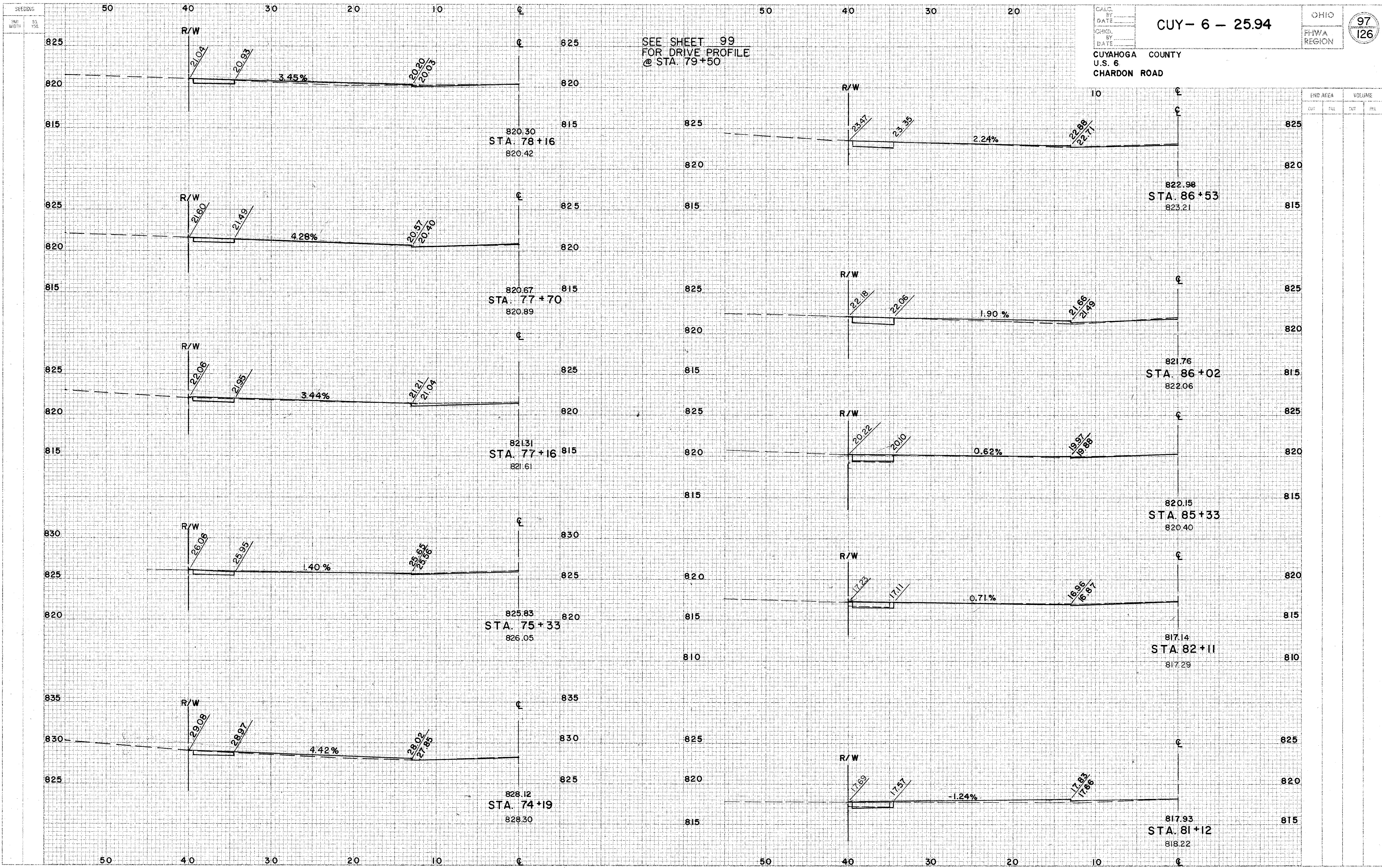
CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



CHARDON ROAD ... DRIVE PROFILE ... LEFT STA. 68+22 TO 73+70

CHARDON ROAD

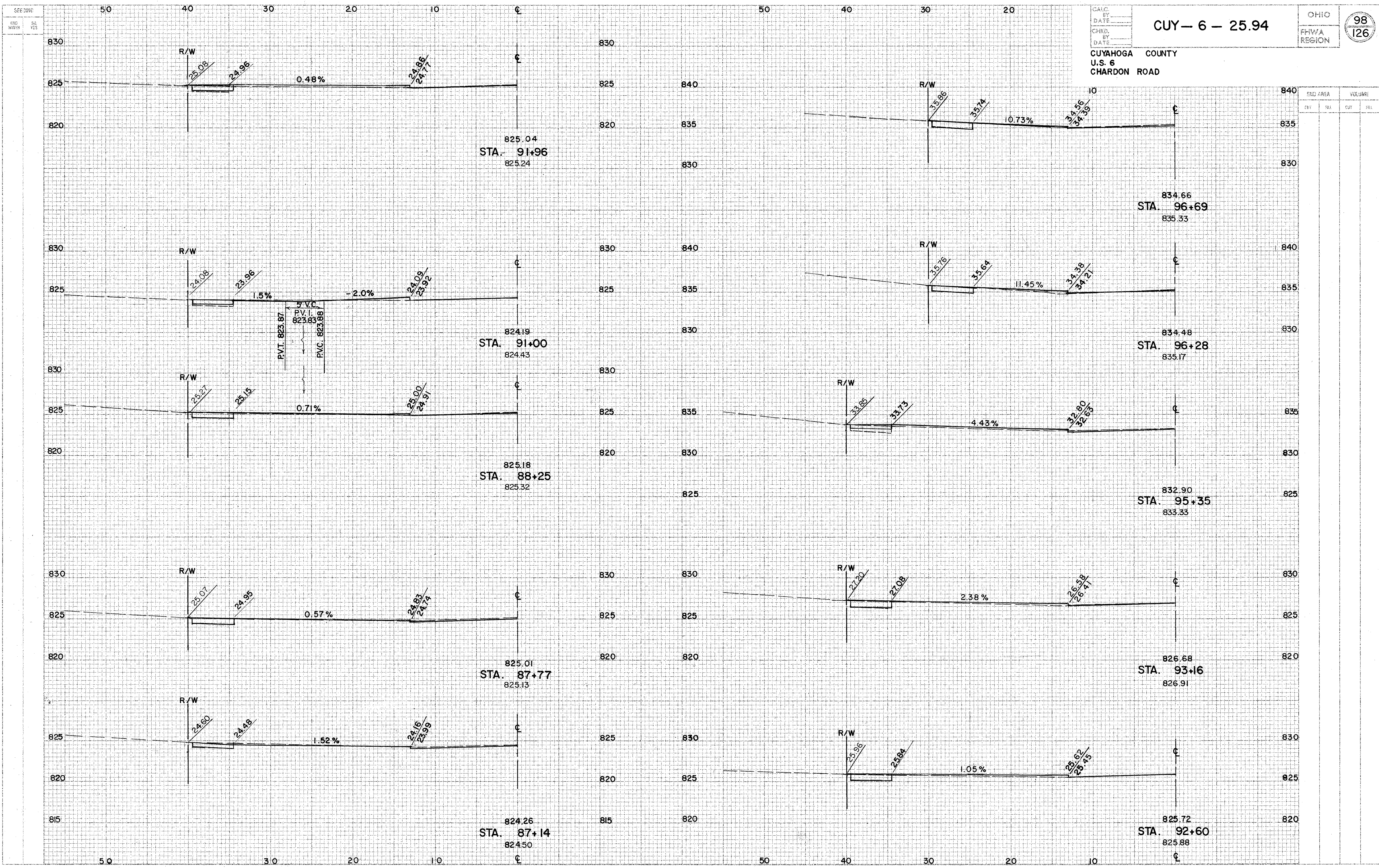


OHIO
FHWA REGION 97
126

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CHARDON ROAD... DRIVE PROFILE... LEFT STA. 74+19 TO STA. 86+53



CALC. BY _____
 DATE _____
 CHRD. BY _____
 DATE _____

CUY-6-25.94
 OHIO
 FHWA REGION 98
 126
 CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
825.04 STA. 91+96 825.24				
834.66 STA. 96+69 835.33				
824.19 STA. 91+00 824.43				
834.48 STA. 96+28 835.17				
825.18 STA. 88+25 825.32				
832.90 STA. 95+35 833.33				
825.01 STA. 87+77 825.13				
826.68 STA. 93+16 826.91				
824.26 STA. 87+14 824.50				
825.72 STA. 92+60 825.88				

CHARDON ROAD DRIVE PROFILE LEFT STA. 87+14 TO STA. 96+69

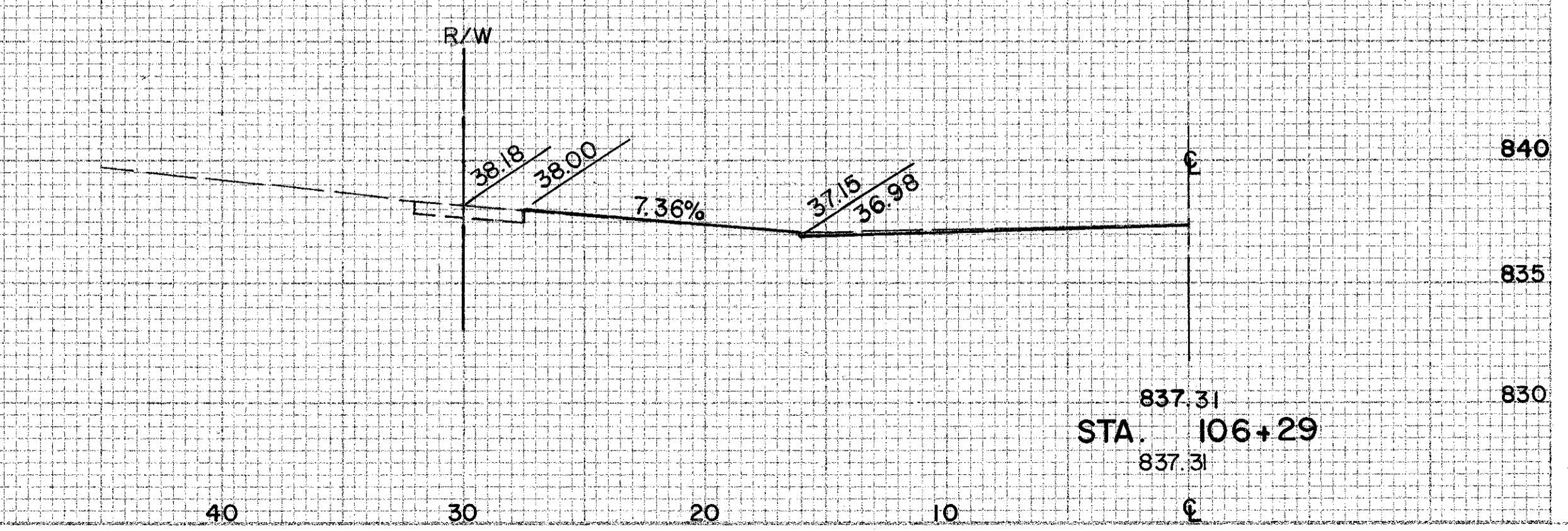
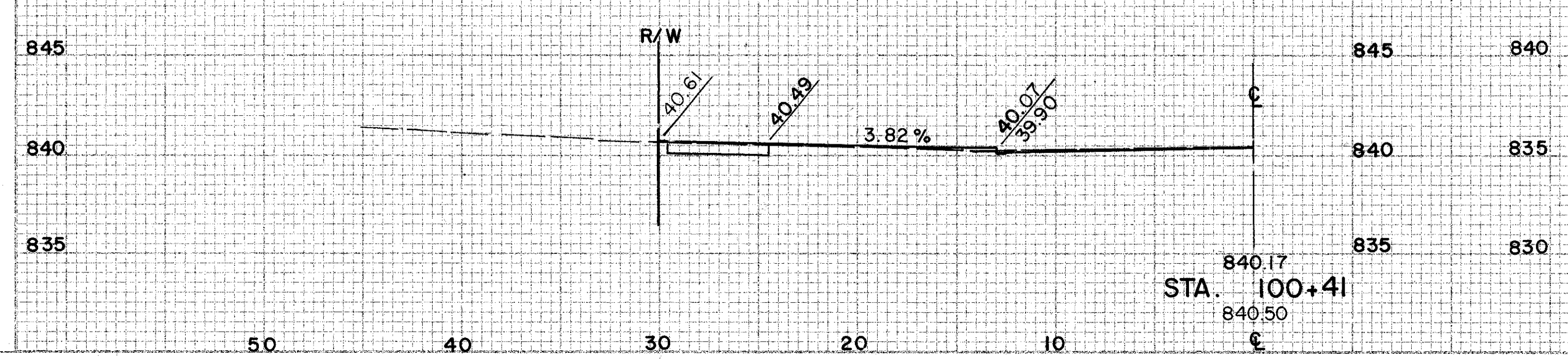
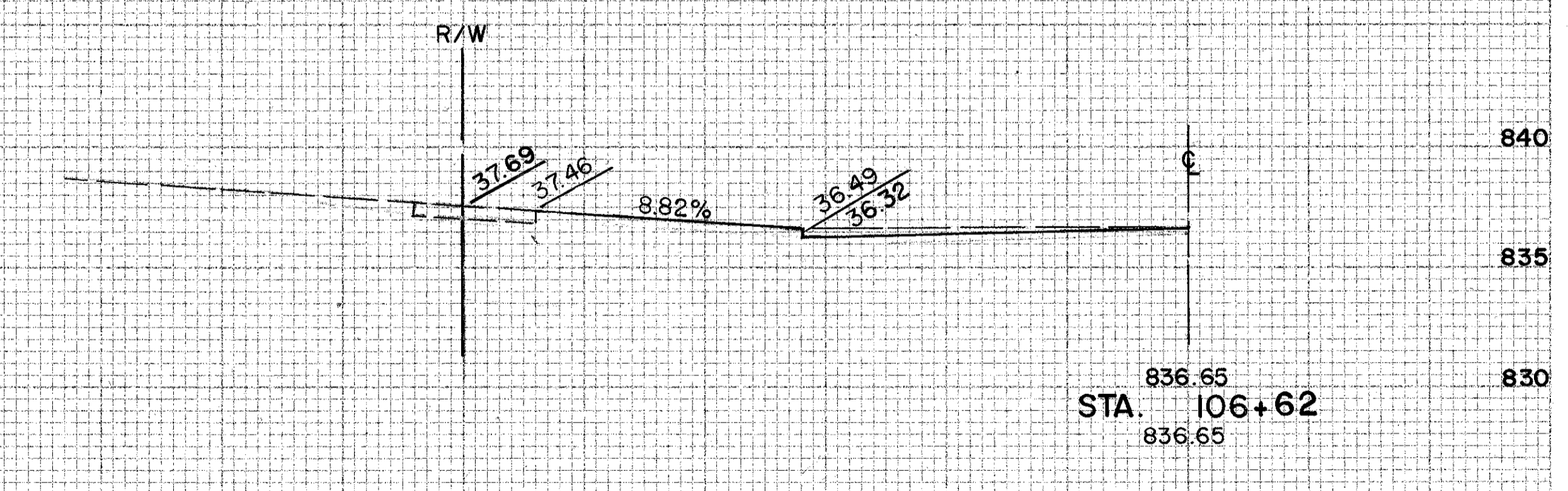
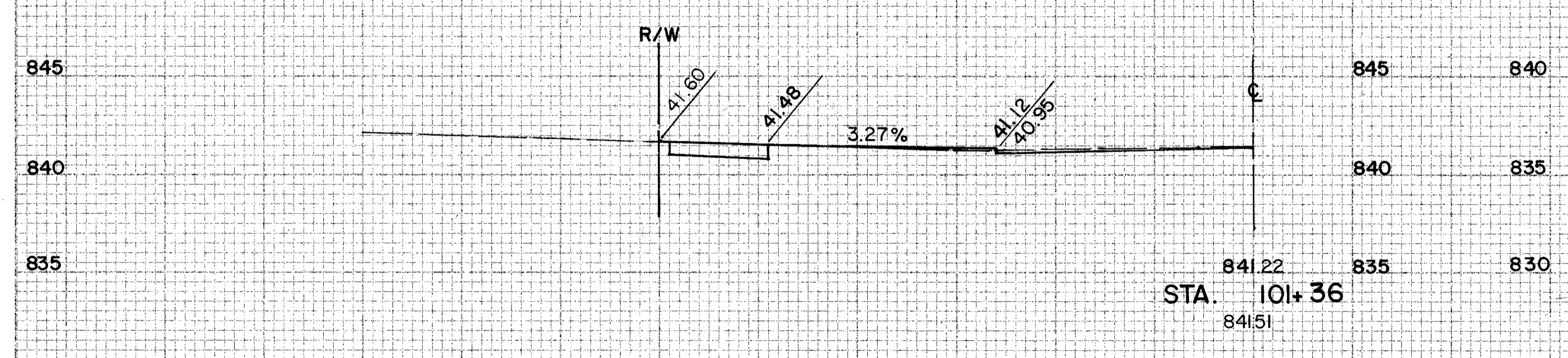
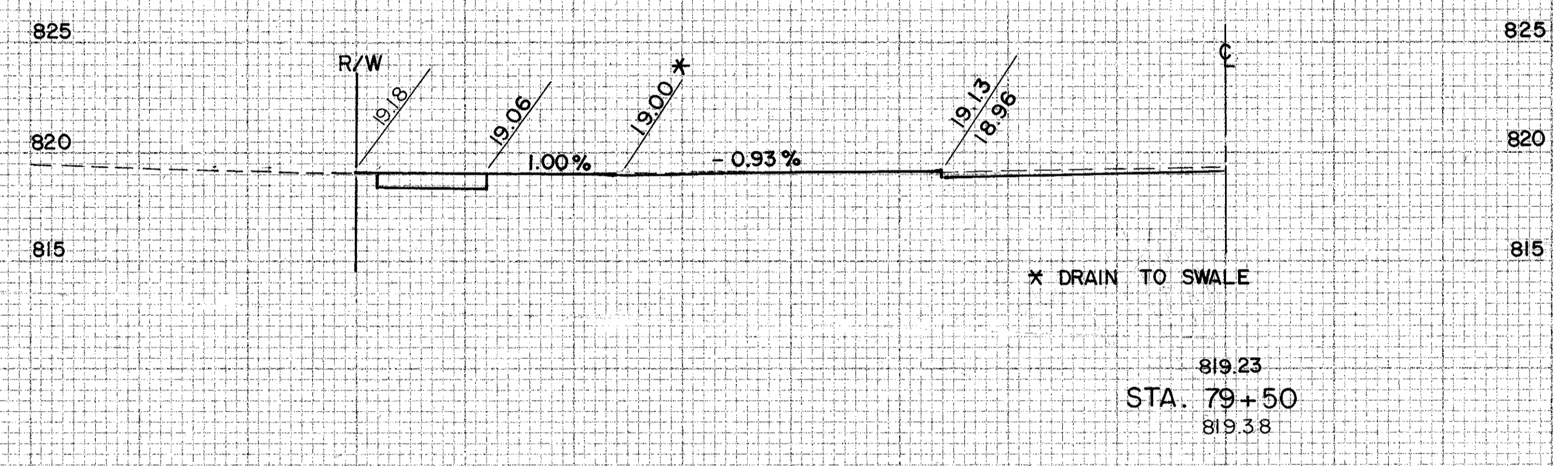
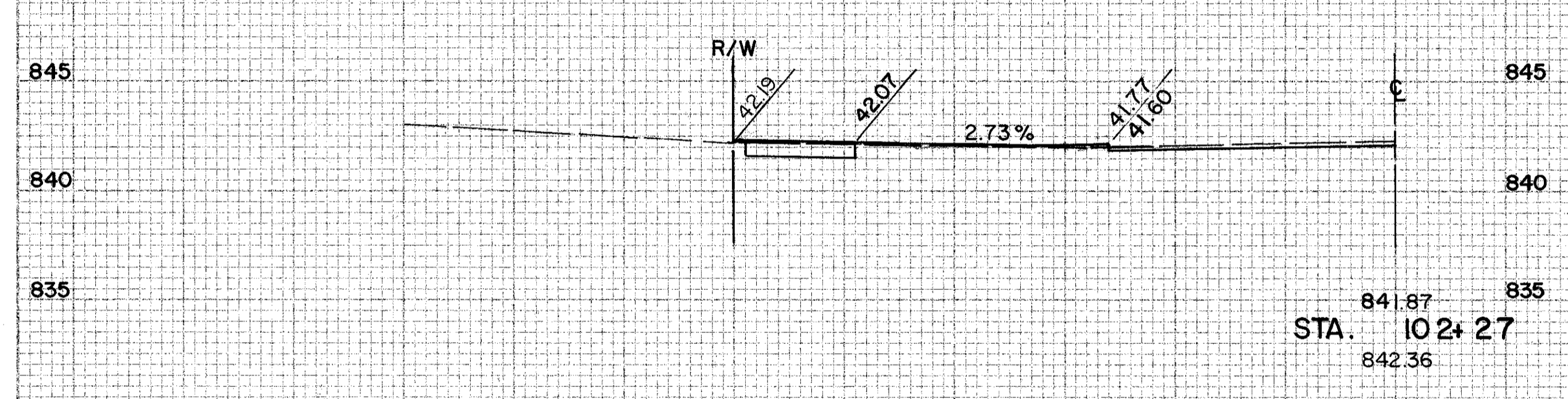
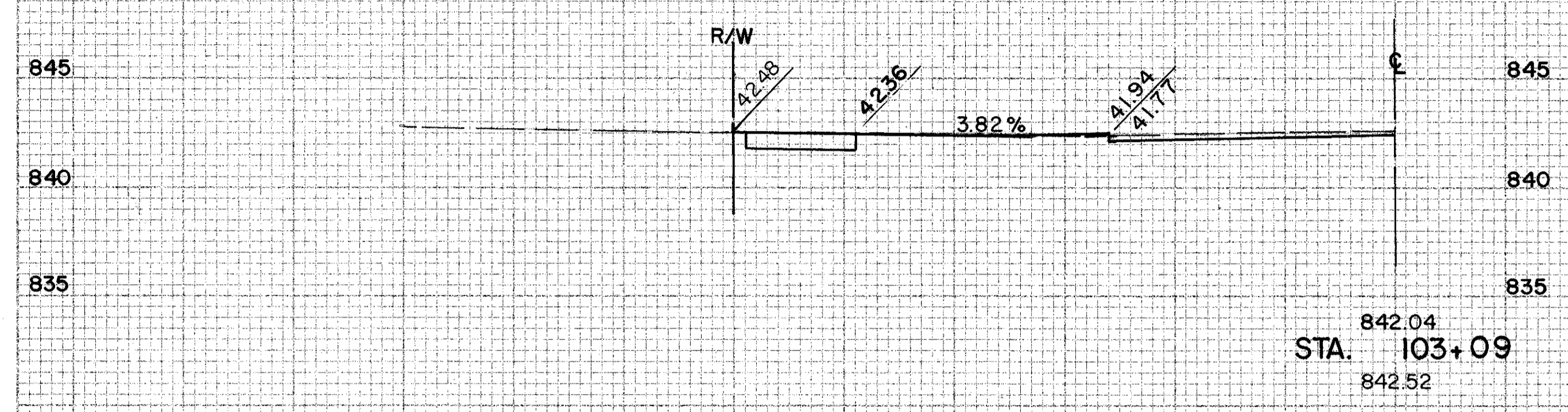
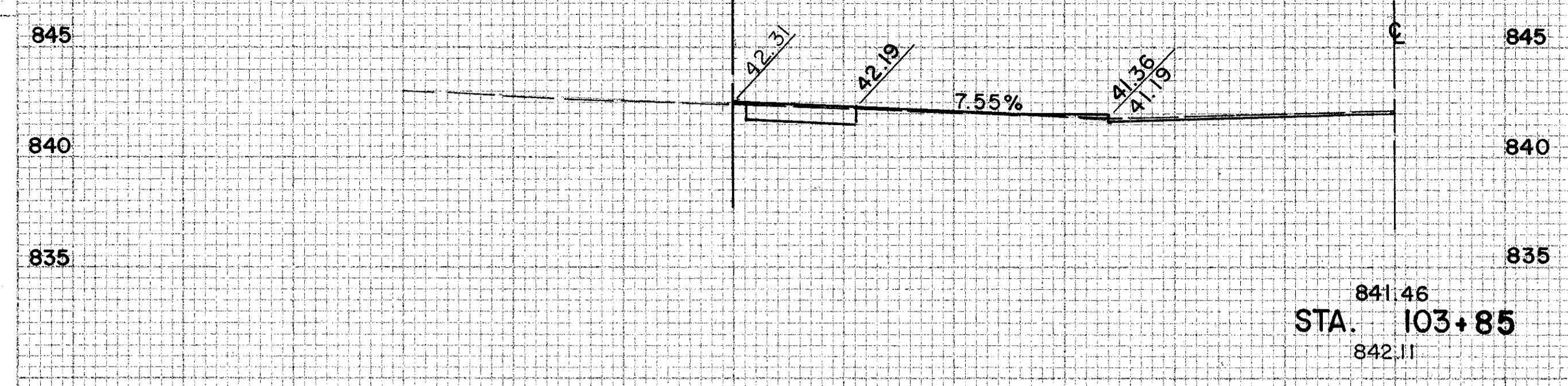
50 40 30 20 10 0 50 40 30 20

CALC. BY _____
 DATE _____
 CHKD. BY _____
 DATE _____

CUY-6-25.94

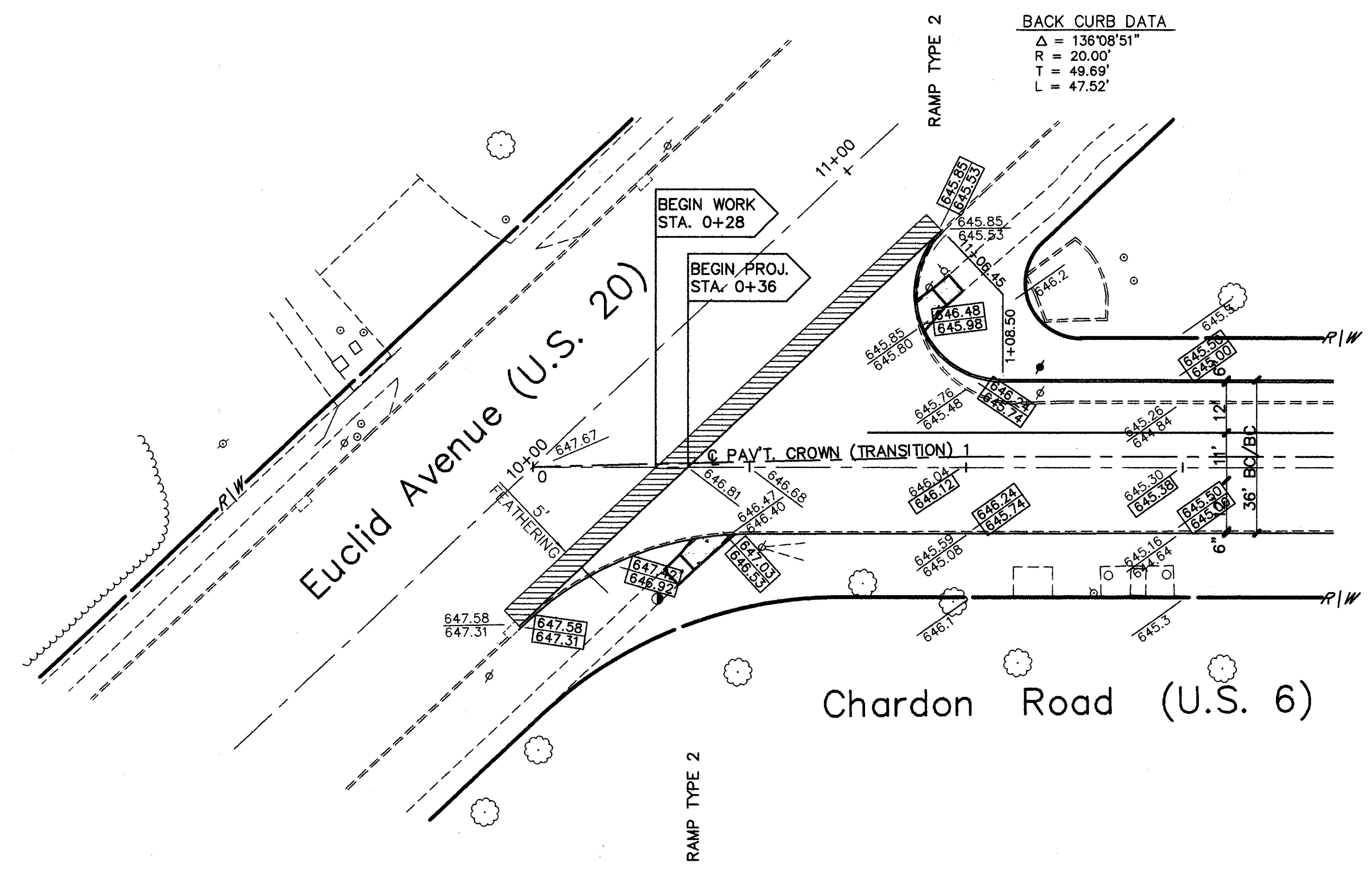
OHIO
 FHWA REGION
 99
 126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

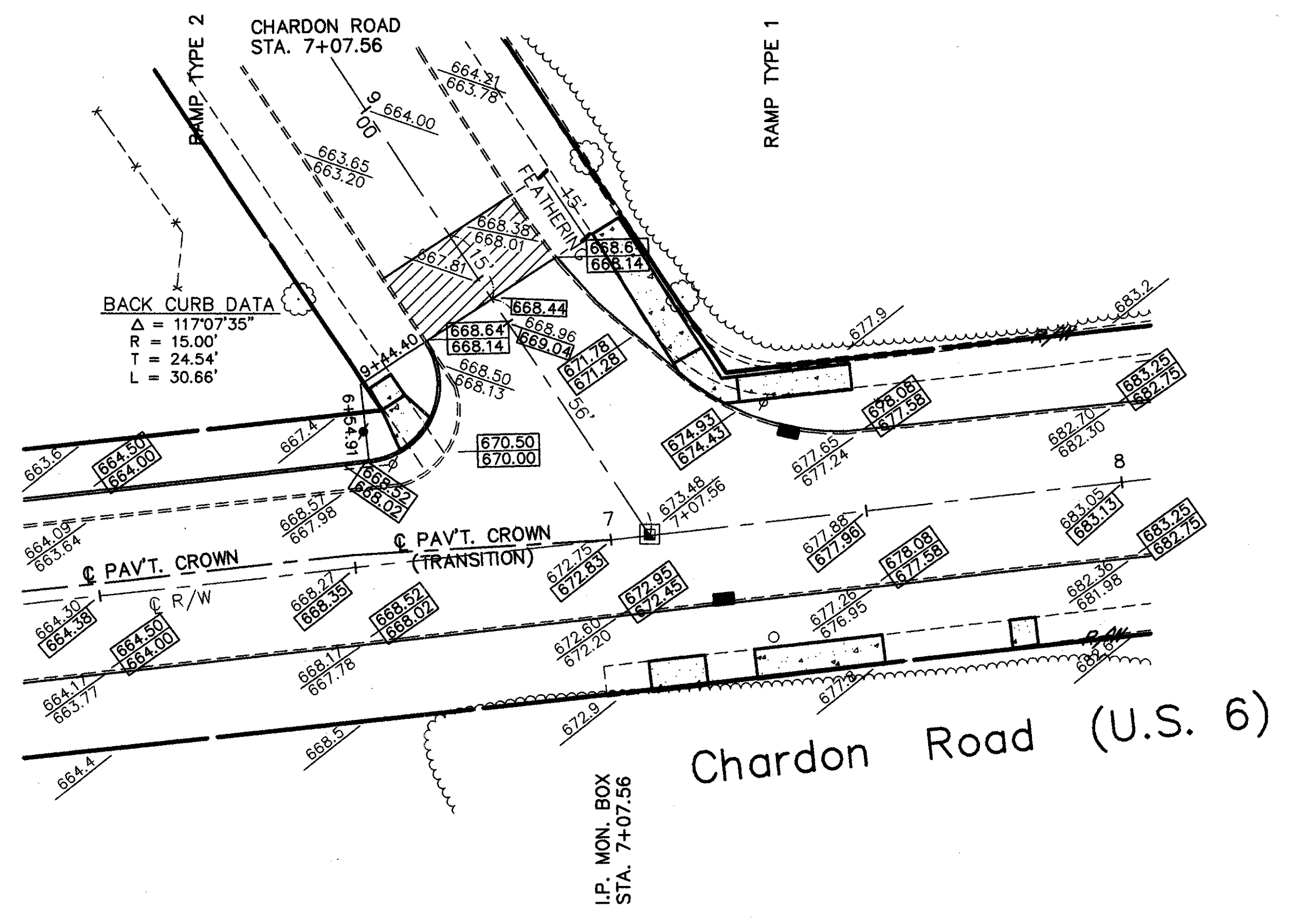


CHARDON ROAD ... DRIVE PROFILE ... LEFT STA. 100+41 TO STA. 106+62 & STA. 79+50

CHARDON ROAD



BACK CURB DATA
 $\Delta = 136^{\circ}08'51''$
 $R = 20.00'$
 $T = 49.69'$
 $L = 47.52'$



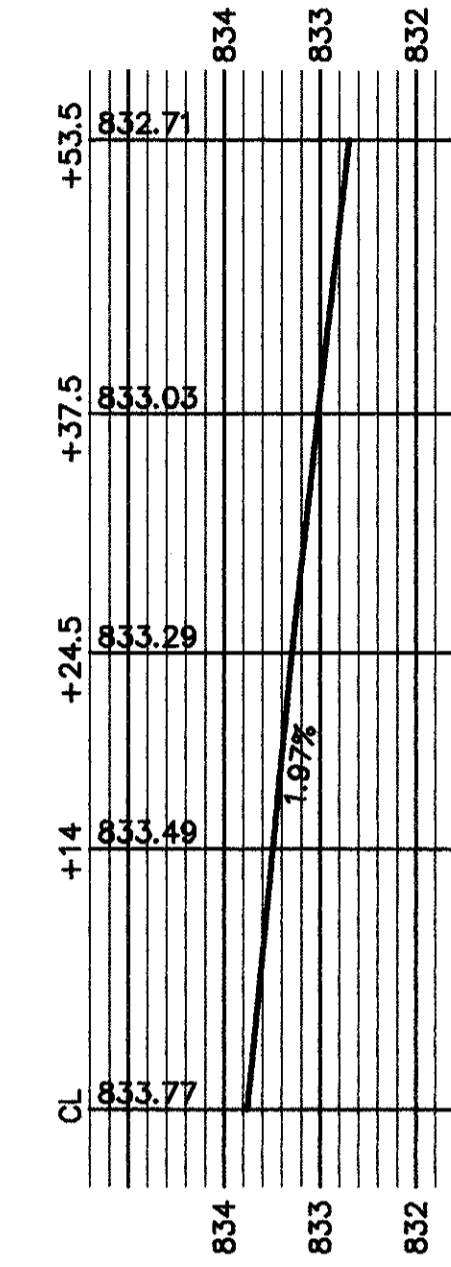
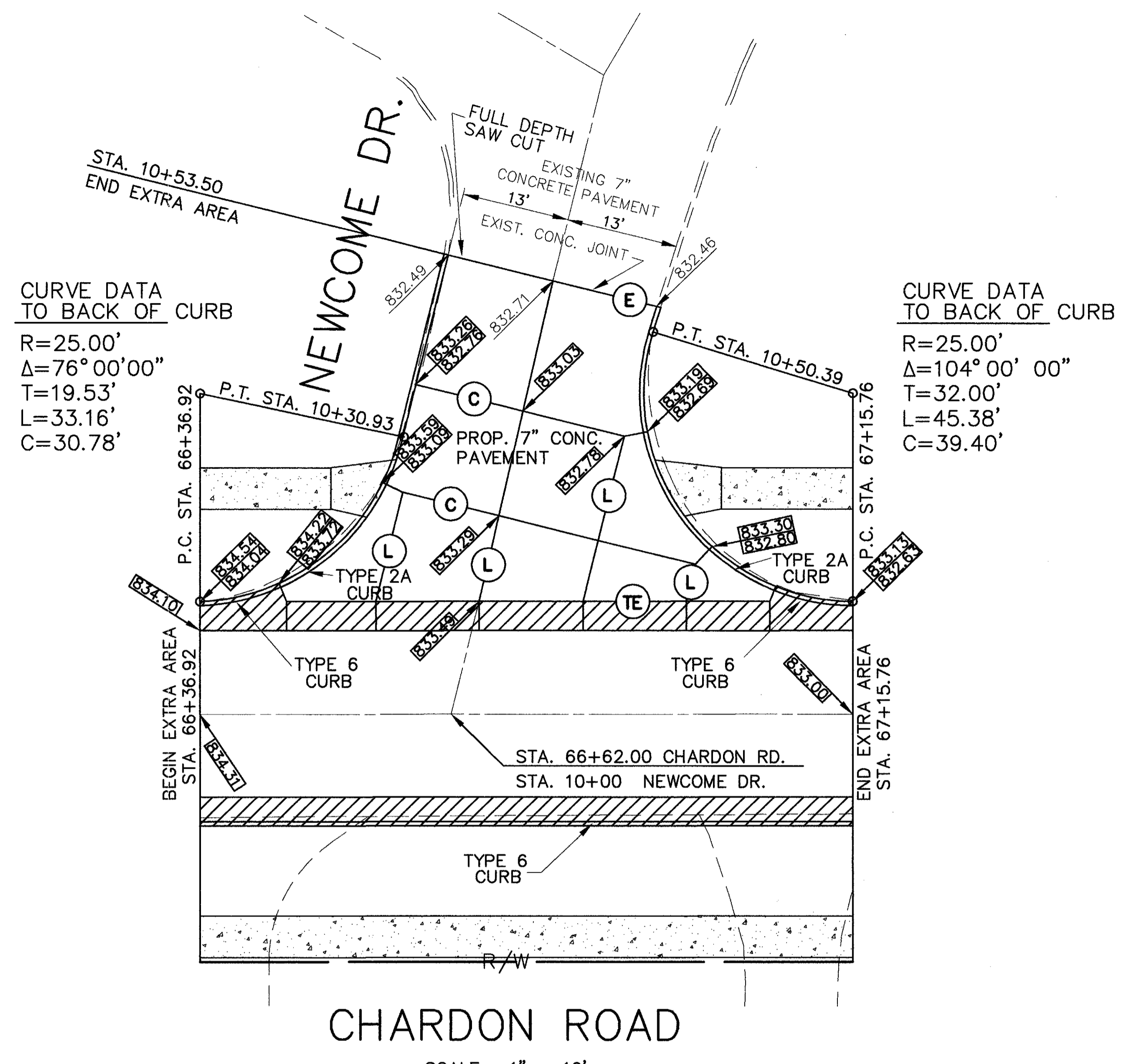
BACK CURB DATA
 $\Delta = 117^{\circ}07'35''$
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 $T = 24.54'$
 $L = 30.66'$

I.P. MON. BOX
 STA. 7+07.56

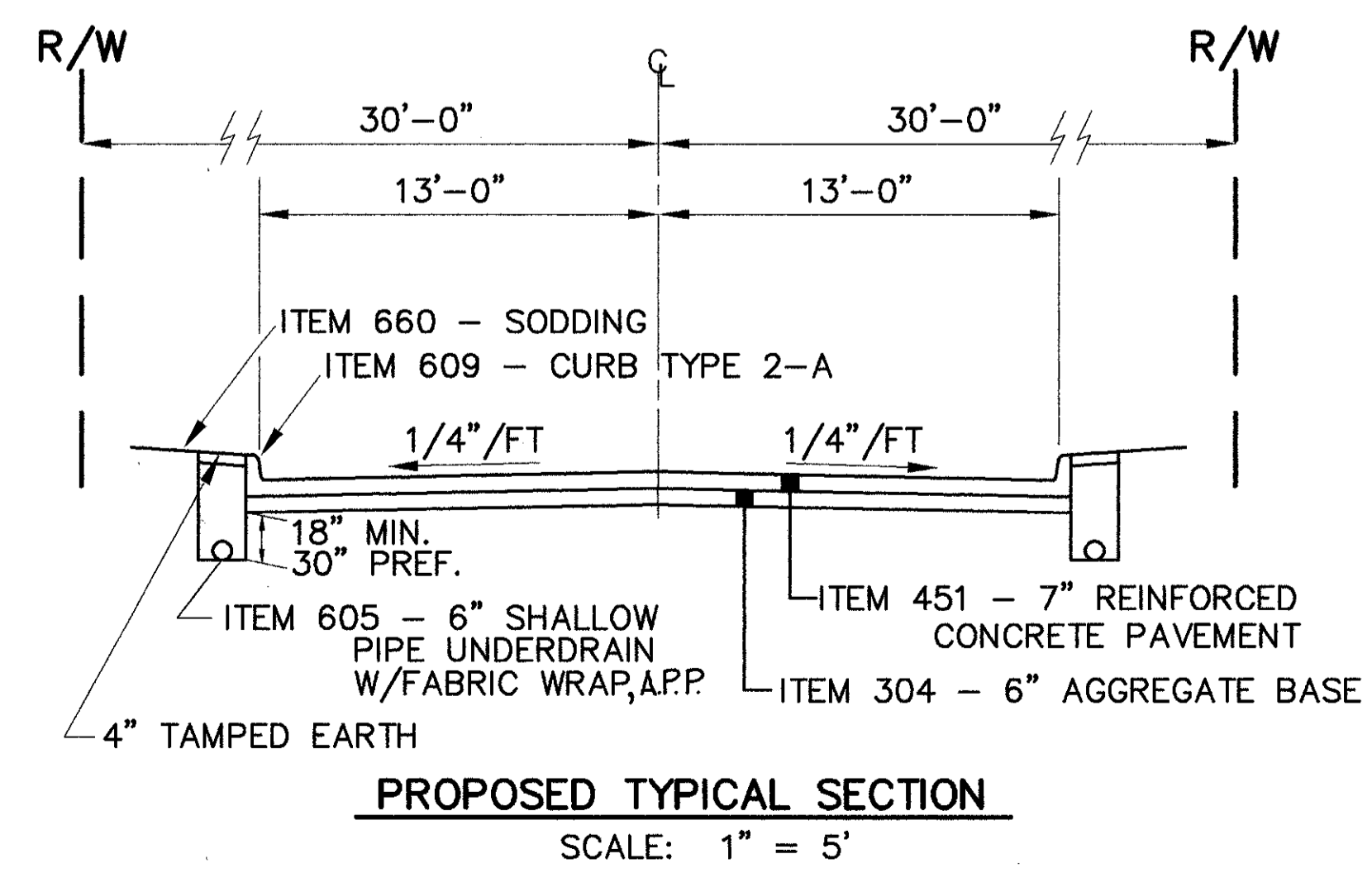
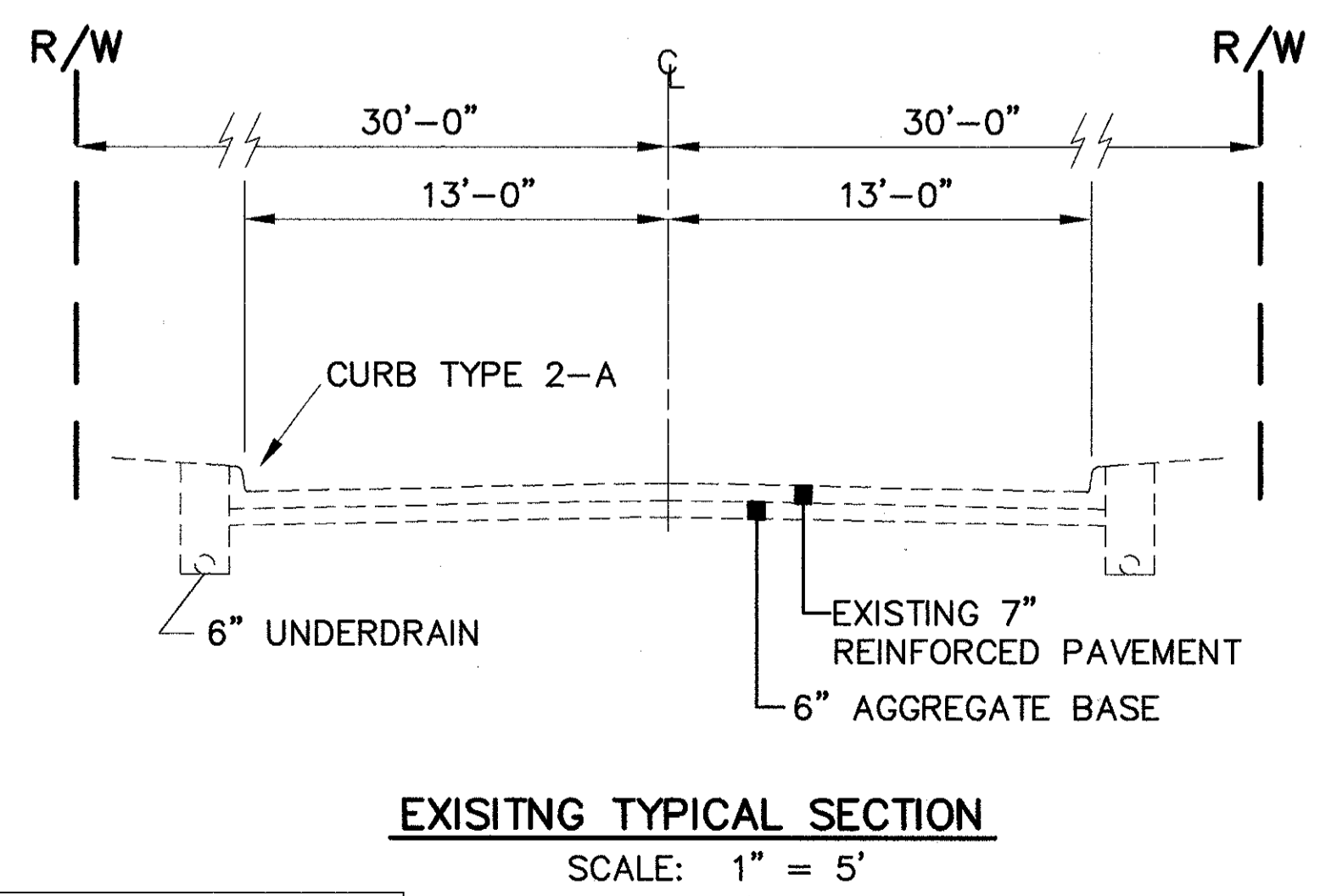
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

LEGEND

- (L) LONGITUDINAL JOINT, AS PER BP-2.1
- (C) CONTRACTION JOINT, AS PER BP-2.2
- (E) EXPANSION JOINT, AS PER BP-2.2
- (T) THICKENED EDGE JOINT
- (TE) THICKENED EDGE EXPANSION JOINT
- [Pattern] AREA OF NEW CONCRETE WALK
- [Line] EXISTING GRADE
- [Line] PROPOSED GRADE
- [Pattern] PROP. 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION SHEET 9.



		EXTRA AREA QUANTITIES																	
REFERENCE NO.	STATION	SIDE	202	203	203	254	255	301	304	305	402	403	404	407	451	608	608	609	609
			PAVEMENT REMOVED	EXCAVATION	SUBGRADE COMPACTION	PAVEMENT PLANING (5" BITUMINOUS)	FULL DEPTH PAVEMENT SAWING	BITUMINOUS AGGREGATE BASE	6" AGGREGATE BASE (LIMESTONE)	15" PLAIN CONCRETE BASE	ASPHALT CONC. AC-20 INT. COURSE	ASPHALT CONC. AC-20	ASPHALT CONC. AC-20 SURF. COURSE	TACK COAT @ 0.1 GAL./S.Y.	7" REINFORCED CONCRETE PAVEMENT	4-1/2" CONC. WALK, A.P.P.	CURB RAMP TYPE 2	CURB, TYPE 2A	CURB, TYPE 6
			S.Y.	C.Y.	S.Y.	S.Y.	L.F.	C.Y.	C.Y.	S.Y.	C.Y.	C.Y.	C.Y.	GAL.	S.Y.	S.F.	EA.	L.F.	L.F.
	66+37 TO 67+15	LT.	154	59	172	88	27	3	31	33	6	3	4	12	151	160	2	86	19
	66+37 TO 67+15	RT.	-	-	-	88	-	3	6	31	6	3	4	12	-	390	-	-	79
	TOTALS		154	59	172	176	27	6	37	64	12	6	8	24	151	550	2	86	98



STEPHEN HOVANCSEK & ASSOC., INC.

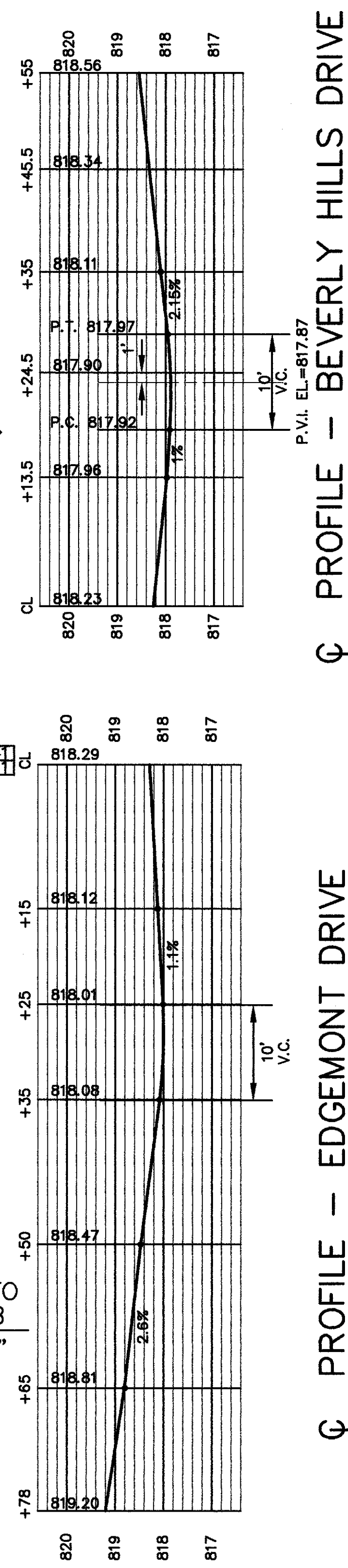
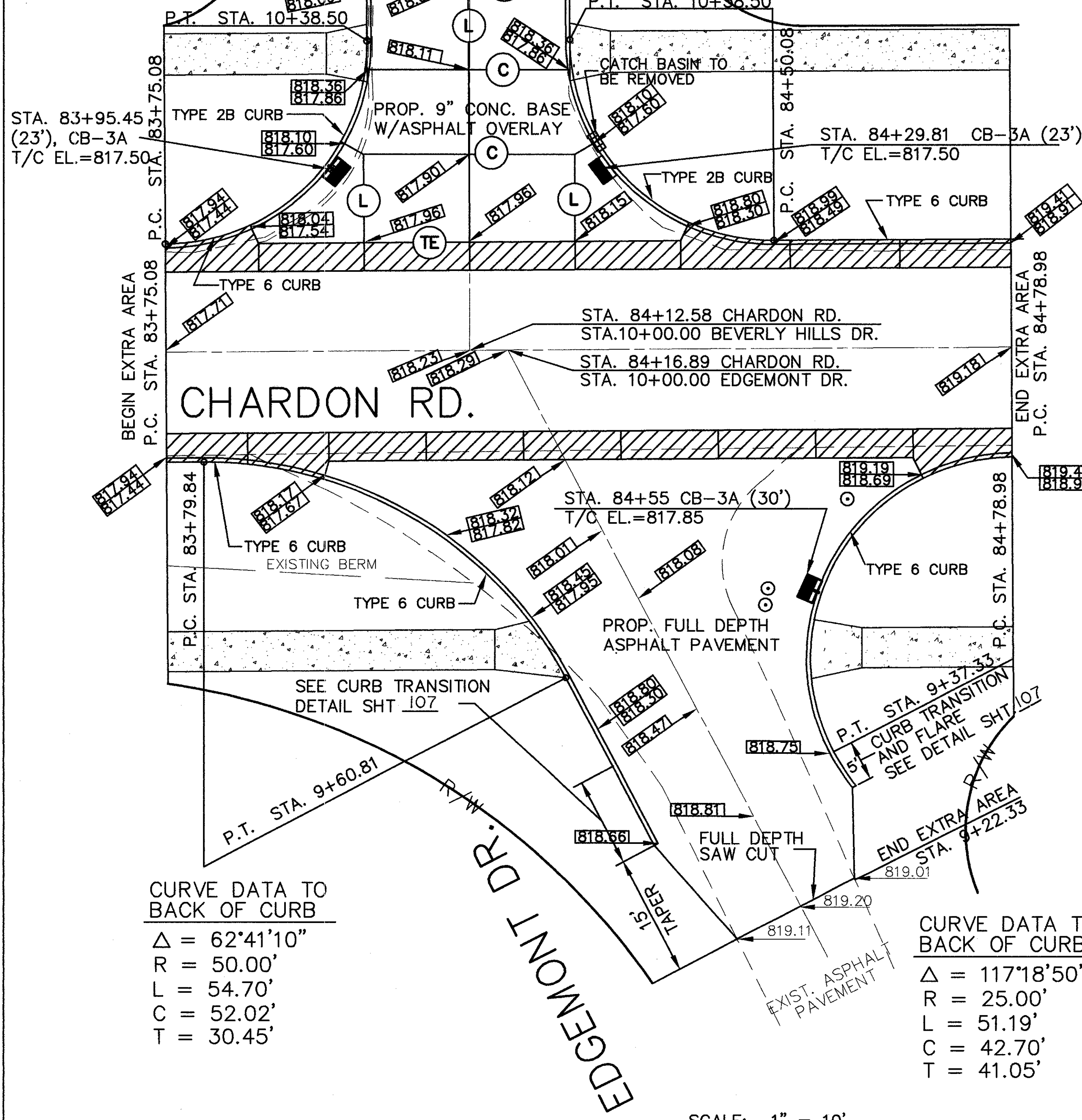
CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

LEGEND

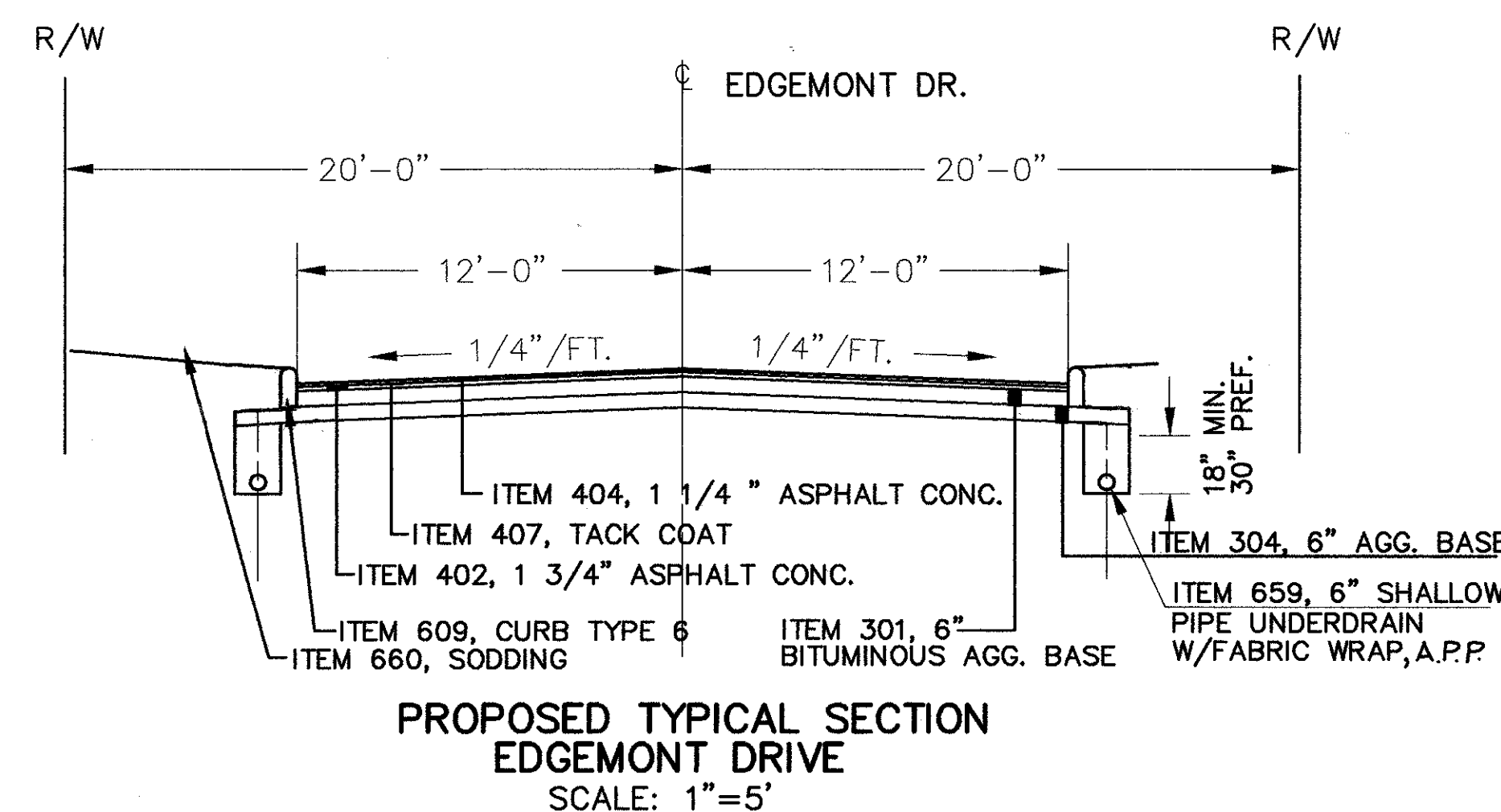
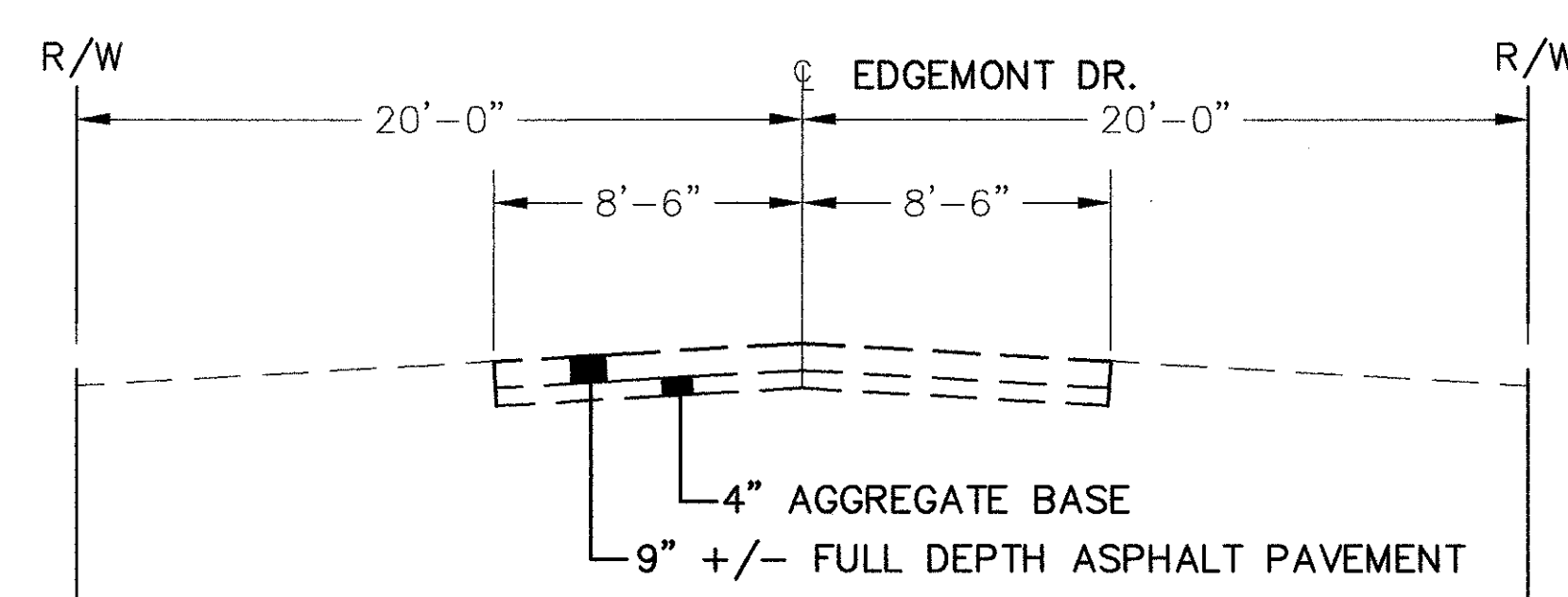
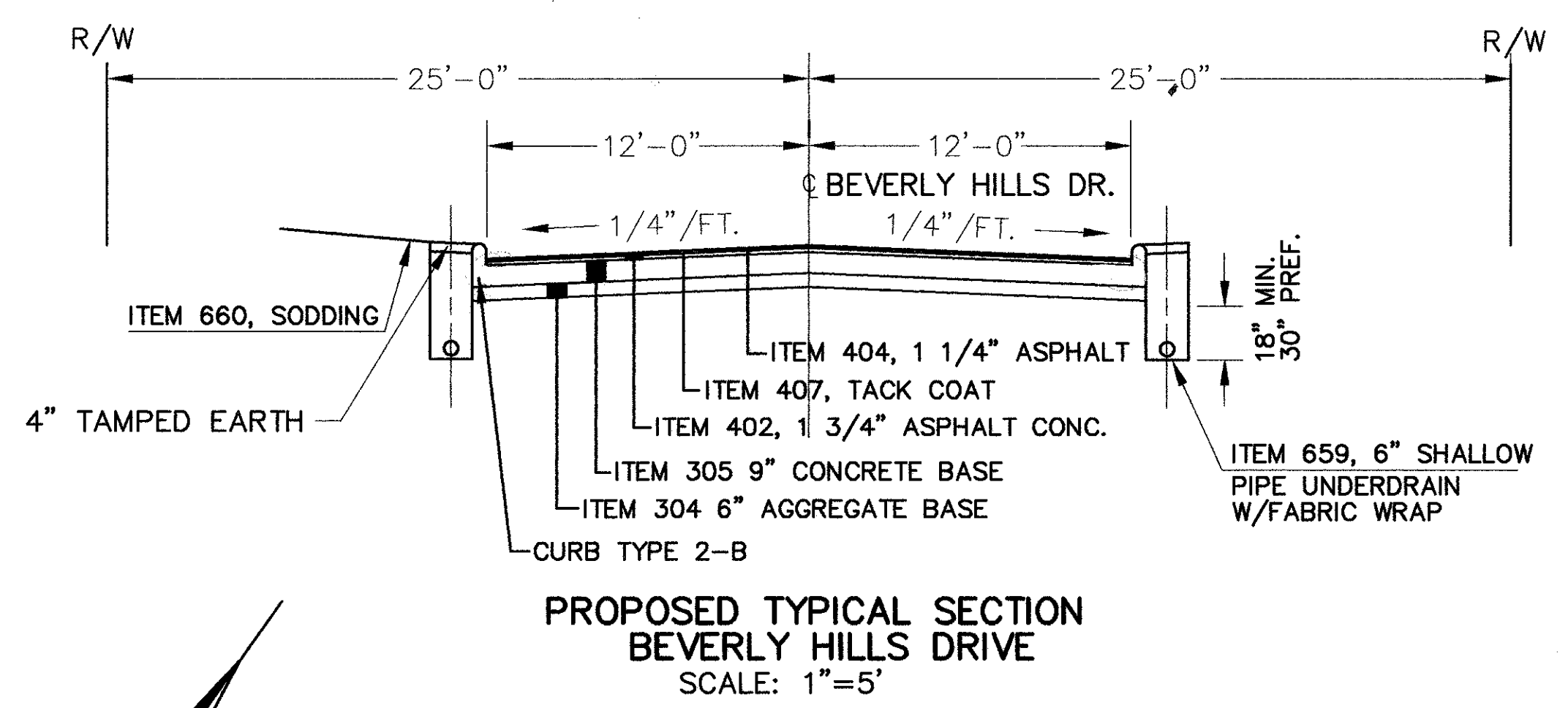
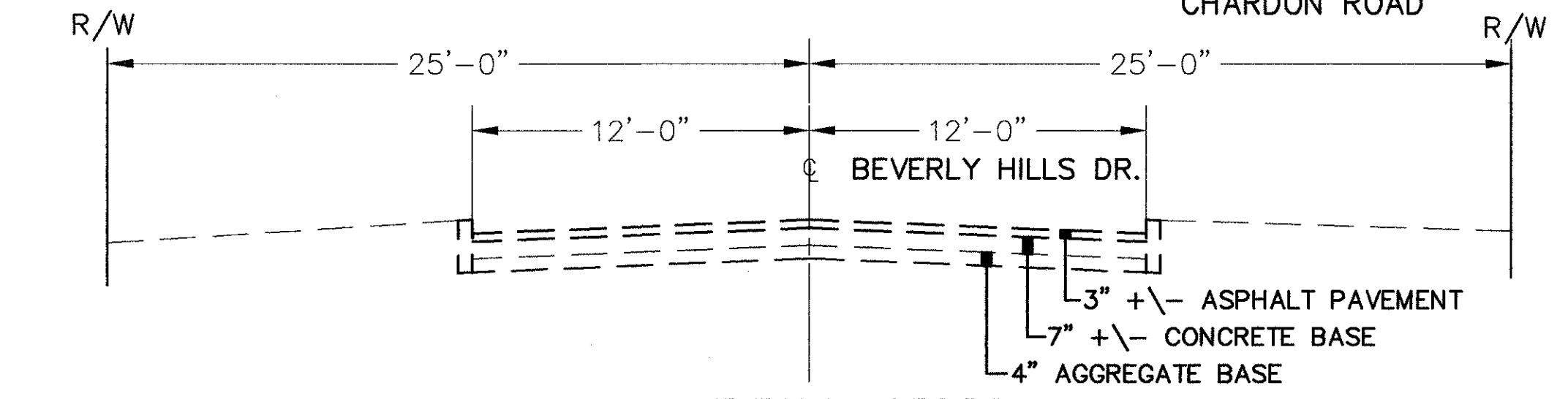
- (L) LONGITUDINAL JOINT, AS PER BP-2.1
- (C) CONTRACTION JOINT, AS PER BP-2.2
- (E) EXPANSION JOINT, AS PER BP-2.2
- (T) THICKENED EDGE JOINT
- (TE) THICKENED EDGE EXPANSION JOINT
- [Symbol] AREA OF NEW CONCRETE WALK
- [Symbol] EXISTING GRADE
- [Symbol] PROPOSED GRADE
- [Symbol] PROPOSED 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION DETAIL SHEET 9.

CURVE DATA TO BACK OF CURB
 $\Delta = 90^{\circ}00'00''$
 $R = 25.00'$
 $L = 39.27'$
 $C = 35.36'$
 $T = 25.00'$

CURVE DATA TO BACK OF CURB
 $\Delta = 90^{\circ}00'00''$
 $R = 25.00'$
 $L = 39.27'$
 $C = 35.36'$
 $T = 25.00'$



PROFILE - BEVERLY HILLS DRIVE
 PROFILE - EDMONT DRIVE
 PROFILE - BEVERLY HILLS DRIVE



STATION	REFERENCE NO.	DESCRIPTION	UNIT	QUANTITY
609		CURB, TYPE 6	L.F.	203
609		CURB TYPE 2B	L.F.	91
608		CURB RAMP TYPE 2	EA.	4
608		4-1/2" CONC. WALK, A.P.P.	S.F.	640
407		TACK COAT @ 0.1 GAL./S.Y.	GAL.	70
404		ASPHALT CONC. AC-20 SURF. COURSE	C.Y.	25
403		0'-3" ASPHALT CONC, AC-20	C.Y.	8
402		ASPHALT CONC. AC-20 INT. COURSE	C.Y.	34
305		15" CONCRETE BASE	S.Y.	88
305		9" CONCRETE BASE	S.Y.	146
304		6" AGGREGATE BASE (LIMESTONE)	C.Y.	76
301		BITUMINOUS AGGREGATE BASE	C.Y.	46
255		FULL DEPTH PAVEMENT SAWING	L.F.	43
254		PAVEMENT PLANING (5" BITUMINOUS)	S.Y.	232
203		SUBGRADE COMPACTION	S.Y.	425
203		EXCAVATION	C.Y.	195
202		CURB REMOVED	L.F.	98
202		PAVEMENT REMOVED	S.Y.	146
SIDE				
TOTALS				
		83+75 TO 84+79	L.T.	146
		83+75 TO 84+79	RT.	146

STEPHEN HOVANCSEK & ASSOC., INC.

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

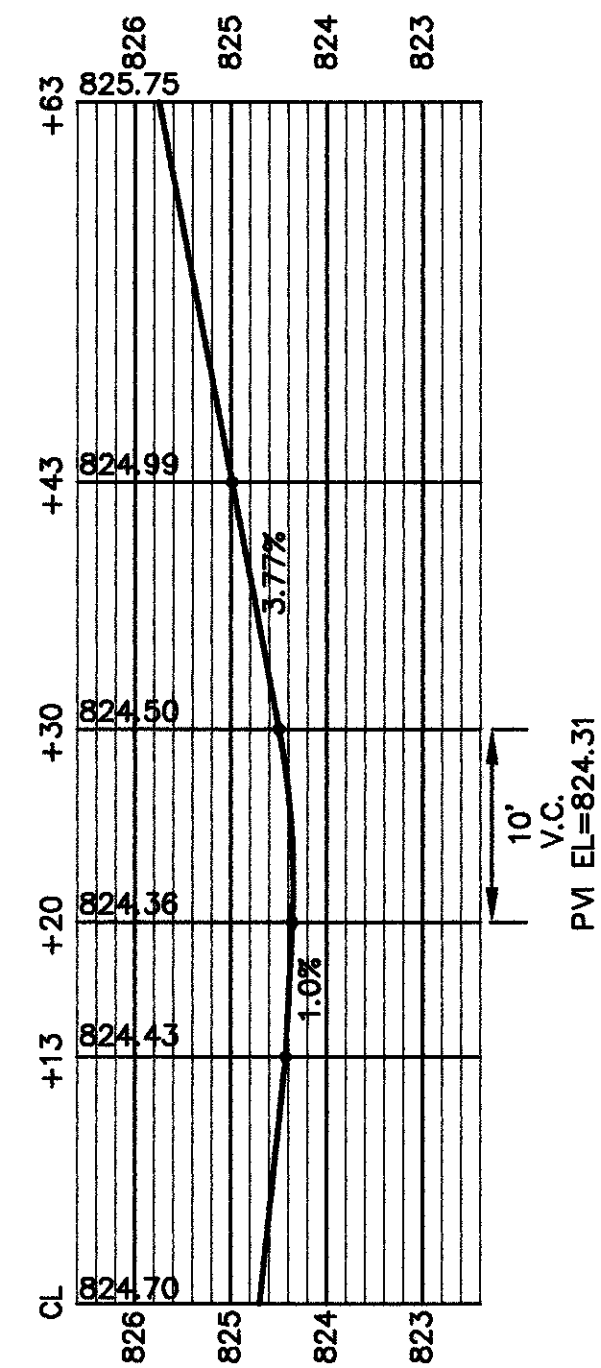
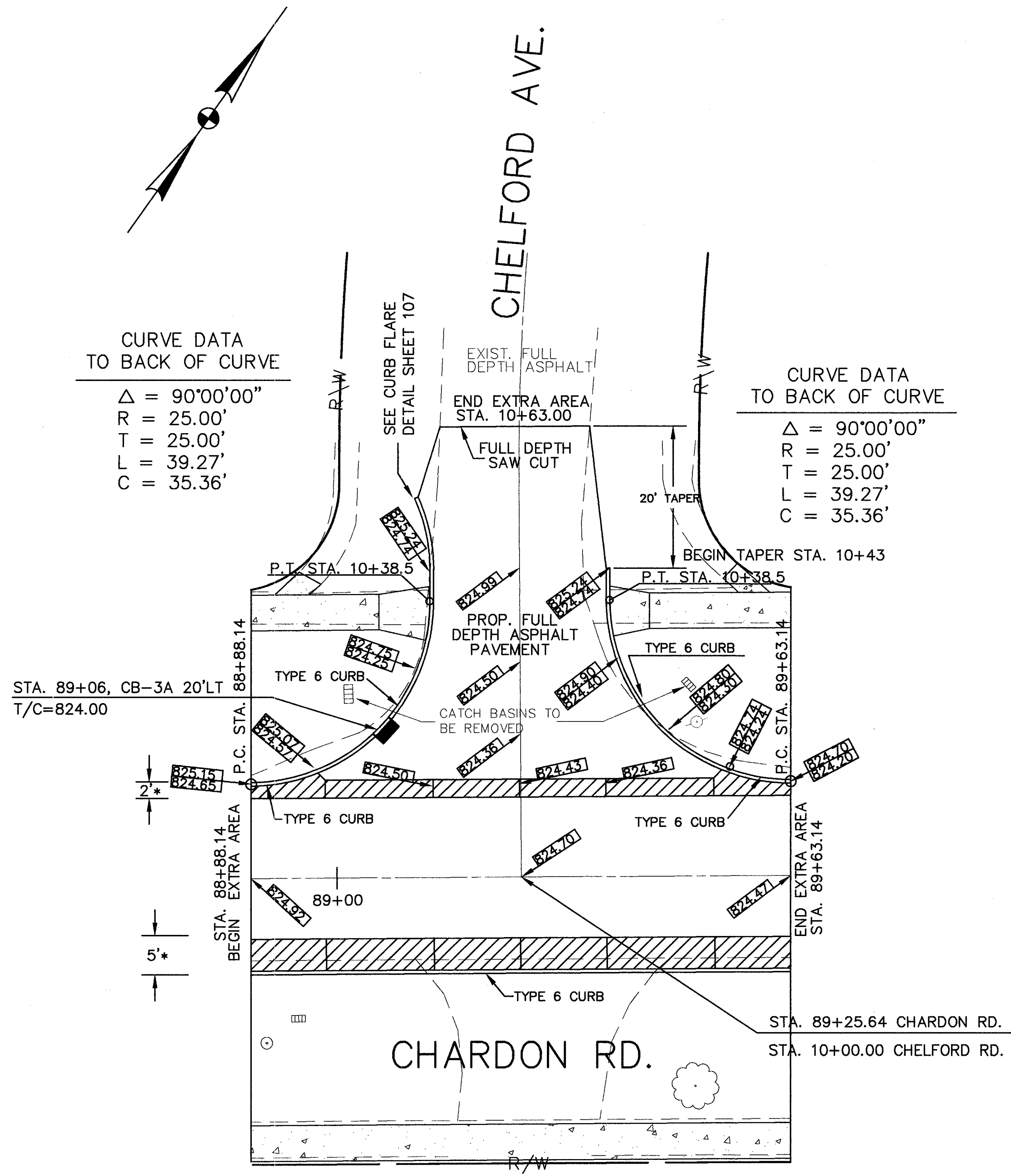
		EXTRA AREA QUANTITIES															
REFERENCE NO.	STATION	SIDE	202	203	203	254	255	301	304	305	402	403	404	407	608	608	609
			WALK REMOVED	EXCAVATION	SUBGRADE COMPACTION	PAVEMENT PLANNING 5" BITUMINOUS	FULL DEPTH PAVEMENT SAW CUT	BITUMINOUS AGGREGATE BASE	6" AGGREGATE BASE (LIMESTONE)	15" CONCRETE BASE	ASPHALT CONC. AC-20 INT. COURSE	ASPHALT CONC. AC-20	ASPHALT CONC. AC-20 SURF. COURSE	TACK COAT @ 0.1 GAL./S.Y.	4-1/2" CONC. WALK, A.P.P.	CURB RAMP TYPE 2	CURB, TYPE 6
			S.F.	C.Y.	S.Y.	S.Y.	L.F.	C.Y.	C.Y.	S.Y.	C.Y.	C.Y.	C.Y.	GAL.	S.F.	EA.	L.F.
	88+88 TO 89+63	LT.	265	97	170	92	21	29	31	19	13.5	2	10.0	27	200	2	98
	88+88 TO 89+63	RT.	-	-	-	71	-	4	7	42	5.5	4	4.0	11	375	-	75
	TOTALS		265	97	170	163	21	33	38	61	19	6	14	38	575	2	173

CURVE DATA TO BACK OF CURVE

$\Delta = 90^{\circ}00'00''$
 $R = 25.00'$
 $T = 25.00'$
 $L = 39.27'$
 $C = 35.36'$

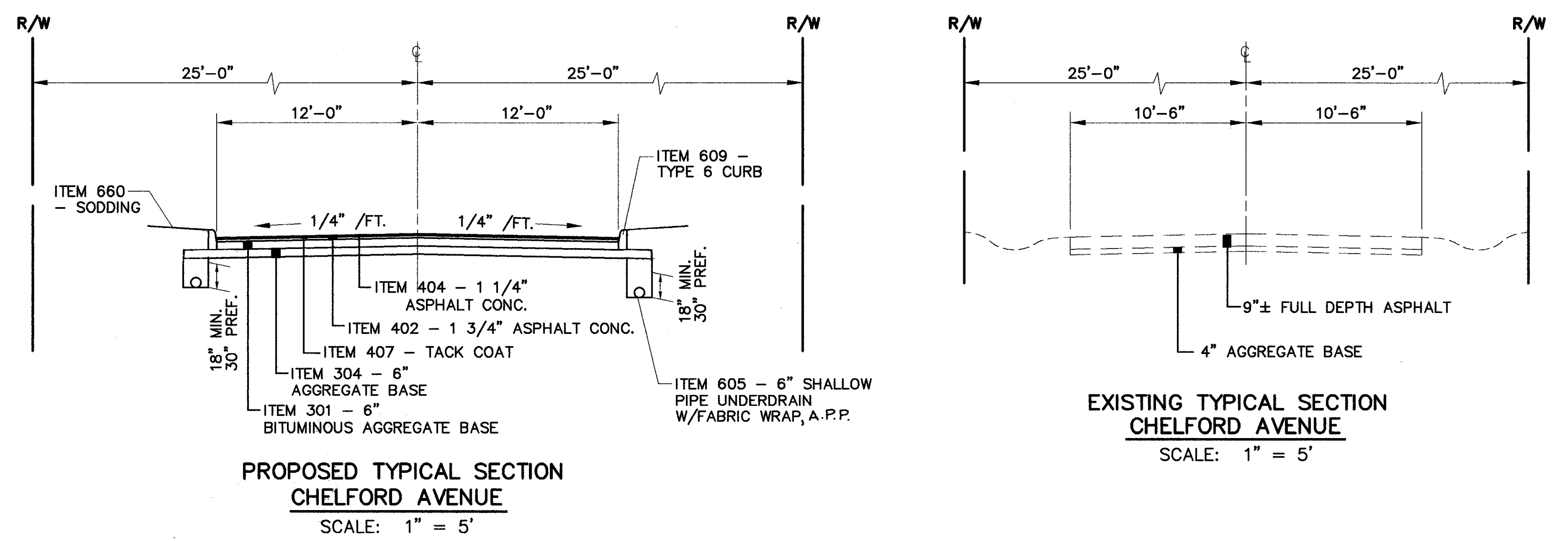
CURVE DATA TO BACK OF CURVE

$\Delta = 90^{\circ}00'00''$
 $R = 25.00'$
 $T = 25.00'$
 $L = 39.27'$
 $C = 35.36'$



LEGEND

- [Hatched Box] AREA OF NEW CONCRETE WALK
- [Dashed Line] EXISTING GRADE
- [Solid Line] PROPOSED GRADE
- [Hatched Box] PROPOSED 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION SHEET 9



* SEE TYPICAL SECTION SHEET 9 FOR DETAIL

LEGEND

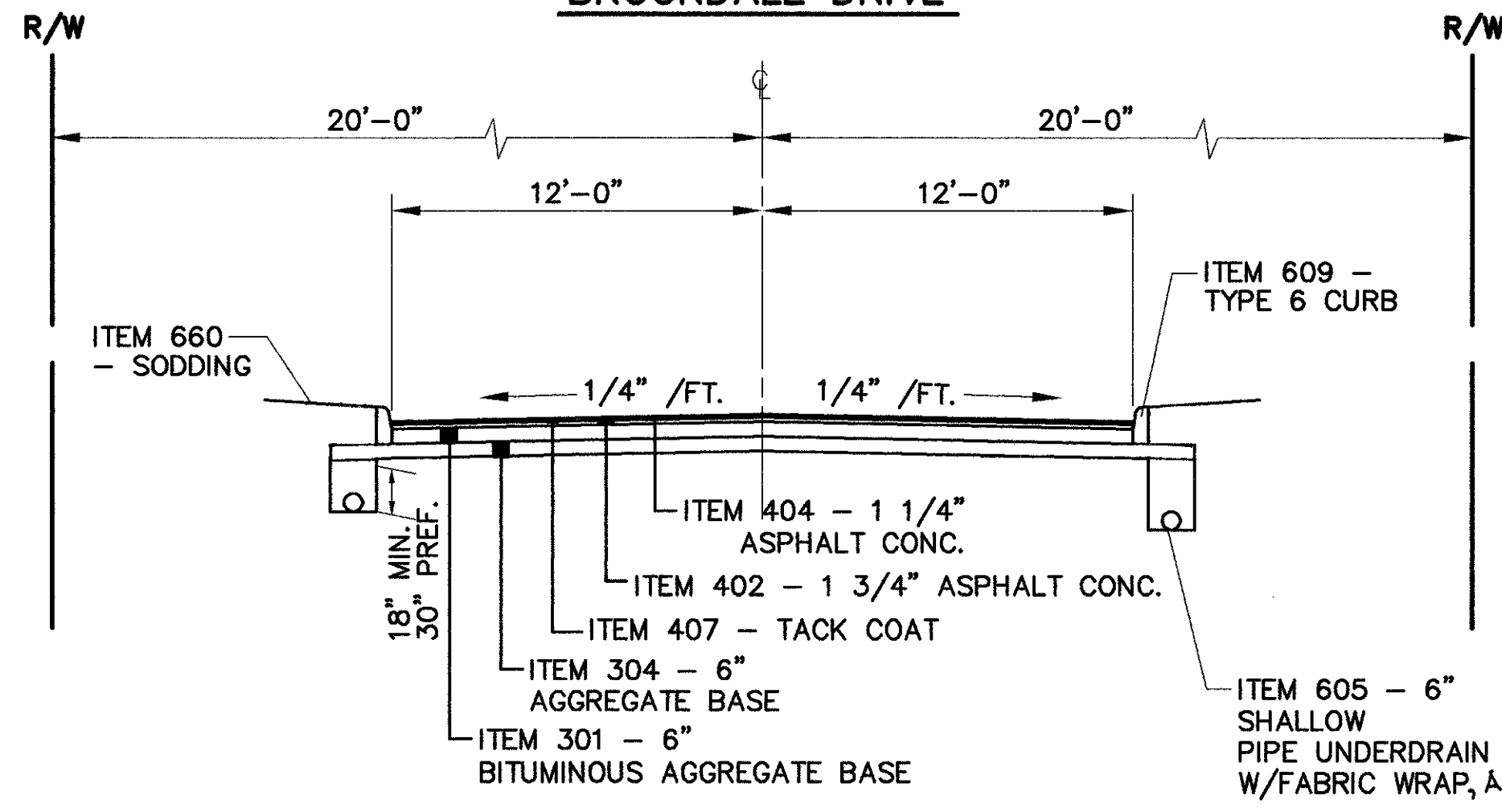
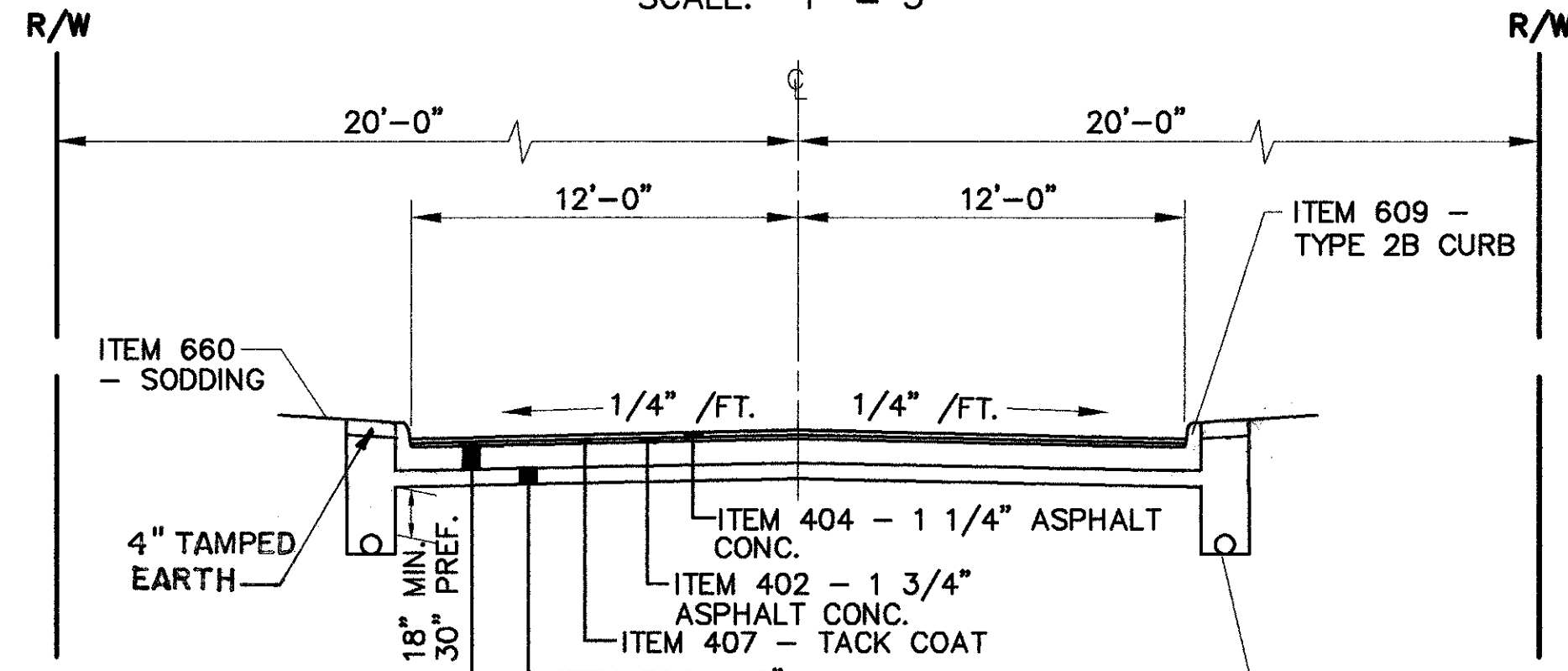
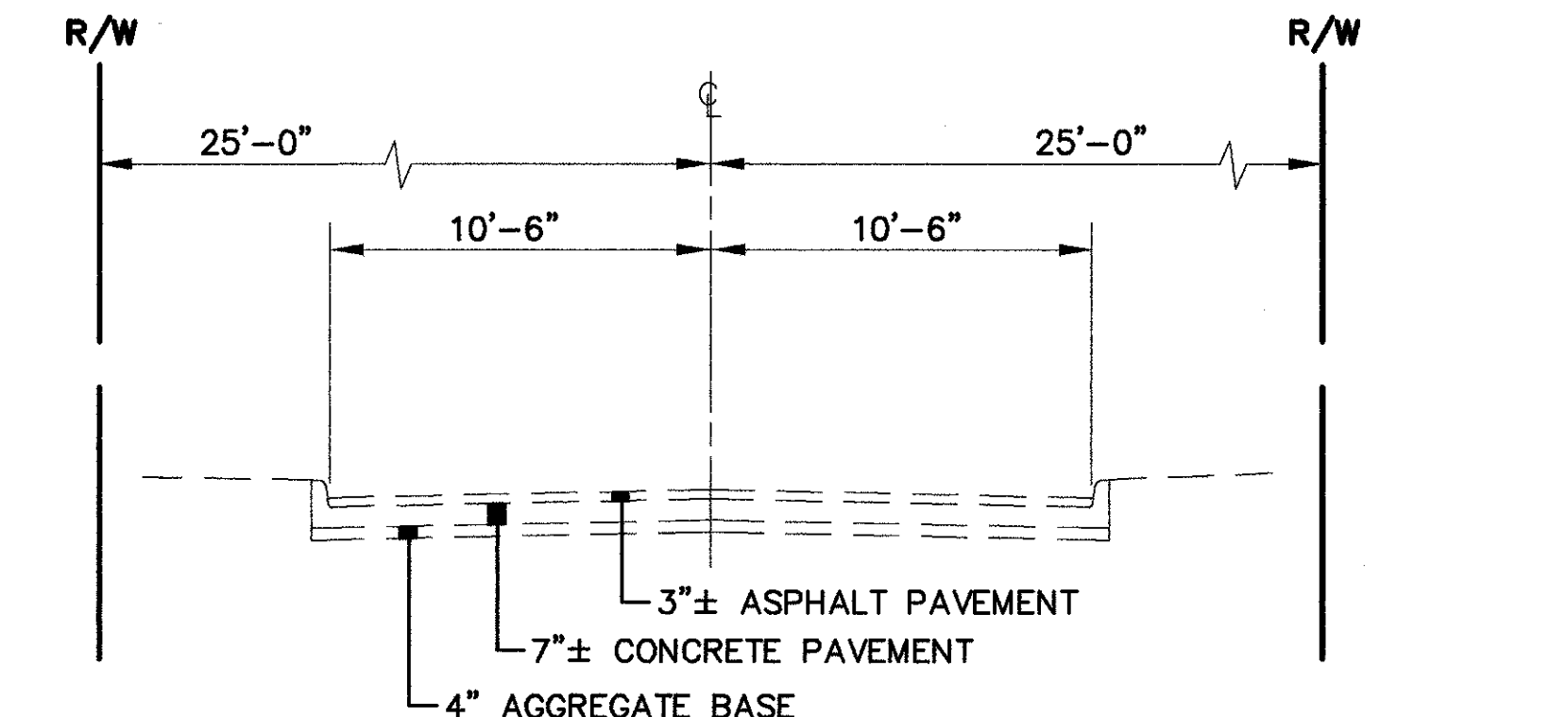
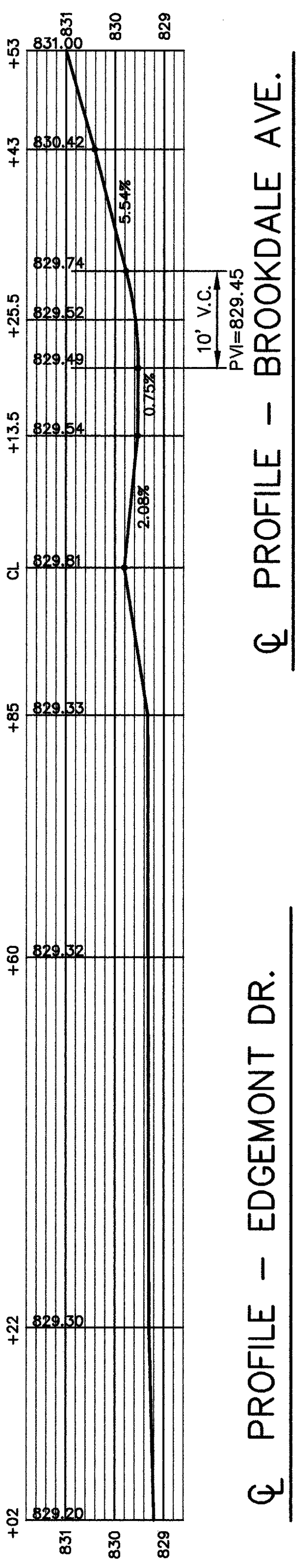
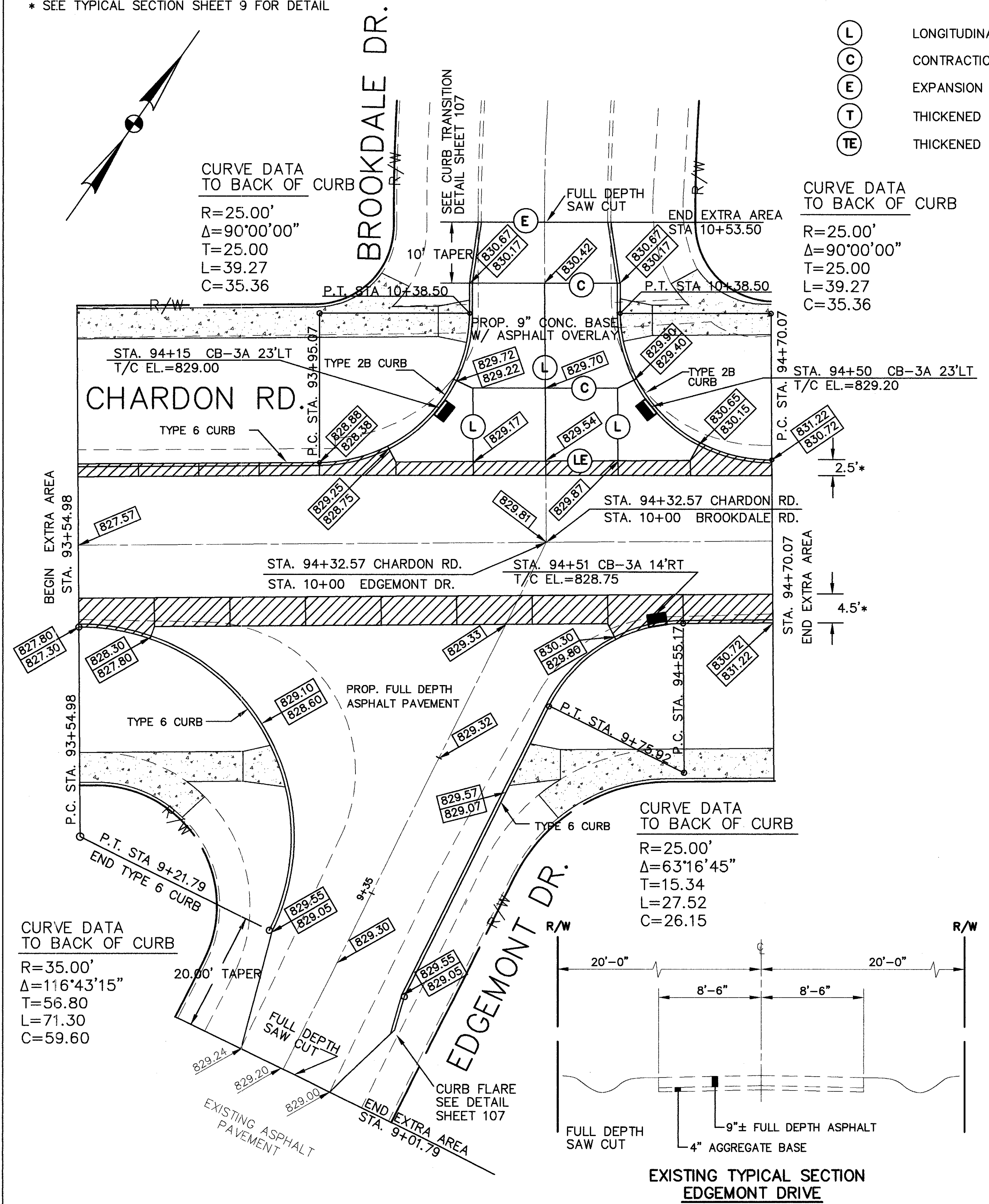
- (L) LONGITUDINAL JOINT, AS PER BP-2.1
- (C) CONTRACTION JOINT, AS PER BP-2.2
- (E) EXPANSION JOINT, AS PER BP-2.2
- (T) THICKENED EDGE JOINT
- (TE) THICKENED EDGE EXPANSION JOINT

- AREA OF NEW CONCRETE WALK
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION SHEET 9.

CALC. BY: _____	OHIO	104 126
DATE: _____	F.H.W.A. REGION 5	
CHKD. BY: _____	CUYAHOGA COUNTY	
DATE: _____	U.S. 6	
	CHARDON ROAD	

CUY-6-25.94

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



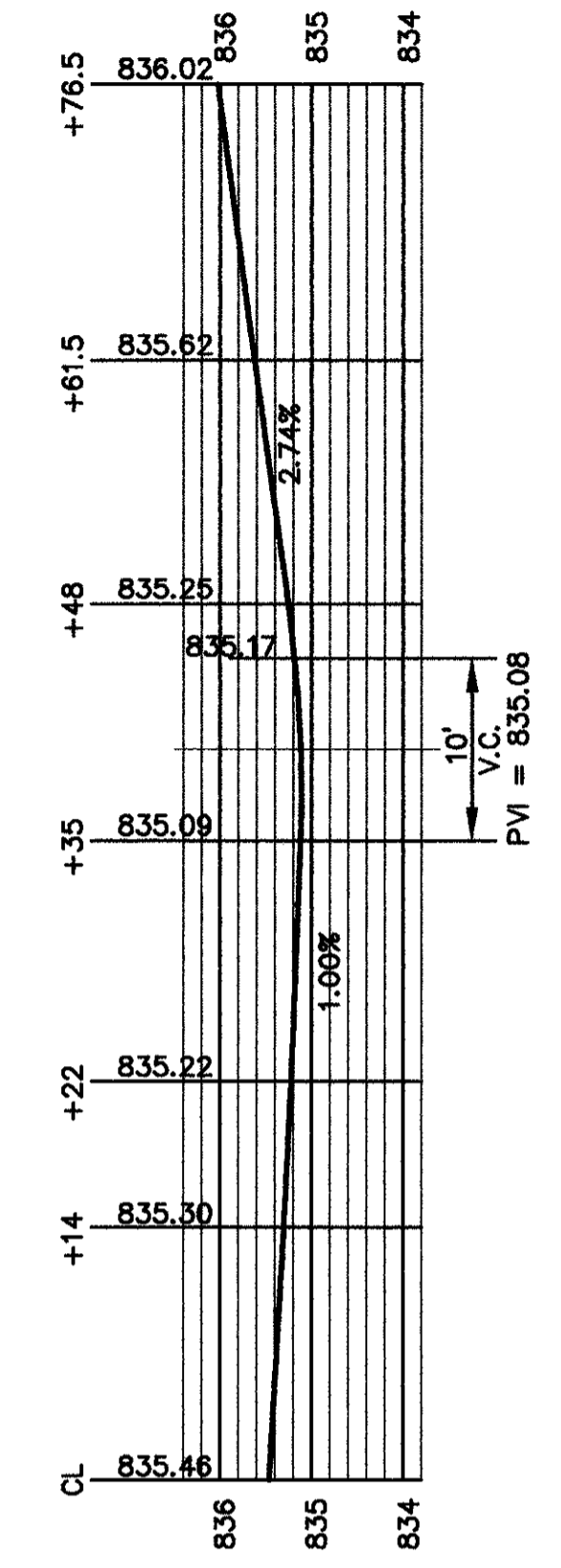
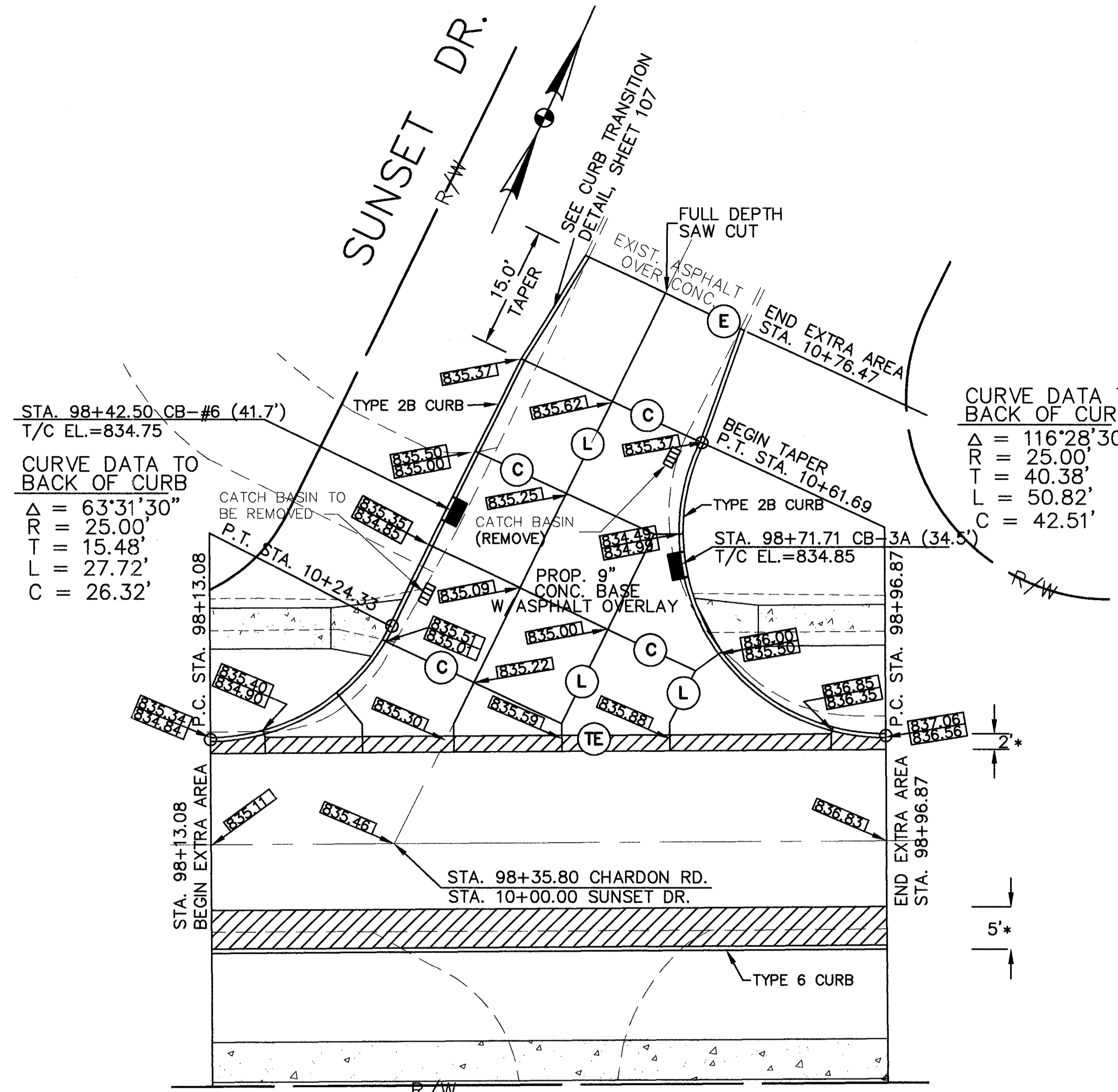
STATION	ITEM	QTY	UNIT	RT.	LT.
609	CURB, TYPE 6	L.F.		65	243
609	CURB, TYPE 2B	L.F.		85	85
608	CURB RAMP TYPE 2	EA.		2	4
608	4-1/2" CONC. WALK, A.P.P.	S.F.		465	855
407	TACK COAT @ 0.1 GAL./S.Y.	GAL.		31	79
404	ASPHALT CONC. AC-20 SURF. COURSE	C.Y.		11	28
403	ASPHALT CONC. AC-20			3	8
402	ASPHALT CONC. AC-20 INT. COURSE	C.Y.		15	39
305	15" CONCRETE BASE	S.Y.		36	98
305	9" CONCRETE BASE	S.Y.		137	137
304	6" AGGREGATE BASE (LIMESTONE)	C.Y.		30	91
301	6" BITUMINOUS AGGREGATE BASE	C.Y.		-	51
255	FULL DEPTH PAVEMENT SAWING	L.F.		22	41
254	PAVEMENT PLANING (5" BITUMINOUS)	S.Y.		140	256
203	SUBGRADE COMPACTION	S.Y.		172	521
203	EXCAVATION	C.Y.		60	253
202	CURB REMOVED	L.F.		98	98
202	WALK REMOVED	S.F.		330	630
202	PAVEMENT REMOVED	S.Y.		145	145
SIDE					
93+55 TO 94+70	TOTALS			145	630
93+55 TO 94+70	TOTALS			145	630
REFERENCE NO.					

STEPHEN HOVANCSEK & ASSOC., INC.

EXTRA AREA - EDGEMONT DR./BROOKDALE DR. STA. 94+32.57

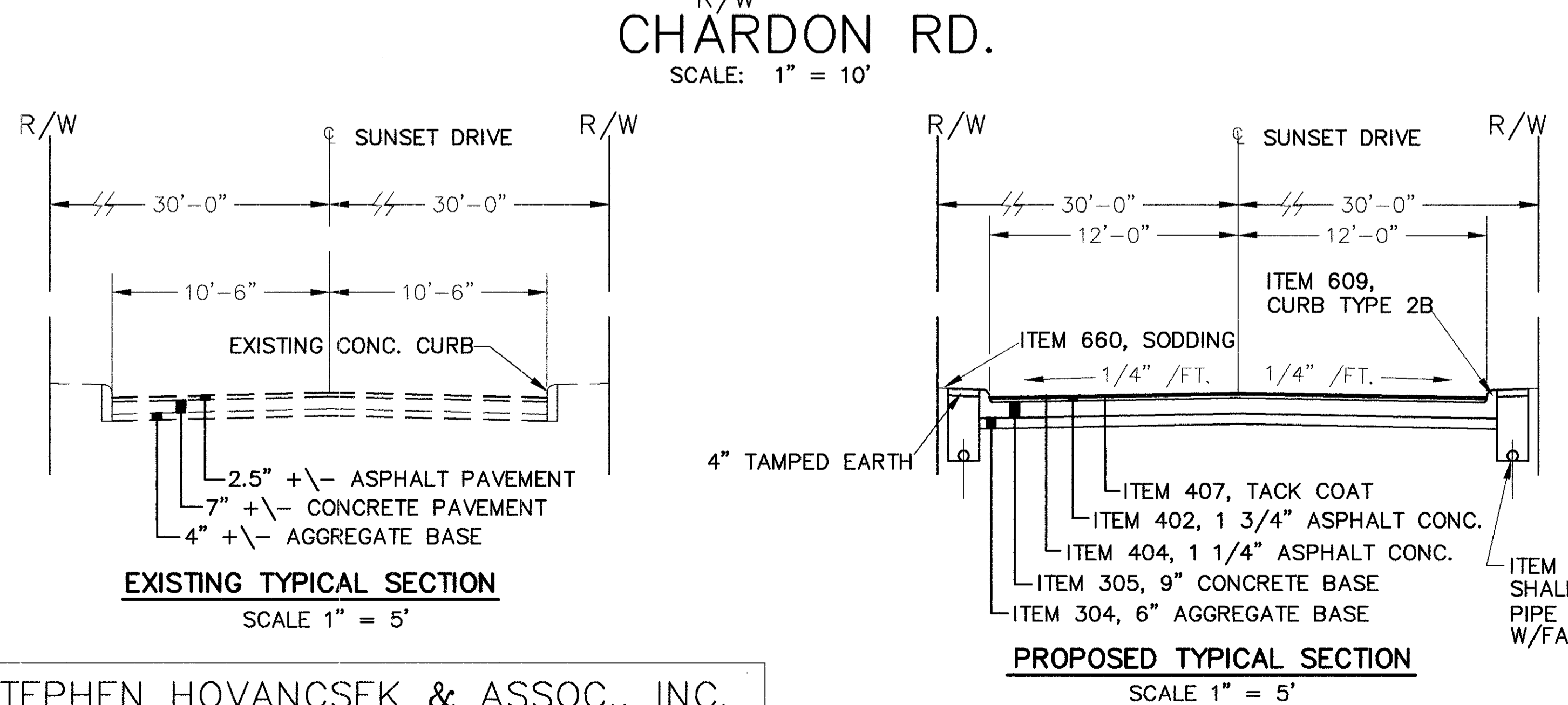
CHARDON ROAD

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



- LEGEND**
- (L) LONGITUDINAL JOINT, AS PER BP-2.1
 - (C) CONTRACTION JOINT, AS PER BP-2.2
 - (E) EXPANSION JOINT, AS PER BP-2.2
 - (T) THICKENED EDGE JOINT
 - (TE) THICKENED EDGE EXPANSION JOINT
 - [Hatched Box] AREA OF NEW CONCRETE WALK
 - [Solid Line] EXISTING GRADE
 - [Dashed Line] PROPOSED GRADE
 - [Hatched Box] PROPOSED 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION SHEET 9.

* SEE TYPICAL SECTION SHEET 9 FOR DETAIL



		EXTRA AREA QUANTITIES																	
REFERENCE NO.	STATION	202	202	202	203	203	254	255	304	305	305	402	403	404	407	608	608	609	609
		PAVEMENT REMOVED	WALK REMOVED	CURB REMOVAL	EXCAVATION	SUBGRADE COMPACTION	PAVEMENT PLANING (5" BITUMINOUS)	FULL DEPTH PAVEMENT SAWING	6" AGGREGATE BASE (LIMESTONE)	9" CONCRETE BASE	15" CONCRETE BASE	ASPHALT CONC. AC-20 INT. COURSE	ASPHALT CONC. AC-20	ASPHALT CONC. AC-20 SURF. COURSE	TACK COAT @ 0.1 GAL./S.Y.	4-1/2" CONC. WALK, A.P.P.	CURB RAMP TYPE 2	CURB, TYPE 2B	CURB, TYPE 6
		S.Y.	S.F.	L.F.	C.Y.	S.Y.	S.Y.	L.F.	C.Y.	S.Y.	S.Y.	C.Y.	C.F.	C.Y.	GAL.	S.F.	EA.	L.F.	L.F.
	98+13 TO 98+96 LT.	215	245	142	51	220	108	22	39	213	19	16	9	12	33	155	2	133	14
	98+13 TO 98+96 RT.	-	-	-	-	-	75	-	8	-	47	6	7	5	12	420	-	-	84
	TOTALS	215	245	142	51	220	183	22	47	213	66	22	16	17	45	575	2	133	98

STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD

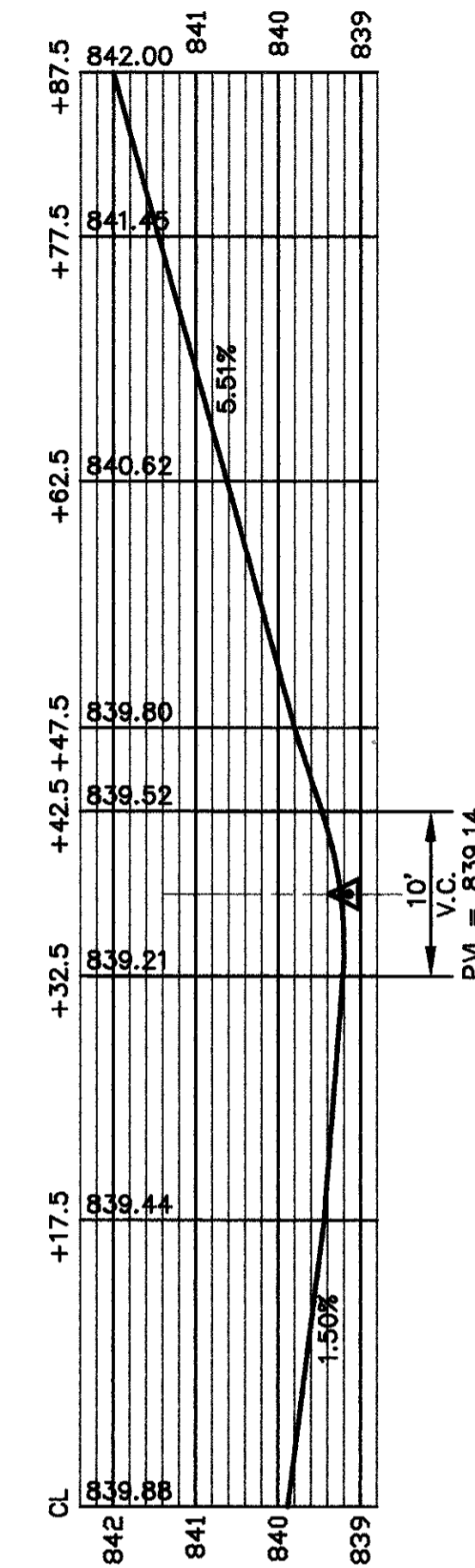
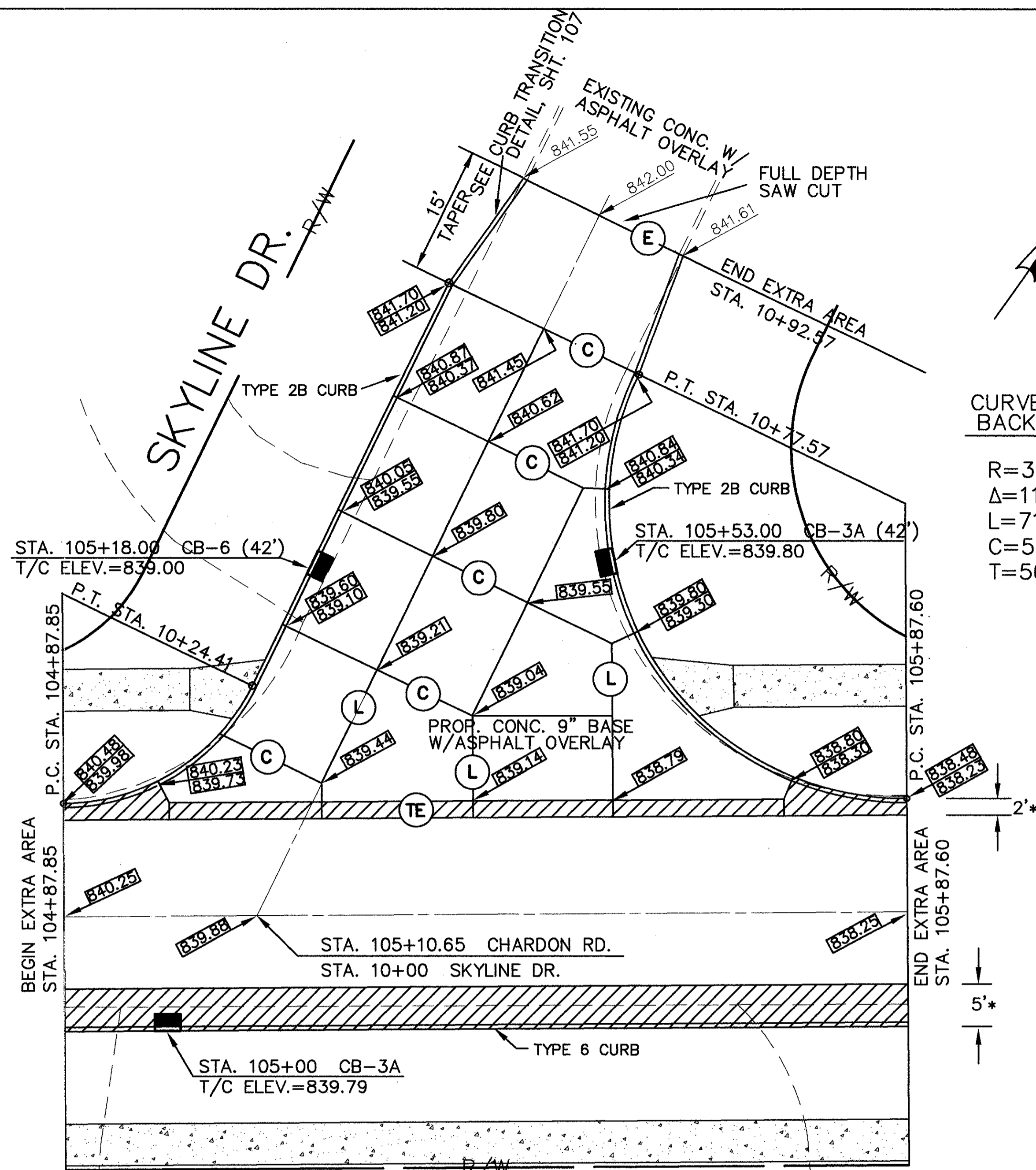
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

CURVE DATA TO BACK OF CURB

R=25.00'
Δ=63° 42' 10"
L=27.80'
C=26.39'
T=15.53'

CURVE DATA TO BACK OF CURB

R=35.00'
Δ=116° 17' 50"
L=71.04'
C=59.46'
T=56.34'



CL PROFILE - SKYLINE DR.

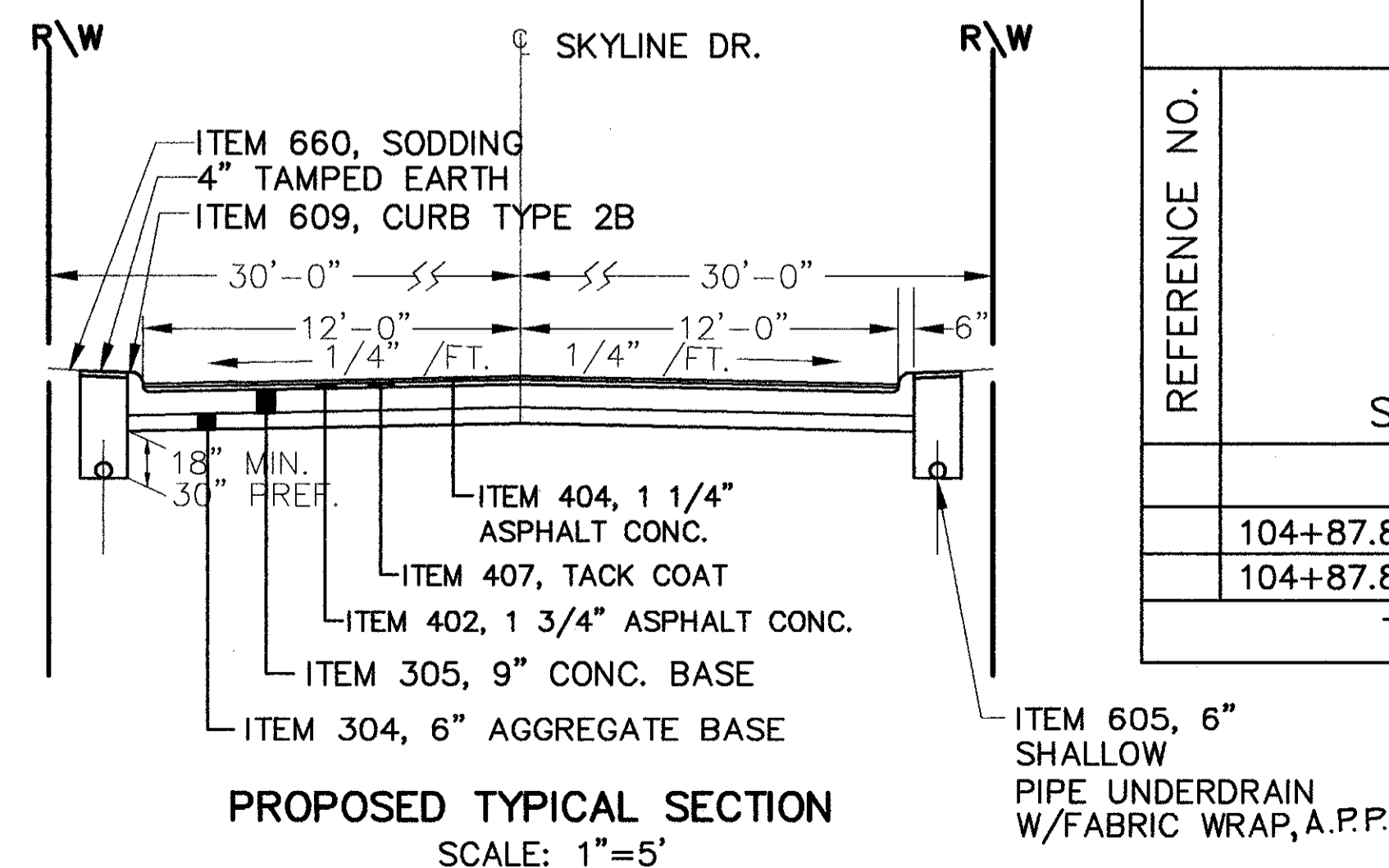
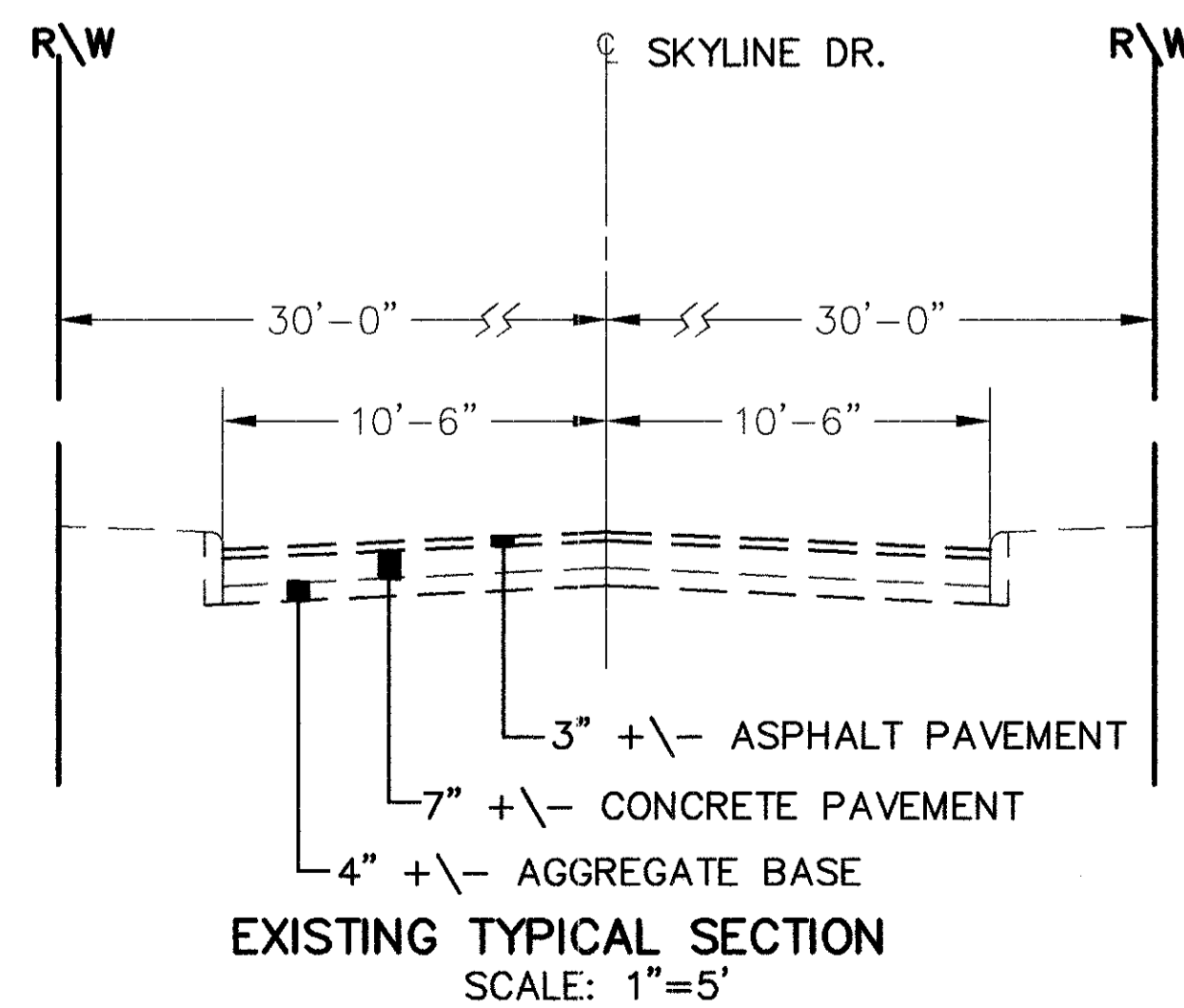
LEGEND

- (L) LONGITUDINAL JOINT, AS PER BP-2.1
- (C) CONTRACTION JOINT, AS PER BP-2.2
- (E) EXPANSION JOINT, AS PER BP-2.2
- (T) THICKENED EDGE JOINT
- (TE) THICKENED EDGE EXPANSION JOINT
- [Pattern] AREA OF NEW CONCRETE WALK
- [Line with slope] EXISTING GRADE
- [Line with slope] PROPOSED GRADE
- [Hatched] PROPOSED 15" CONCRETE BASE WITH ASPHALT OVERLAY, SEE TYPICAL SECTION SHEET 9

* SEE TYPICAL SECTION SHEET 9 FOR DETAIL

CHARDON RD.

SCALE: 1" = 10'

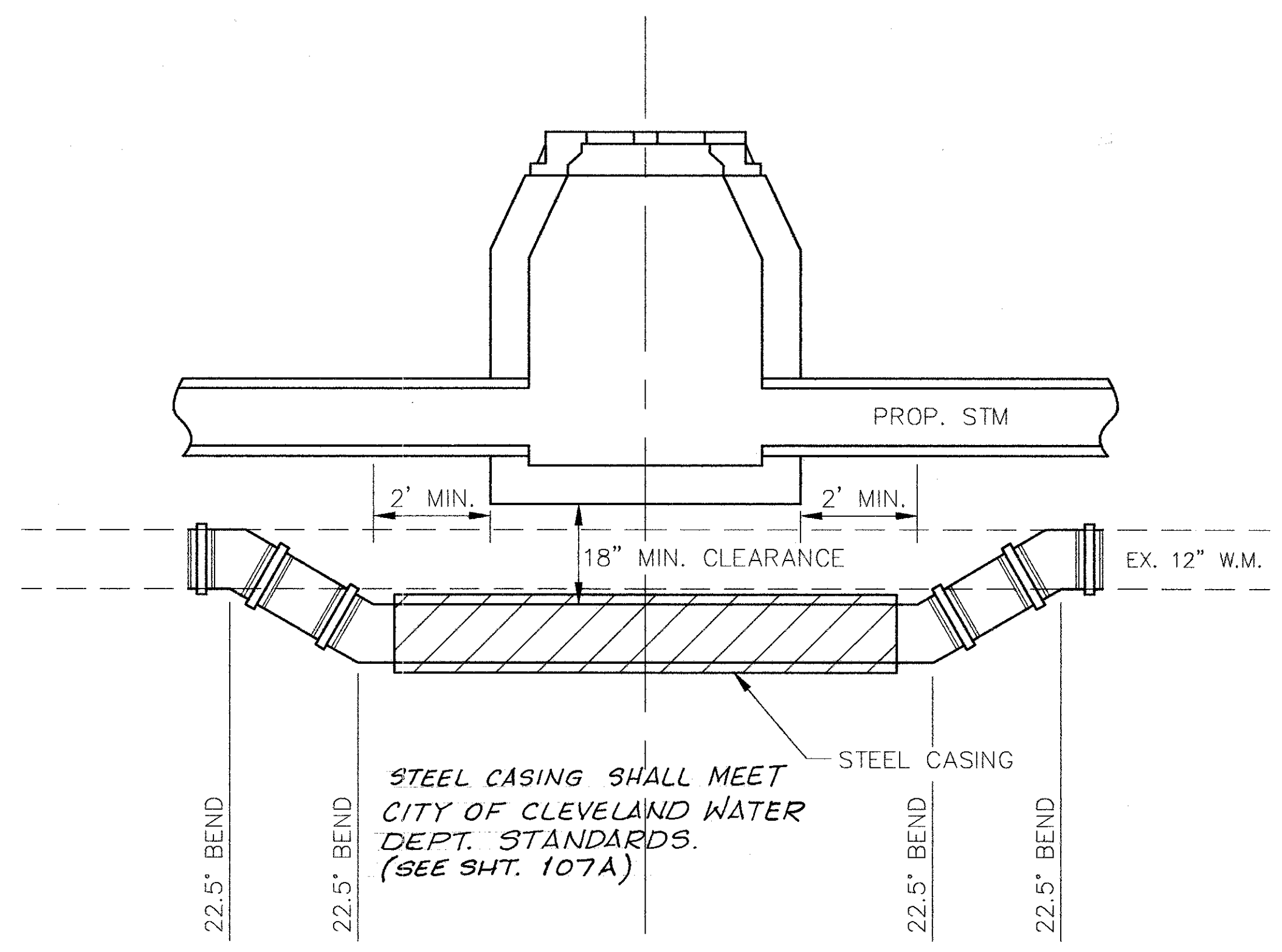


EXTRA AREA QUANTITIES

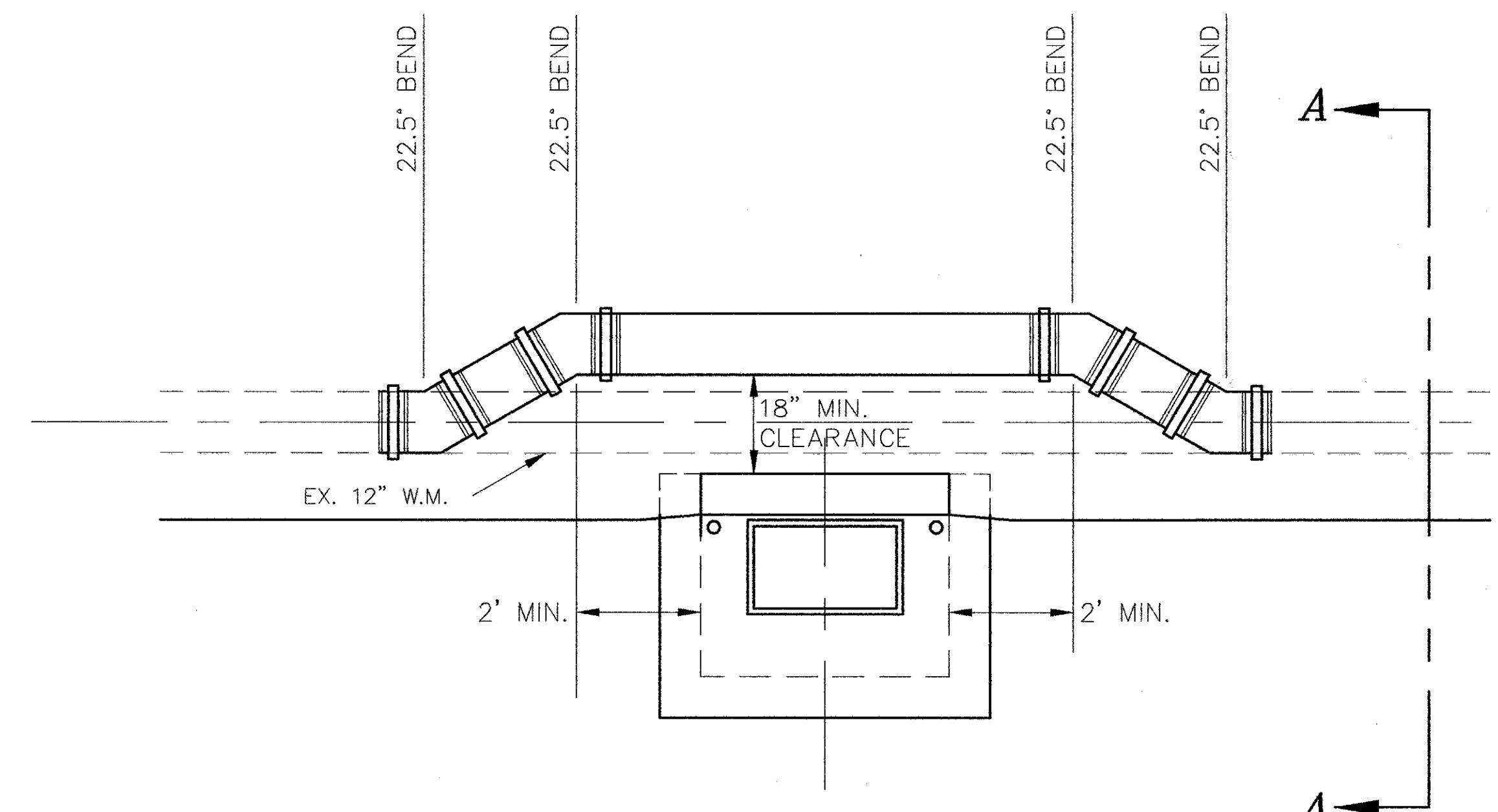
REFERENCE NO.	STATION	SIDE	202 PAVEMENT REMOVED	202 CURB REMOVAL	203 EXCAVATION	203 SUBGRADE COMPACTION	254 PAVEMENT PLANING	255 FULL DEPTH PAVEMENT SAWING	304 6" AGGREGATE BASE (LIMESTONE)	305 9" CONCRETE BASE	305 15" CONCRETE BASE	402 ASPHALT CONC. AC-20 INT. COURSE	403 ASPHALT CONC. AC-20	404 ASPHALT CONC. AC-20 SURF. COURSE	407 TACK COAT @ 0.1 GAL./S.Y.	608 4-1/2" CONC. WALK, A.P.P.	608 CURB RAMP TYPE 2	609 CURB, TYPE 2B	609 CURB, TYPE 6
	104+87.84 - 105+87.60	LT.	285	160	67	320	128	21	54	293	26	22	3	16	45	175	2	156	26
	104+87.84 - 105+87.60	RT.	-	-	-	-	95	-	10	-	56	7	6	5	15	500	-	-	100
	TOTALS		285	160	67	320	223	21	64	293	82	29	9	21	60	675	2	156	126

STEPHEN HOVANCSEK & ASSOC., INC.

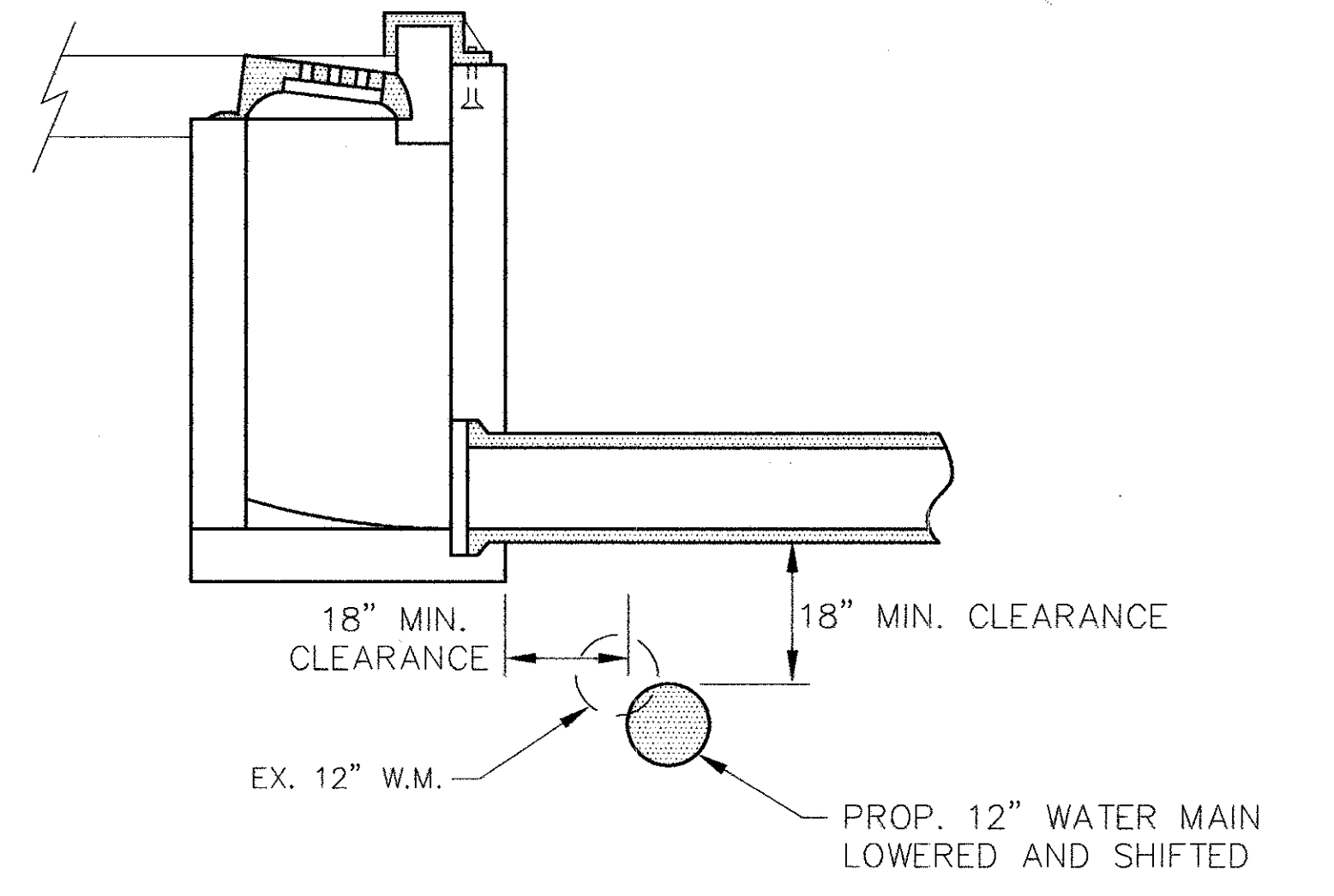
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



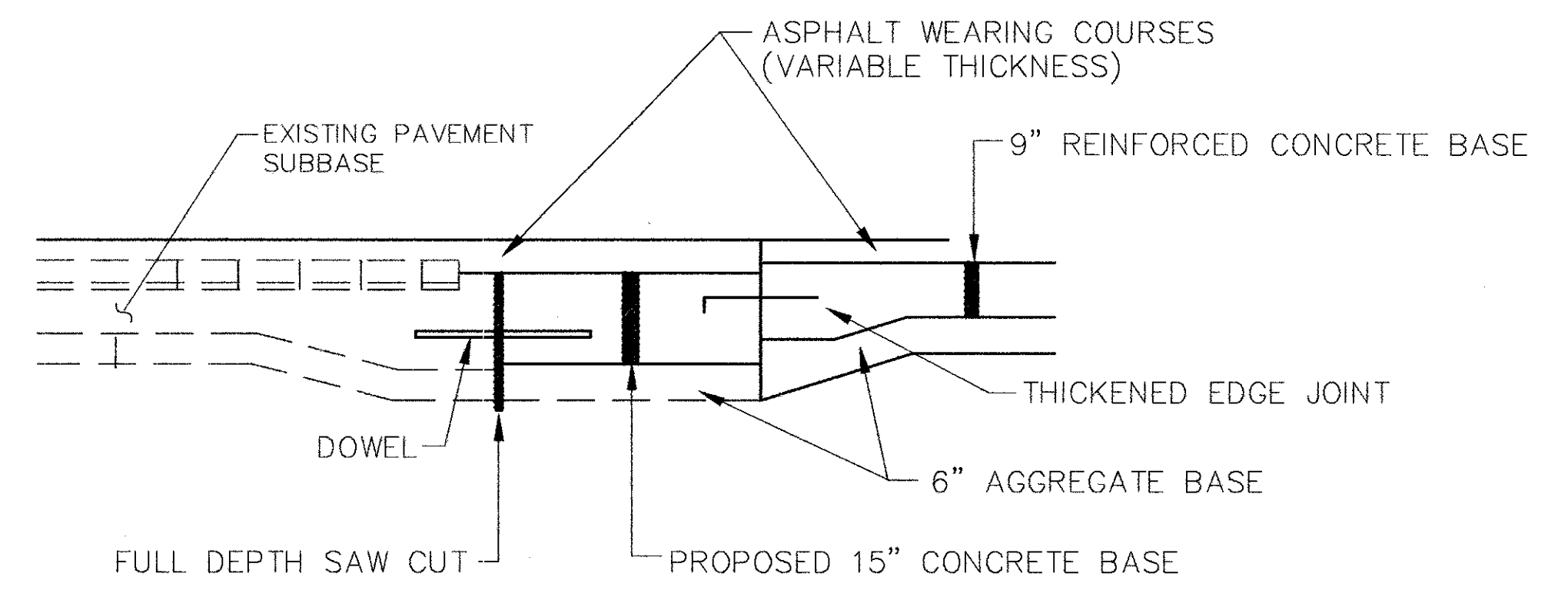
**WATER MAIN LOWERING
DETAIL**
SCALE: 1/2" = 1'-0"



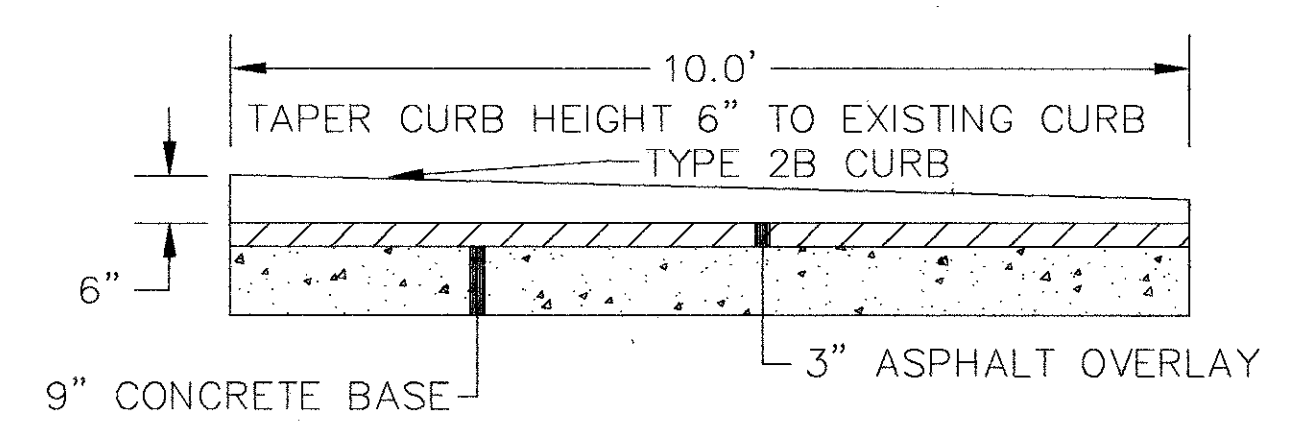
WATER MAIN RELOCATION
SCALE: 1/2" = 1'-0"



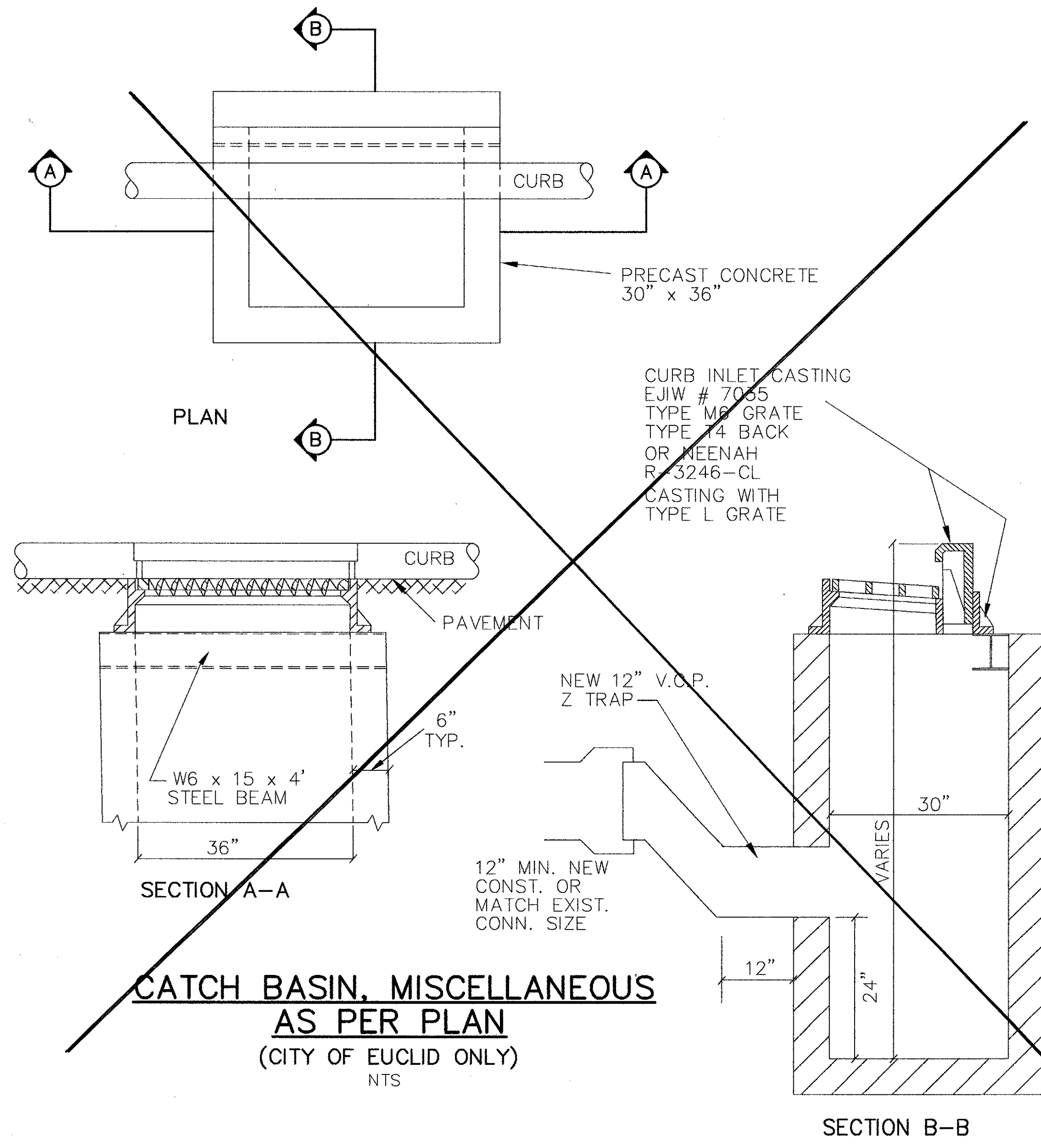
**SECTION A-A
WATER MAIN RELOCATION**
SCALE: 1/2" = 1'-0"



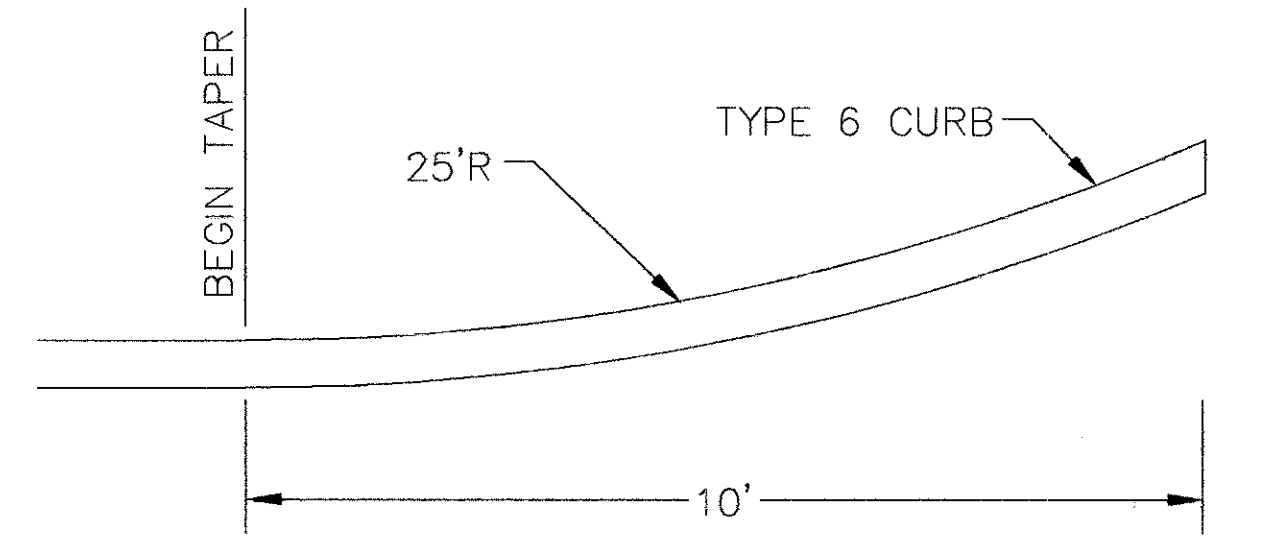
**INTERSECTION PAVEMENT
DETAIL**
SCALE: 1" = 2'-0"



**CURB TRANSITION
DETAIL**
SCALE: 1" = 2'-0"

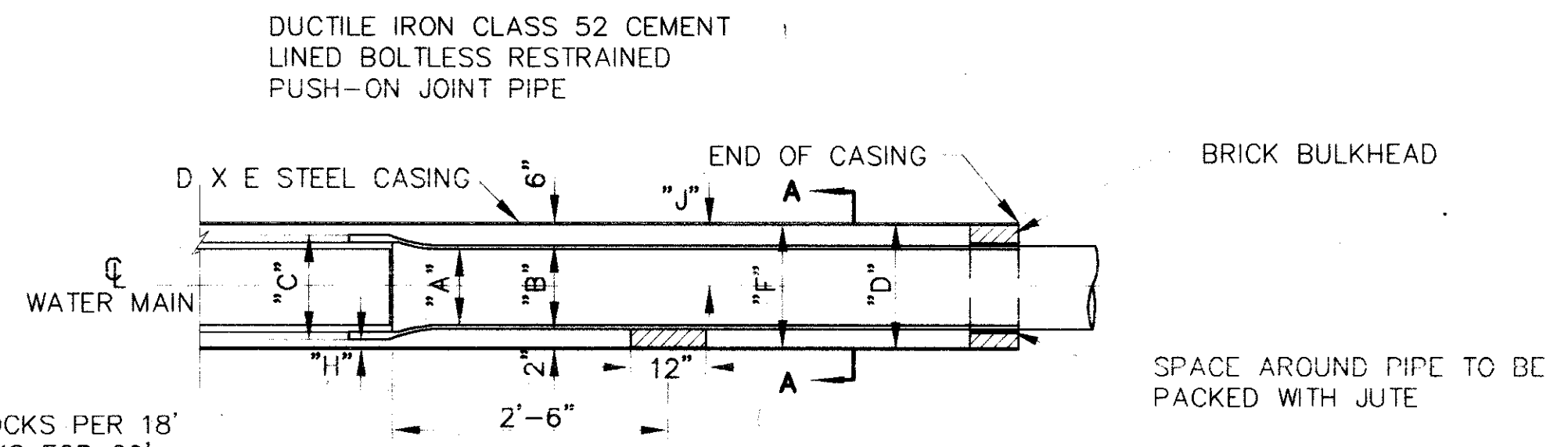


**CATCH BASIN, MISCELLANEOUS
AS PER PLAN
(CITY OF EUCLID ONLY)
NTS**



**CURB FLARE
DETAIL**
SCALE: 1" = 2'-0"

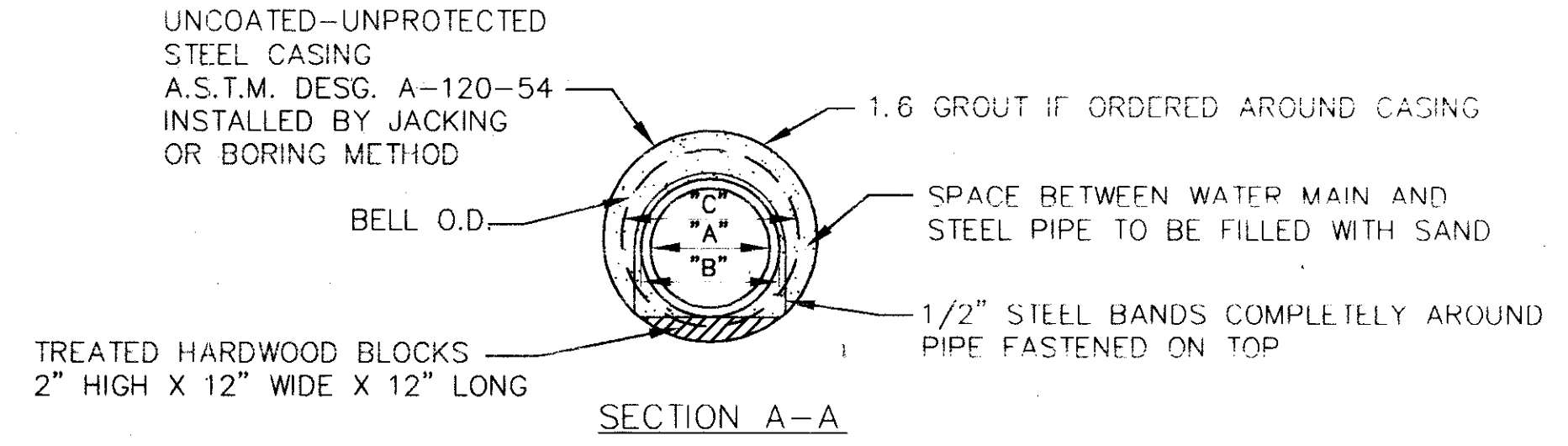
CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



3 TREATED HARDWOOD BLOCKS PER 18' LENGTHS OF PIPE, 4 BLOCKS FOR 20' LENGTHS. TWO SPACED 2'-6" FROM JOINTS. ADDITIONAL BLOCKS EVENLY SPACED

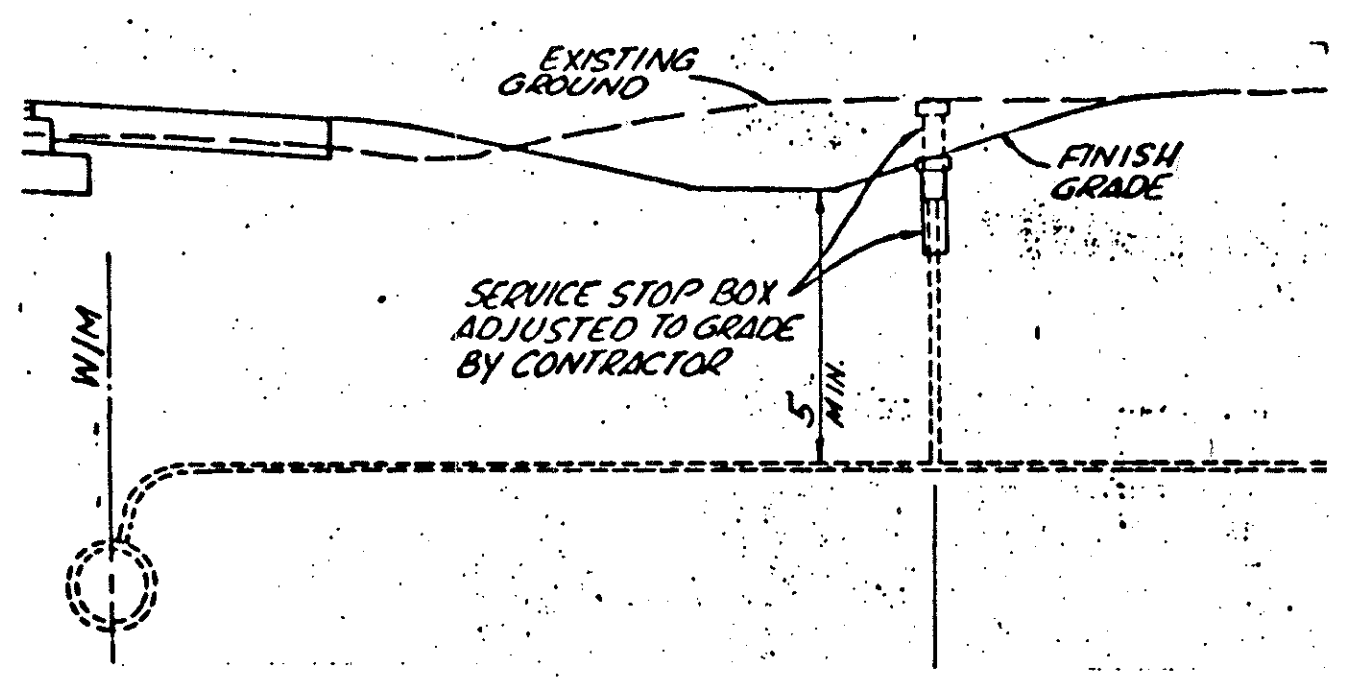
A	B	C	D	E	F	G	H	J
8"	9.05"	11.89"	16"	3/8"	15.25"	4.20"	0.58"	8.73"
12"	13.20"	16.35"	20"	3/8"	19.25"	4.05"	0.43"	10.65"
16"	17.40"	20.84"	24"	1/2"	23"	3.60"	0.28"	12.30"

END OF CASING AND HARDWOOD BLOCK DETAIL

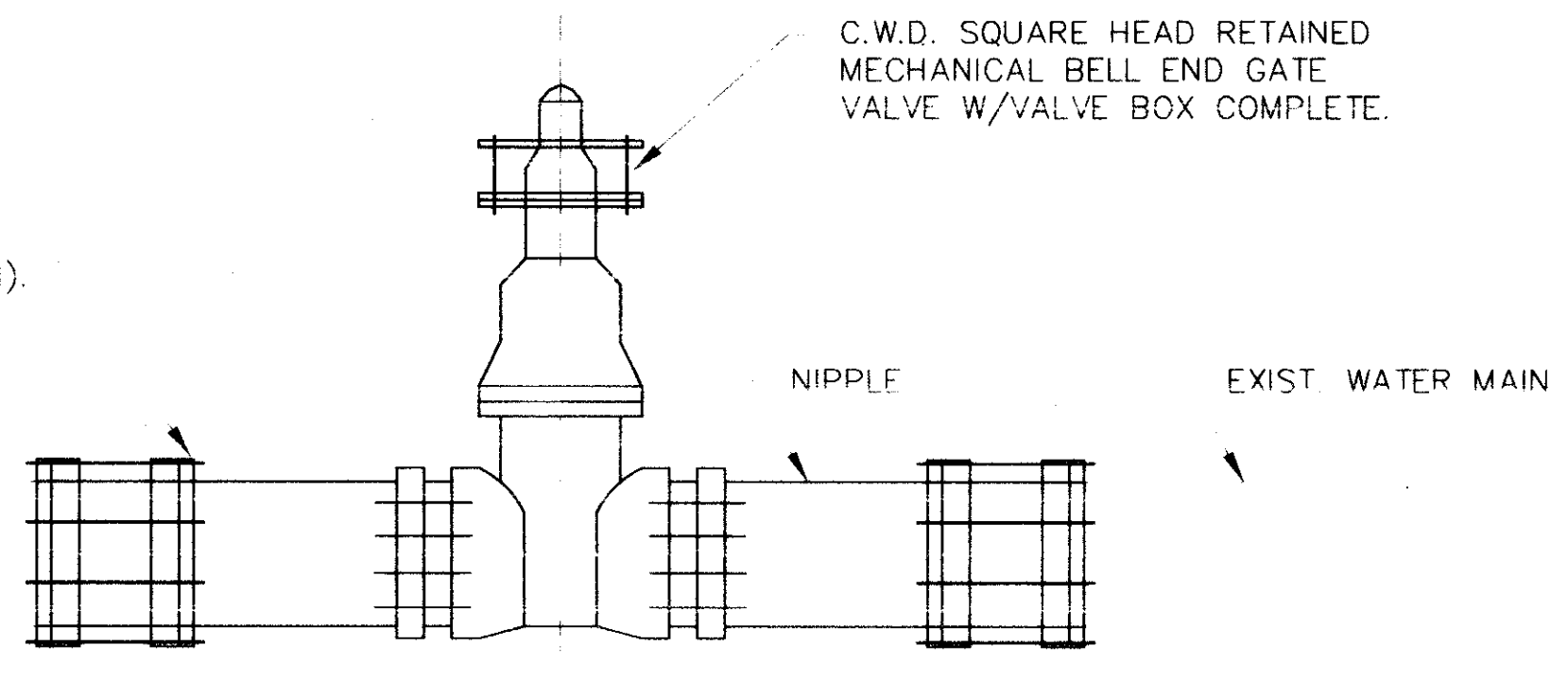


- NOTES:
- CONTRACTOR'S FAILURE TO MAINTAIN THE CASING PIPE ON LINE AND GRADE AS SHOWN OR DIRECTED, RESULTING IN THE USE OF ADDITIONAL PIPE AND/OR FITTINGS TO MAKE CONNECTIONS TO EXISTING WATER MAIN WILL BE CAUSE FOR REJECTION OF CASING INSTALLATION.
 - OUTSIDE DIAMETER OF BELL OF BOLTLESS RESTRAINED PIPE MAY VARY WITH MANUFACTURER, THEREFORE CONTRACTOR SHALL VERIFY O.D. OF BELL AND INCREASE SIZE OF STEEL CASING AS REQUIRED.

CASING DETAIL (N.T.S)

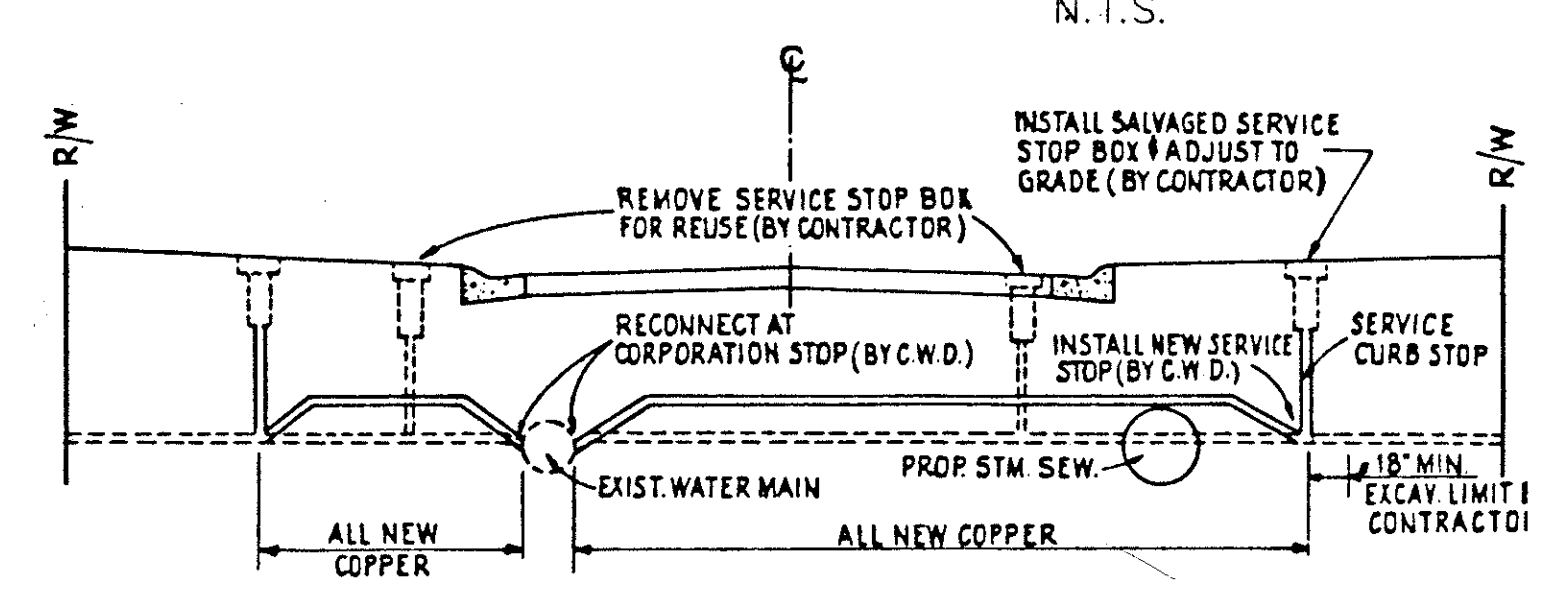


DRESSER COUPLING STYLE NO. 38 W/STOPS REMOVED OR APPROVED EQUAL; OR RETAINED MECHANICAL JOINT SOLID SLEEVES (SHORT PATTERN).

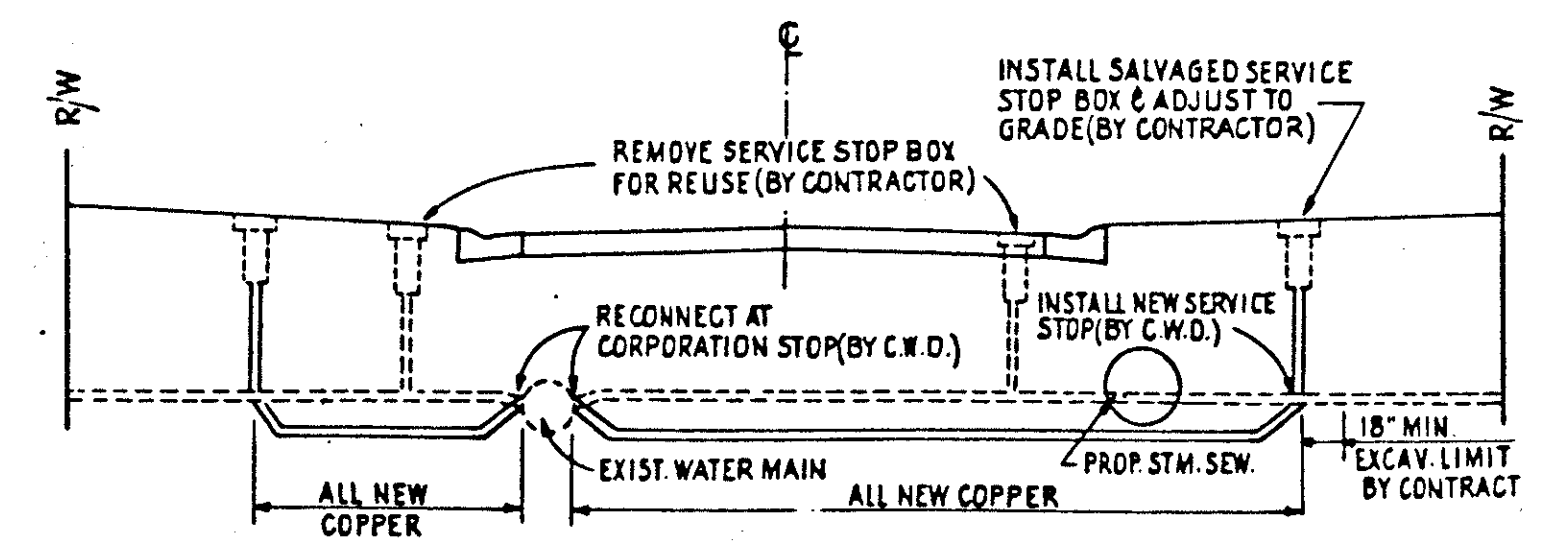


NOTE: BEFORE CUTTING EXISTING WATER MAIN, THE NIPPLES SHALL BE CONNECTED TO THE MECHANICAL JOINT BELL END GATE VALVE. AFTER CUTTING PIPE, FINAL CONNECTIONS SHALL BE MADE WITH COUPLINGS/SOLID SLEEVES AS SPECIFIED.

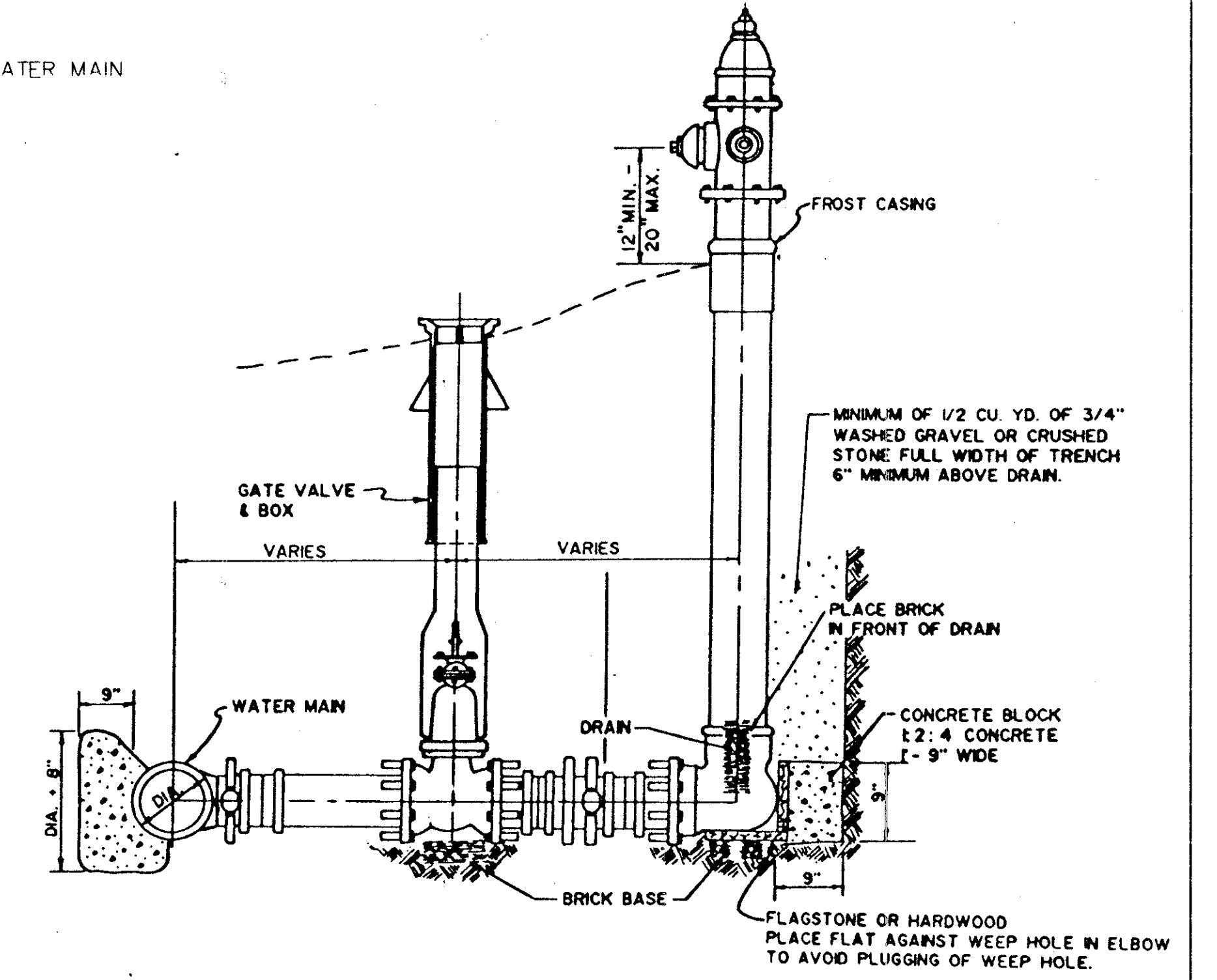
CUTTING-IN-VALVE DETAIL



RAISE AND EXTEND WATER SERVICE CONNECTION



LOWER AND EXTEND WATER SERVICE CONNECTION



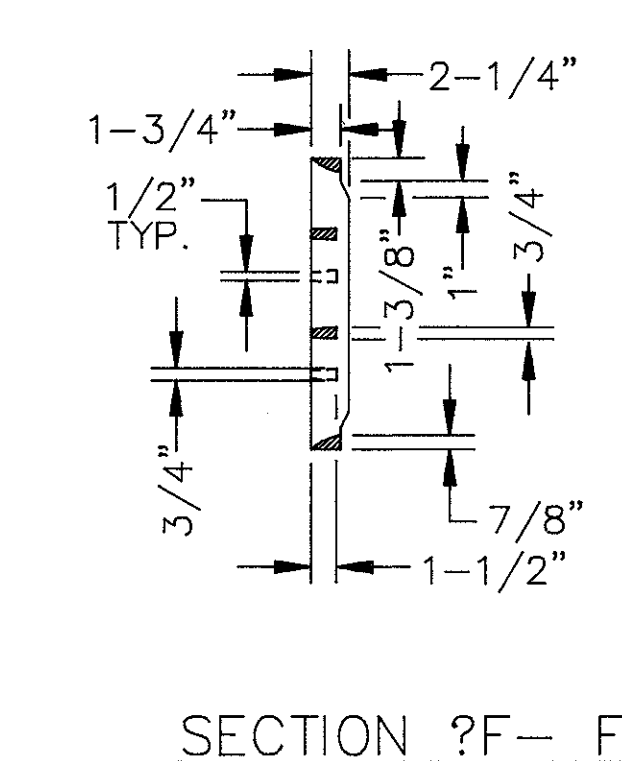
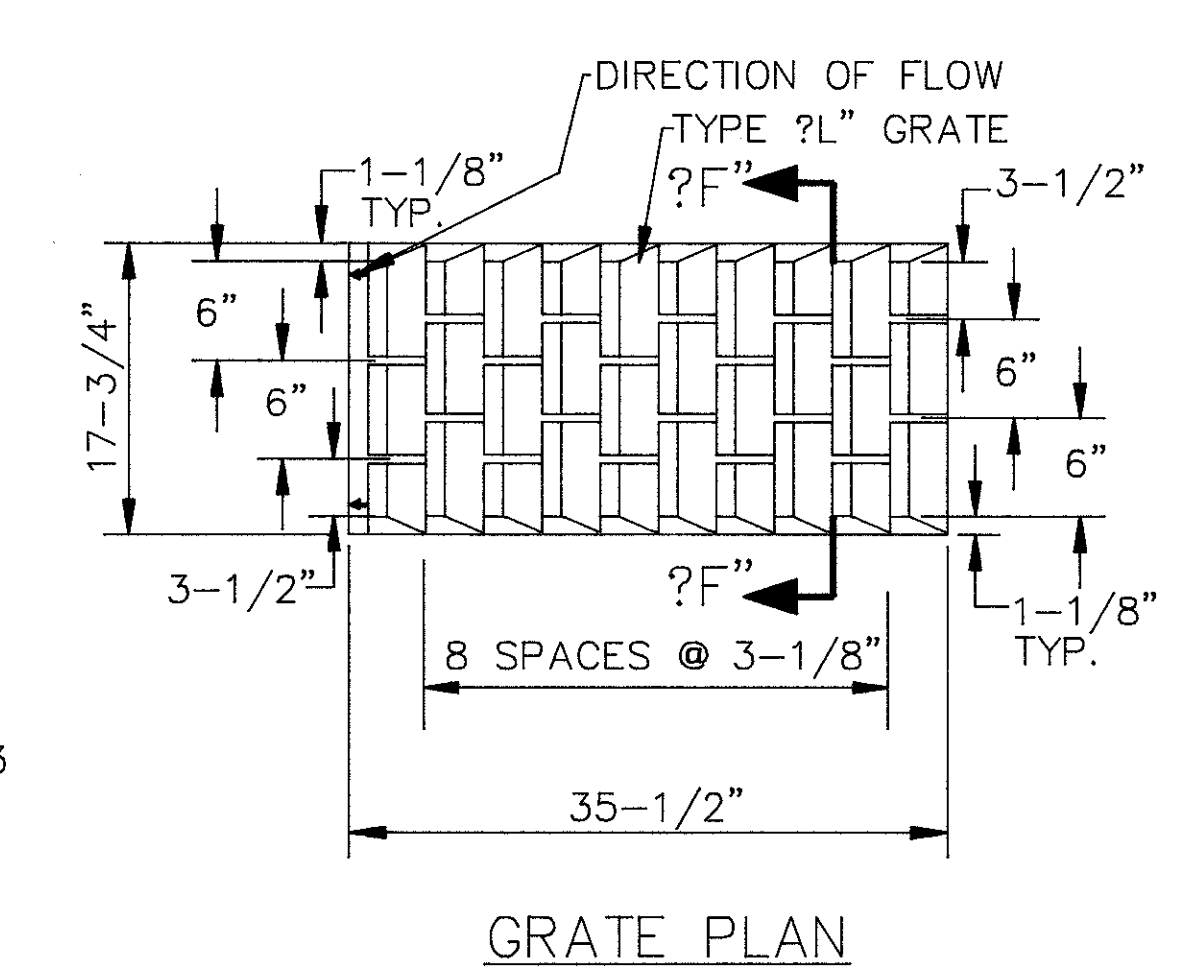
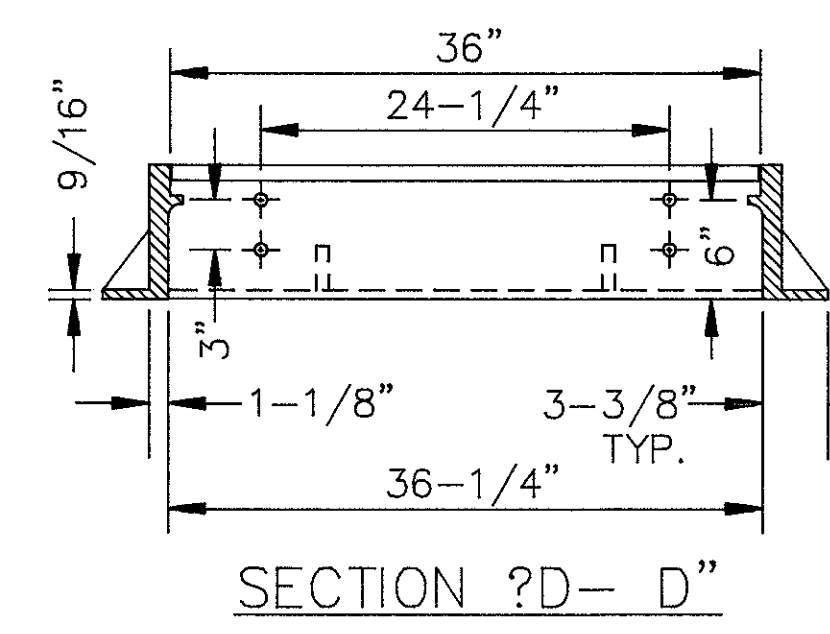
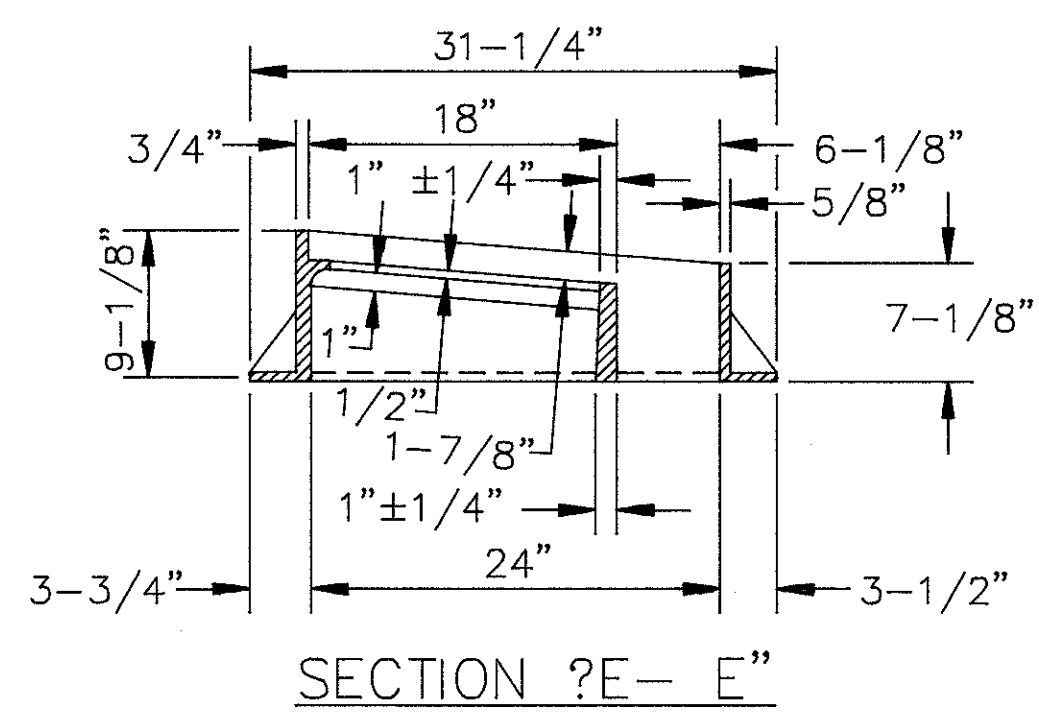
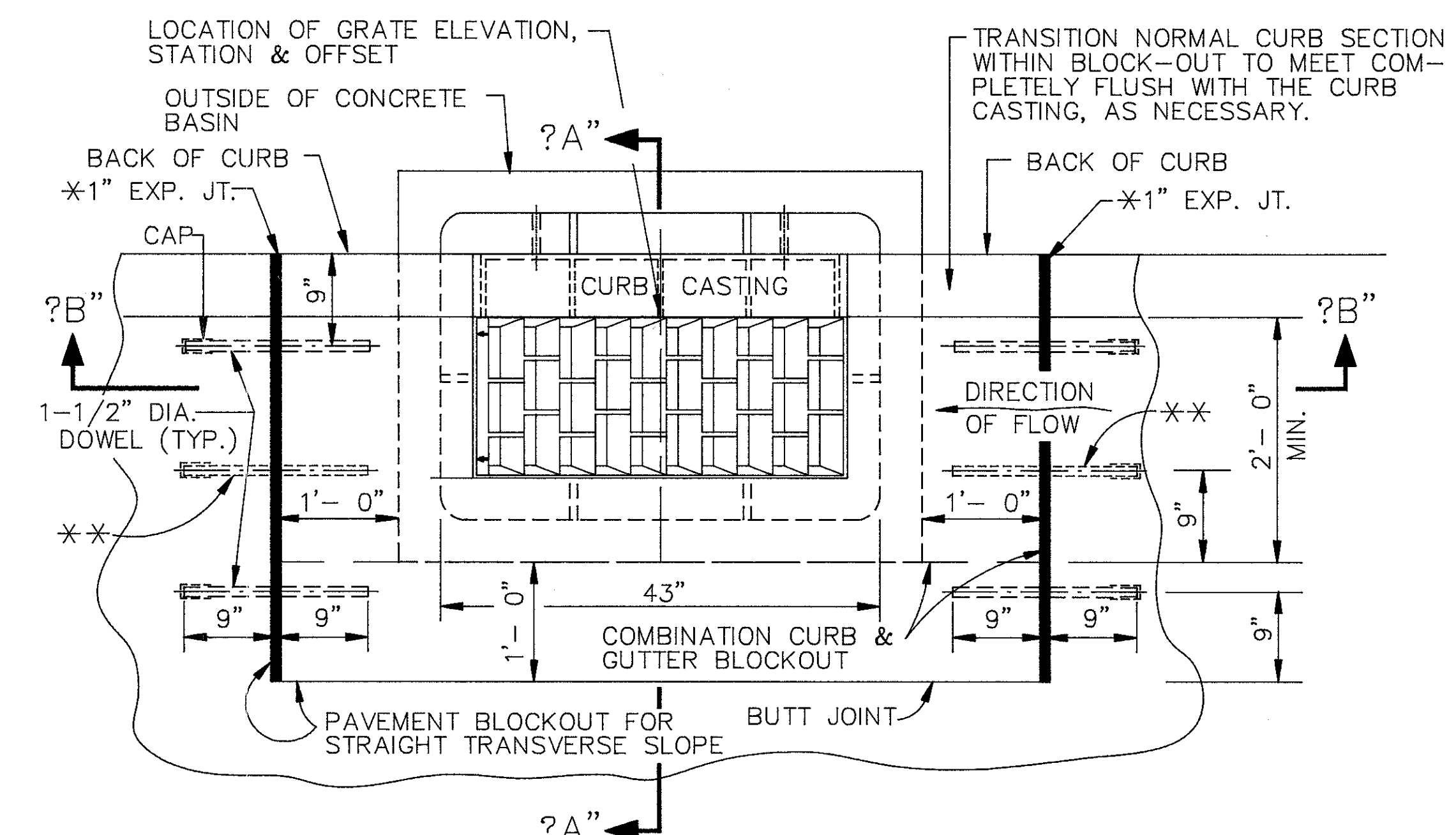
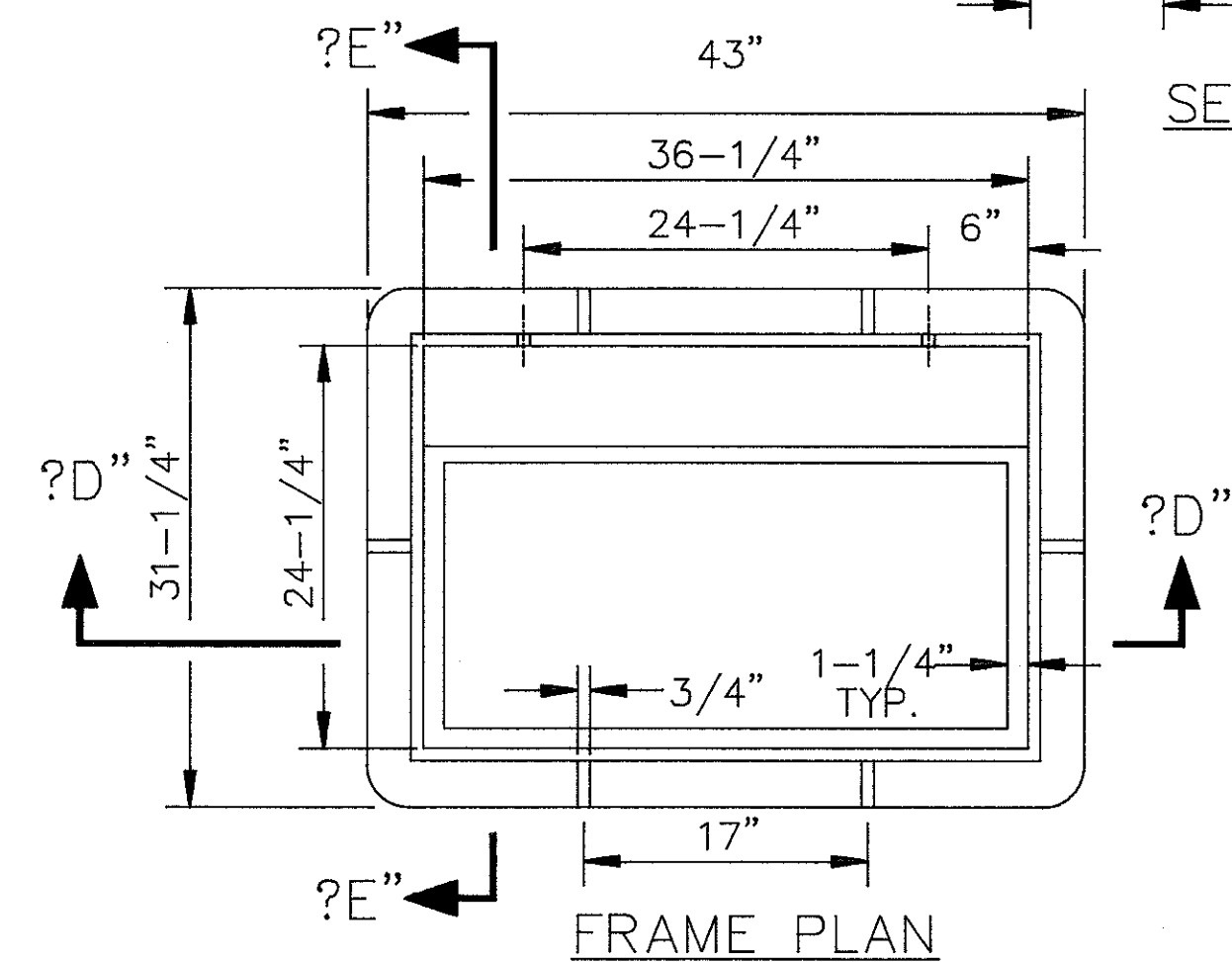
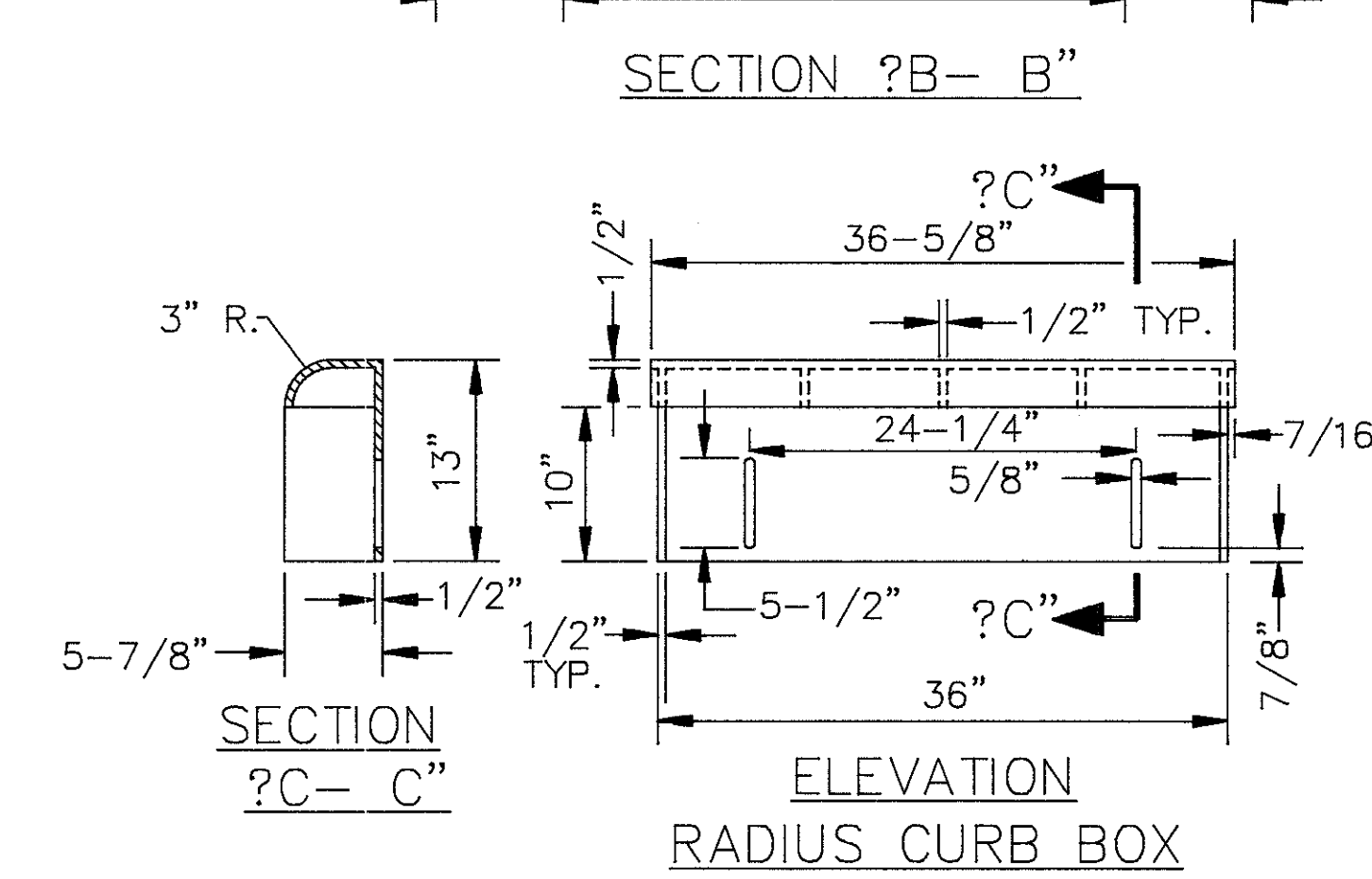
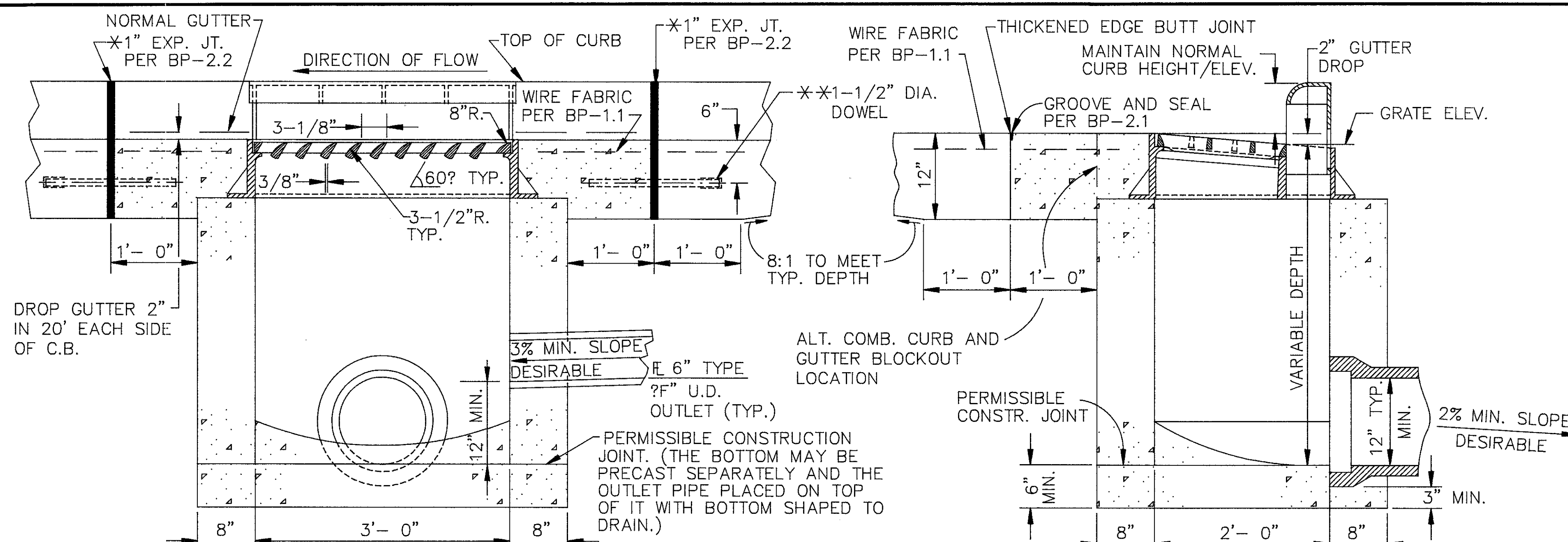
TYPICAL 6" FIRE HYDRANT ASSEMBLY INSTALLATION

NOTE:

IN LIEU OF SWIVEL BRANCH TEES AND ADAPTERS, CONTRACTORS MAY FURNISH HYDRANT BRANCHES HAVING RETAINED MECHANICAL JOINTS INCLUDING HYDRANT SHOE. ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE WRAPPED IN ACCORDANCE WITH AWWA C-105/421.02 CLASS "C" METHOD "C".

NOTE:
 ALL BOLTS AND NUTS FURNISHED WITH MECHANICAL JOINTS OR RETAINED MECHANICAL JOINTS INCLUDING RETAINER OR WEDGE ACTION TYPE GLANDS SHALL BE STAINLESS STEEL, CORTENSTEEL, COPPER-BEARING DUCTILE IRON, OR EQUIVALENT HIGH STRENGTH, LOW ALLOW CORROSION RESISTANT STEEL AND HAVE FIELD APPLIED ONLY ONE (1) COAT OF BITUMASTIC PAINTING PRIOR TO POLYETHYLENE WRAPPING.

HYDRANT DETAIL



NOTES

CASTINGS SHALL MINIMALLY MEET THE REQUIREMENTS OF 604-711.12, A.S.T.M. A 48, CLASS 35 GRAY IRON OR 711.13 DUCTILE IRON. AFTER ACCEPTANCE, EXPOSED PARTS OF CURB CASTING TO BE THOROUGHLY CLEANED AND GIVEN ONE COAT OF ASPHALT VARNISH OR COAL TAR PITCH PAINT, AT THE SITE.
 MINIMUM FRAME WEIGHT = 330 LBS.
 MINIMUM GRATE WEIGHT = 130 LBS.
 MINIMUM CURB CASTING WEIGHT = 104 LBS.
 TOTAL MINIMUM ASSEMBLY WEIGHT = 564 LBS.
 SUBJECT TO THE ABOVE, THE FOLLOWING OR APPROVED EQUAL CASTINGS ARE ACCEPTED:
 NEENAH No. R-3246- CL AND EAST JORDAN No. 7035 WITH M6 GRATE.

BEARING AREAS OF FRAME AND GRATE SHALL BE SO FITTED AND FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME. NO PROJECTIONS SHALL EXIST ON BEARING AREAS OF EITHER CASTING AND THE GRATE SHALL SEAT IN ITS FRAME WITHOUT ROCKING. EACH FRAME AND GRATE SHALL BE FITTED, MATCHED AND MARKED BEFORE DELIVERY TO THE PROJECT.

DOWELS: FOUR (4) 1-1/2"x18" DOWELS ARE REQUIRED FOR CONCRETE PAVEMENT OR GUTTER BLOCKOUT. SEE BP-2.2 FOR DOWEL DETAILS.

BRICK OR CONCRETE BLOCK SIDE WALLS, WHEN USED IN LIEU OF PRECAST CONCRETE, SHALL BE EIGHT (8) INCHES NOMINAL THICKNESS.

PRECAST CONSTRUCTION IS PERMITTED, (EXCEPT FOR THE BLOCKOUT PAVEMENT) AND CONCRETE SHALL MEET THE REQUIREMENTS OF 706.13 WITH SIX PLUS OR MINUS TWO PERCENT (6±2%) AIR VOID CONTENT IN THE HARDENED CONCRETE. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF SIX (6) INCHES AND REINFORCING SHALL BE SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.

BLOCKOUT: WHERE EITHER SIDE OF THE CATCH BASIN BLOCKOUT IS ALIGNED WITH A CONTRACTION JOINT (AS IS TYPICALLY DESIRABLE), THE CONTRACTION JOINT SHALL BE THICKENED AND CONTINUED IN KIND WITHIN THE LIMITS OF THE BLOCKOUT. EXCEPT AS SPECIFIED ABOVE, BLOCKOUTS SHALL BE LOCATED NO CLOSER THAN FIVE (5) FEET FROM THE NEAREST PAVEMENT JOINT.

WHERE THE SPECIFIED CATCH BASIN WORK REQUIRES THE CONSTRUCTION/RECONSTRUCTION OF BLOCKOUTS IN EXISTING PAVEMENT, THE BLOCKOUTS SHALL CONFORM, AS CLOSELY AS POSSIBLE, TO THE DETAILS SHOWN HEREON EXCEPT THAT THE DOWELS SHALL BE PLACED/REPLACED IN ACCORDANCE WITH THE ?SECTION-TYPE X" JOINT, PER CUYAHOGA COUNTY CONSTRUCTION DRAWING BP-2.5C (?SECTION-TYPE Y" JOINT WHERE BLOCKOUT JOINT IS AT AN EXISTING CONTRACTION OR HINGE JOINT LOCATION). PAYMENT SHALL BE INCLUDED IN THE ITEM 604-CATCH BASIN, CUYAHOGA COUNTY 3-C WORK SPECIFIED; AND/OR AS DIRECTED BY THE ENGINEER.

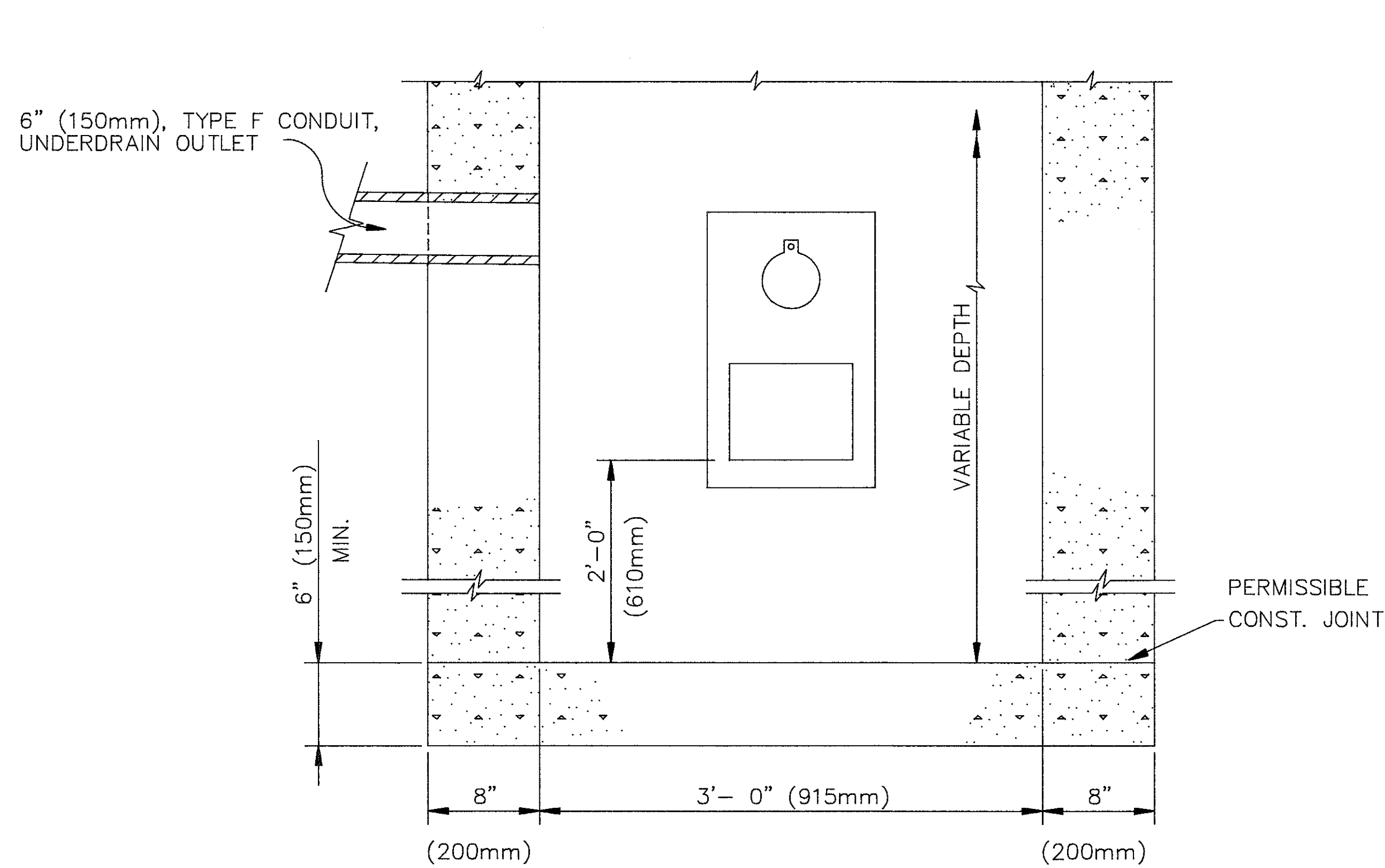
A CLASS ?C" CONCRETE APRON, THE SIZE OF THE TWO (2) FOOT GUTTER BLOCKOUT, SHALL BE CAST IN PLACE IN FLEXIBLE PAVEMENT AND NO DOWELS ARE REQUIRED.

ANY/ALL EXTRA MATERIAL, LABOR AND EQUIPMENT REQUIRED TO CONSTRUCT THE PAVEMENT, CURB, SUBBASE, SUBGRADE AND BACKFILL WITHIN THE BLOCKOUT AREAS, IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL BE INCLUDED IN THE UNIT PRICE BID, PER EACH, FOR THE ITEM 604-CATCH BASIN, CUYAHOGA COUNTY NO. 3C WORK SPECIFIED.

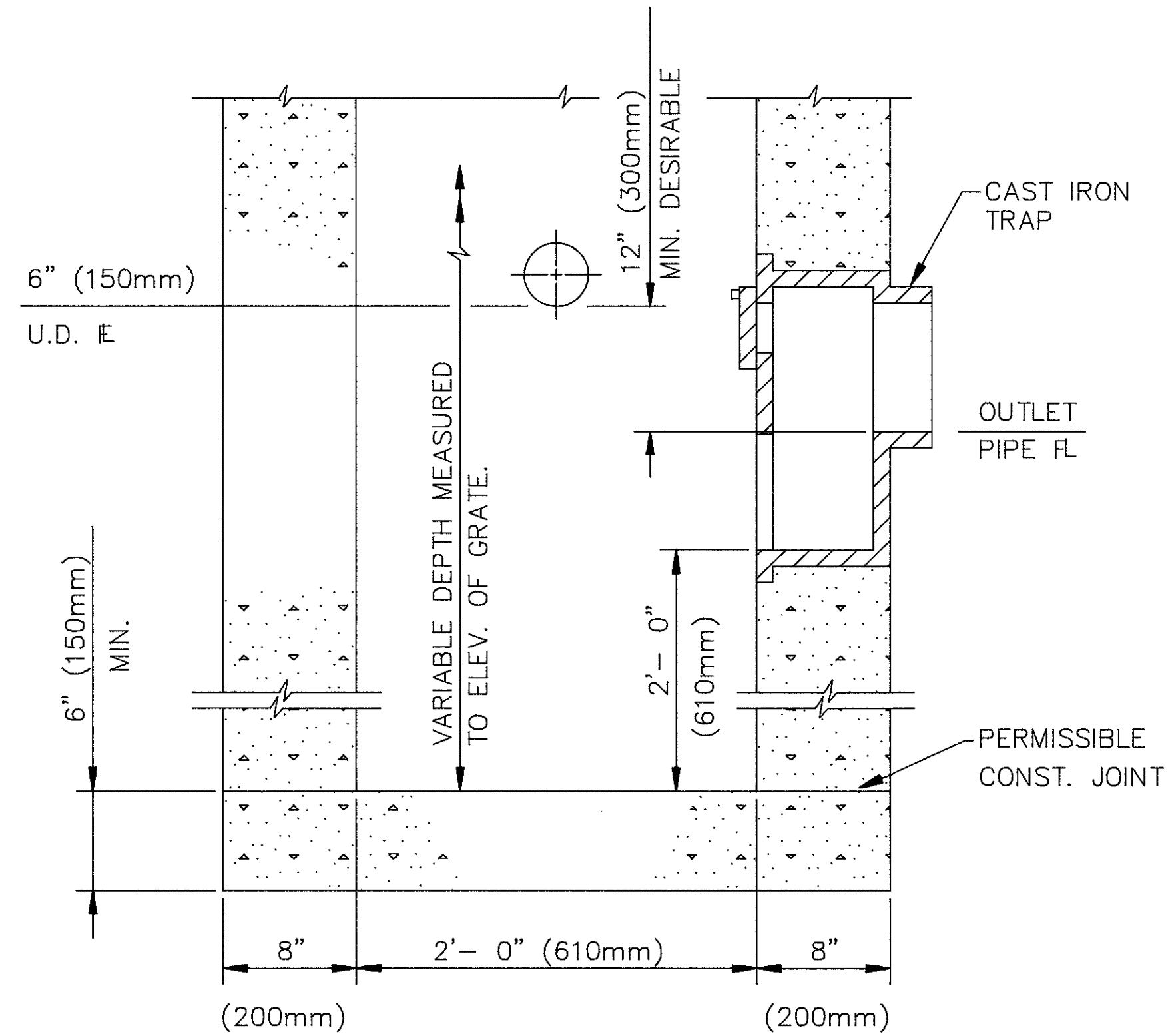
THIS CATCH BASIN IS NOT INTENDED FOR USE WITH MOUNTABLE TYPE CURBS NOR SHOULD IT BE LOCATED WITHIN A DRIVE APRON. (SEE O.D.O.T. STANDARD CONSTRUCTION DRAWING No. CB-6).

CUYAHOGA COUNTY ENGINEER	
CATCH BASIN	DATE
	7-15-80 5-5-87 2-8-88 3-9-92 5-22-95
CONSTRUCTION DRAWING	CB-3C
(ENGLISH VERSION)	

CUYAHOGA COUNTY 3C CATCH BASIN W/SUMP & TRAP



*SECTION ?B- B"



*SECTION ?A-A"

NOTES

* TO BE USED IN CONJUNCTION WITH CUYAHOGA COUNTY CONSTRUCTION DRAWING NO. CB-3C.

CASTING: CAST IRON TRAP SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF ITEM 604 AND SHALL HAVE A MINIMUM WEIGHT OF 125 POUNDS (57 kg). PROVIDED THEY COMPLY WITH THE SPECIFICATIONS, DETAILS, DIMENSIONS AND MINIMUM WEIGHTS, NEENAH No. R-3707-12, EAST JORDAN No. 5964-12 OR APPROVED EQUAL CASTINGS ARE ACCEPTABLE.

PAYMENT: TRAP TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 604- CATCH BASIN, CUYAHOGA COUNTY NO. 3C WITH SUMP AND TRAP.

CUYAHOGA COUNTY ENGINEER

CATCH
BASIN

DATE
5-5-87
2-8-88
3-9-92
5-22-95

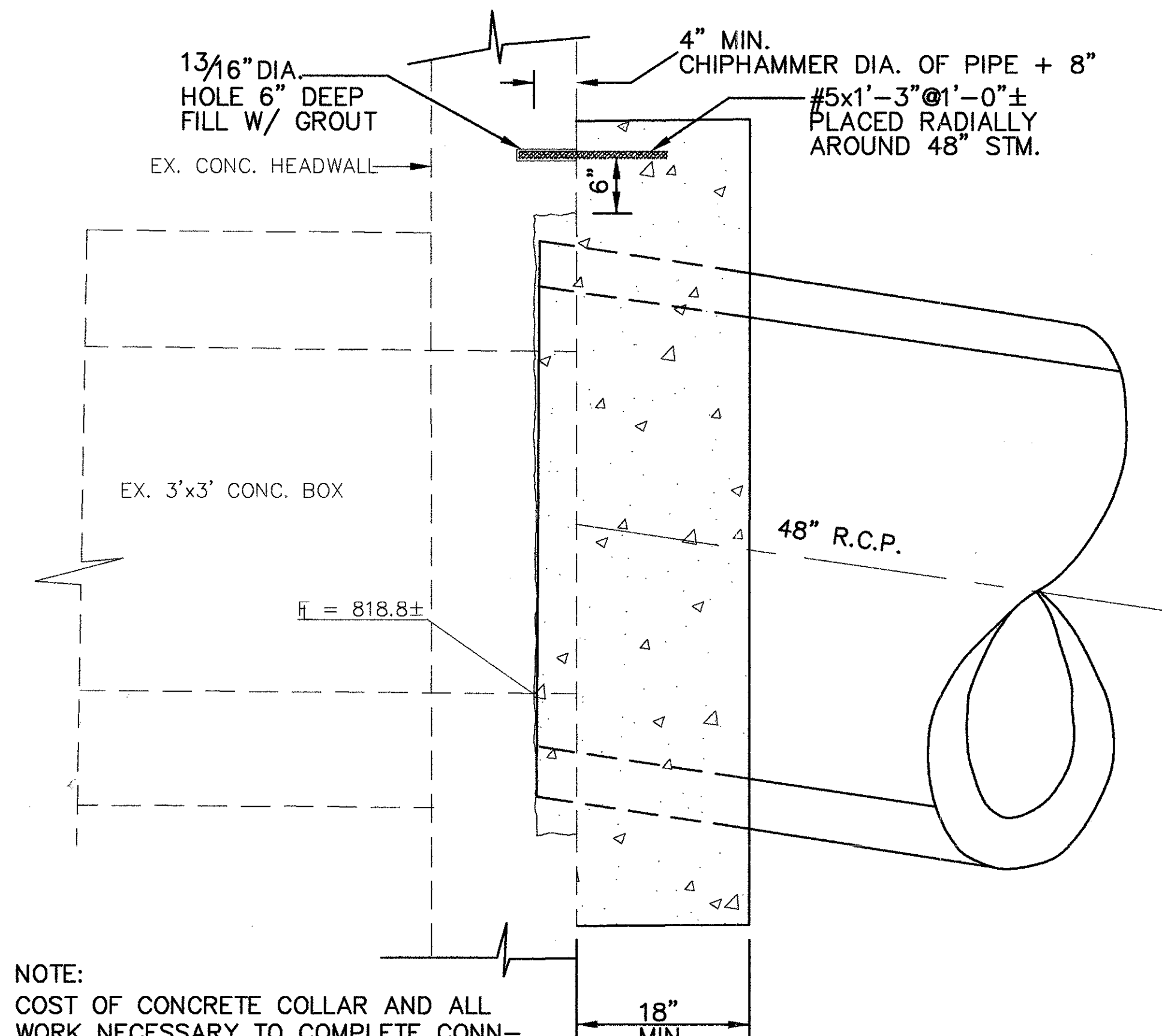
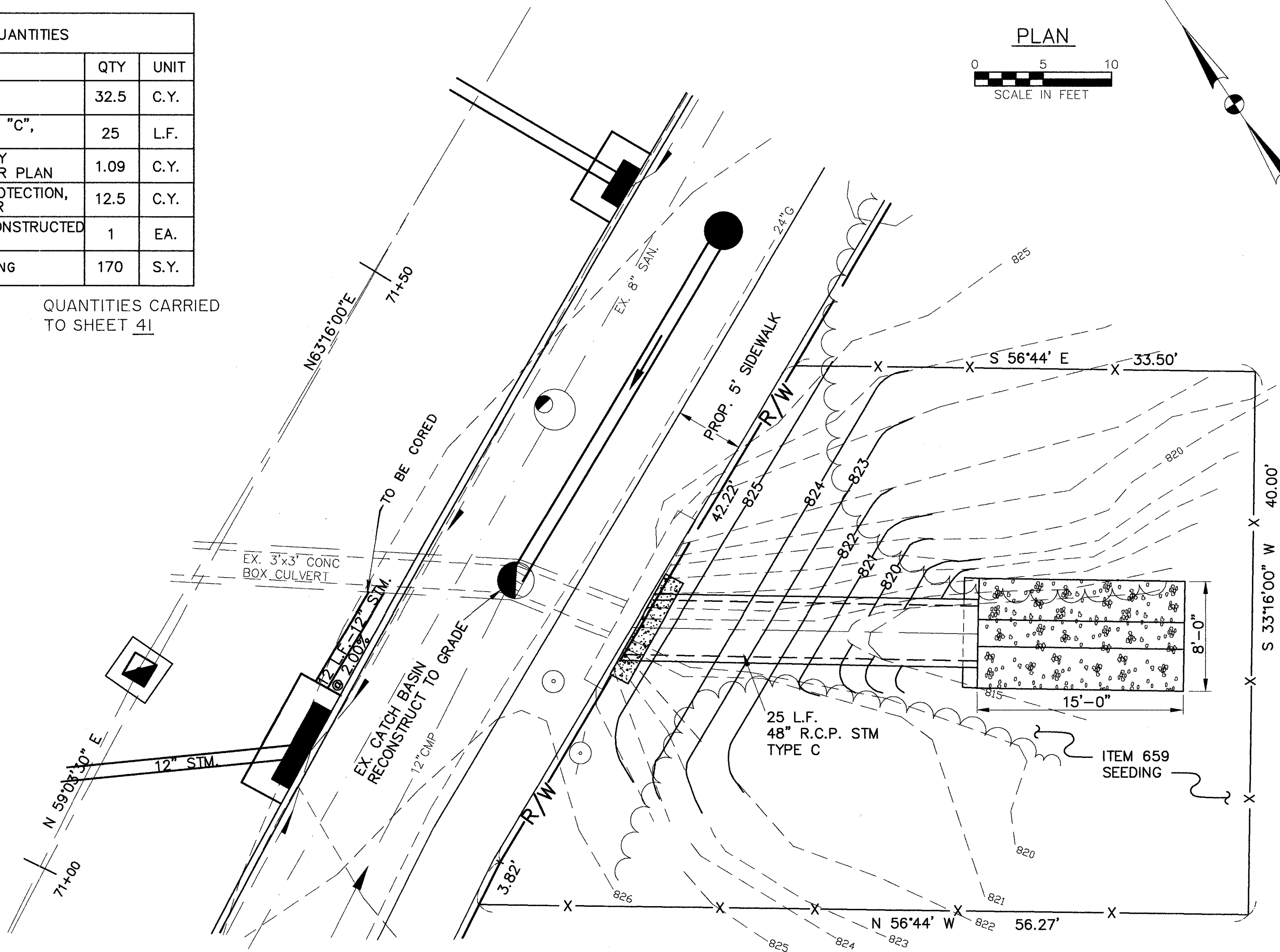
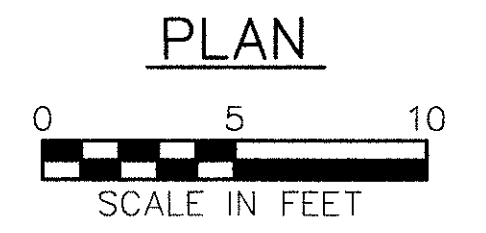
CONSTRUCTION DRAWING CB-3C S/T

107C
126

CULVERT QUANTITIES			
ITEM	DESCRIPTION	QTY	UNIT
203	EMBANKMENT	32.5	C.Y.
603	48" CONDUIT, TYPE "C", AS PER PLAN	25	L.F.
602	CONCRETE MASONRY STD HW 4B, AS PER PLAN	1.09	C.Y.
601	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	12.5	C.Y.
604	CATCH BASIN, RECONSTRUCTED TO GRADE	1	EA.
659	SEEDING & MULCHING	170	S.Y.

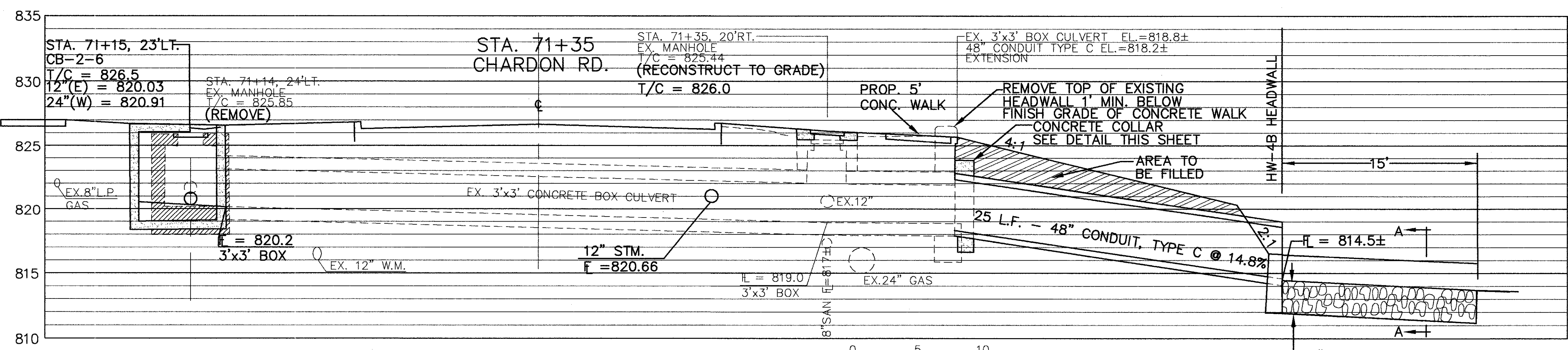
QUANTITIES CARRIED TO SHEET 41

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

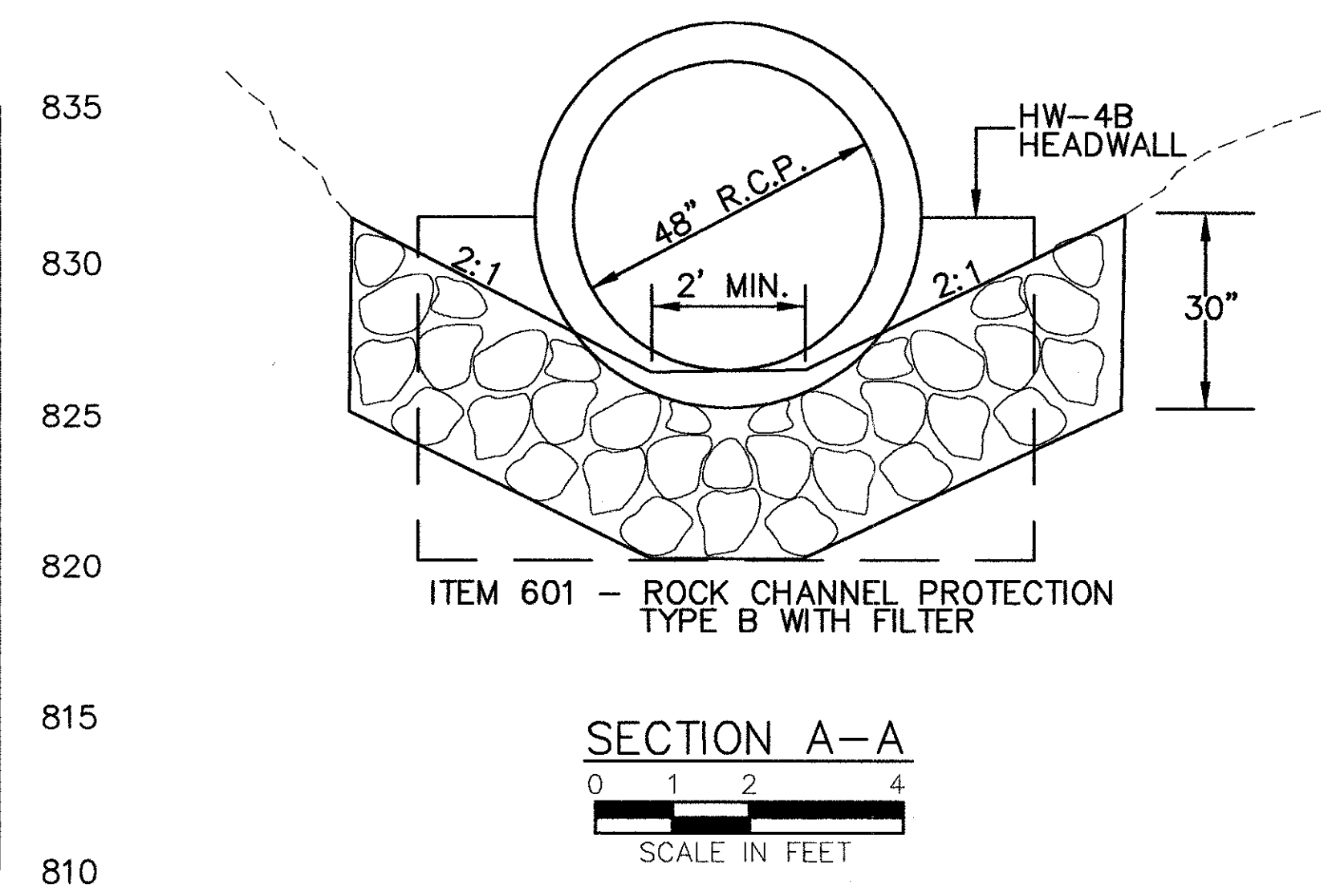
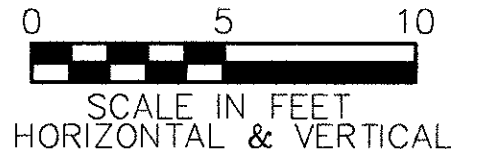


NOTE:
COST OF CONCRETE COLLAR AND ALL WORK NECESSARY TO COMPLETE CONNECTIONS TO EXISTING HEADWALL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 603 CONDUIT.

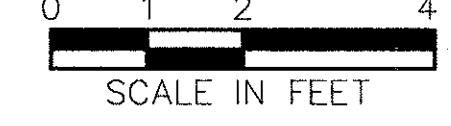
CONCRETE COLLAR DETAIL



PROFILE



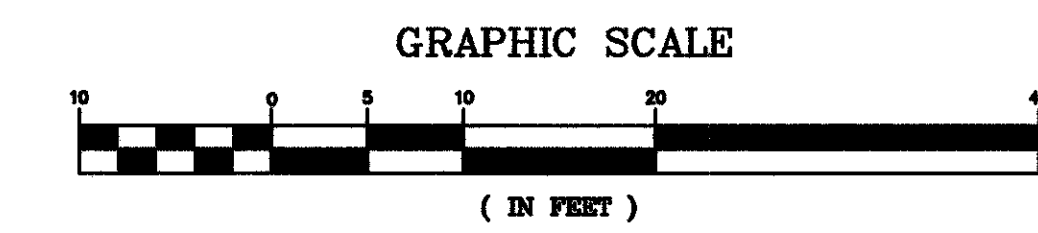
SECTION A-A



STEPHEN HOVANCSEK & ASSOC., INC.

CHARDON ROAD

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD

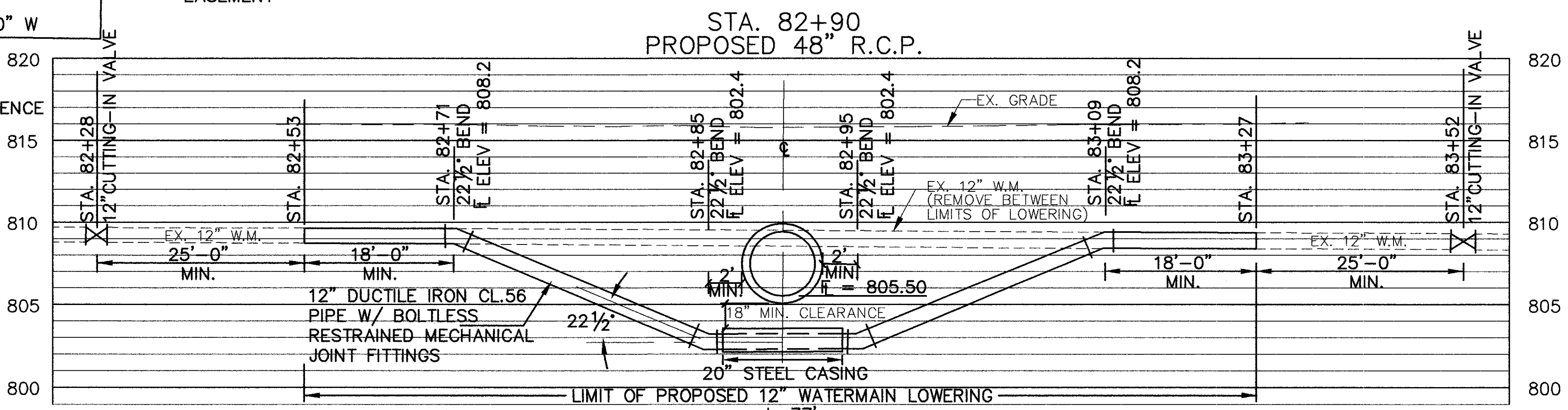
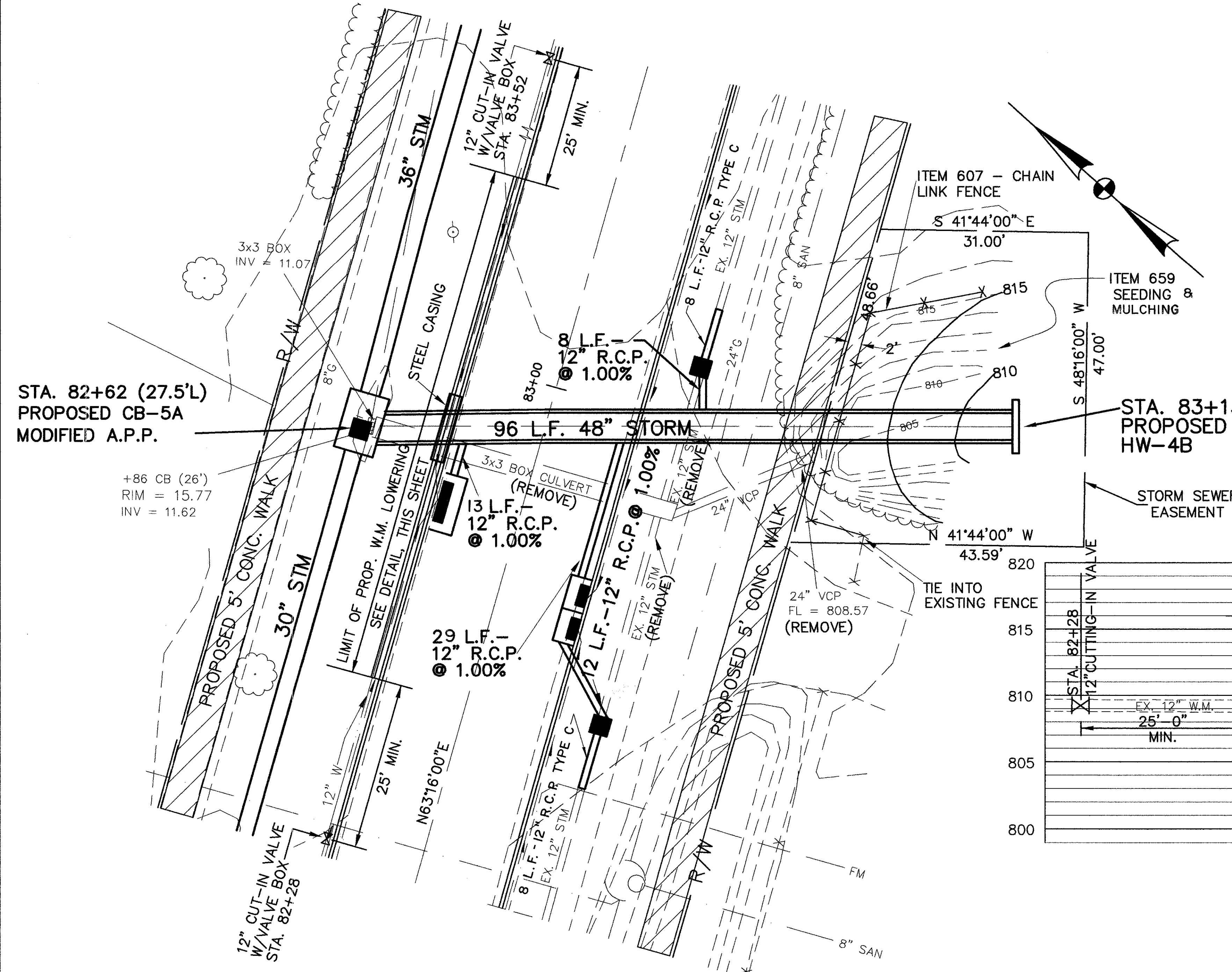


WATERWORK QUANTITIES			
ITEM	DESCRIPTION	QTY.	UNIT
638	12" WATER MAIN, D.I.P. ANSI CL. 56	77	L.F.
638	12" CUTTING-IN SLEEVE, VALVE & BOX	2	EA.
638	STEEL CASING	9	L.F.

FOR WATERWORK SUB-SUMMARY
 SEE SHEET 39.

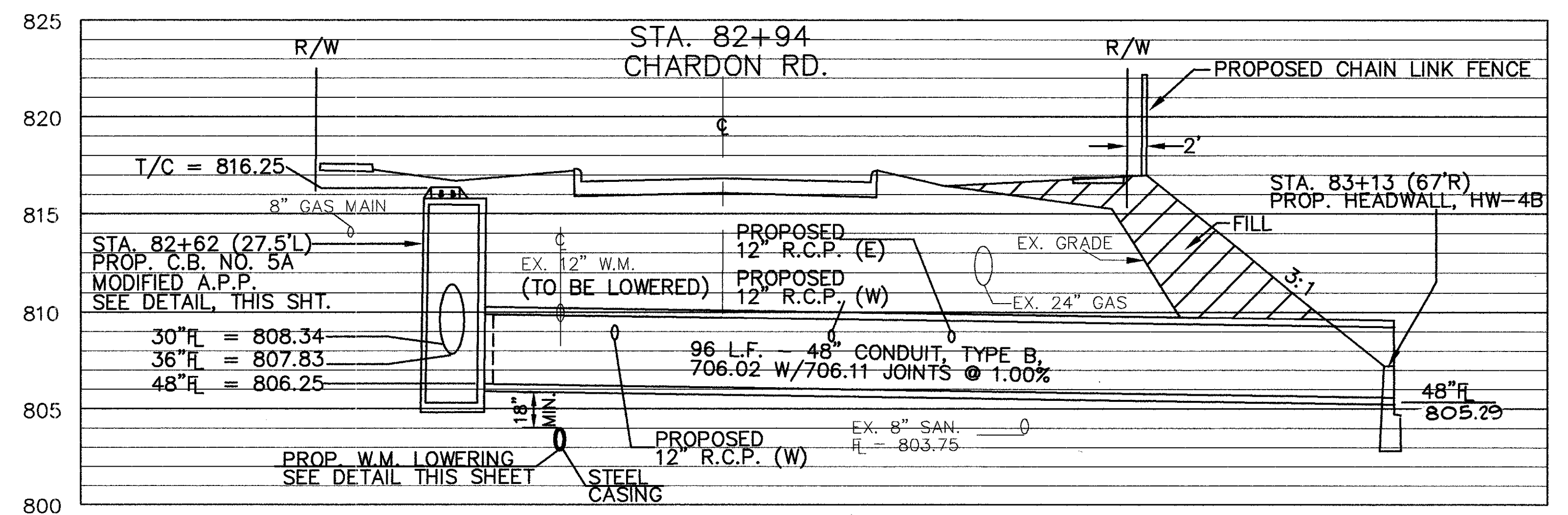
CULVERT QUANTITIES			
ITEM	DESCRIPTION	QTY	UNIT
202	STRUCTURE REMOVED	LUMP	LUMP
202	PIPE REMOVED, 24" AND UNDER	78	L.F.
203	EMBANKMENT	65	C.Y.
602	CONCRETE MASONRY, STANDARD HW-4B	1.09	C.Y.
603	48" CONDUIT, TYPE B, 706.02 AS PER PLAN	96	L.F.
603	CATCH BASIN NO. 5A, AS PER PLAN	1	EA.
607	FENCING	56	L.F.
659	SEEDING & MULCHING	150	S.Y.

CULVERT QUANTITIES
 CARRIED TO SHEET 41

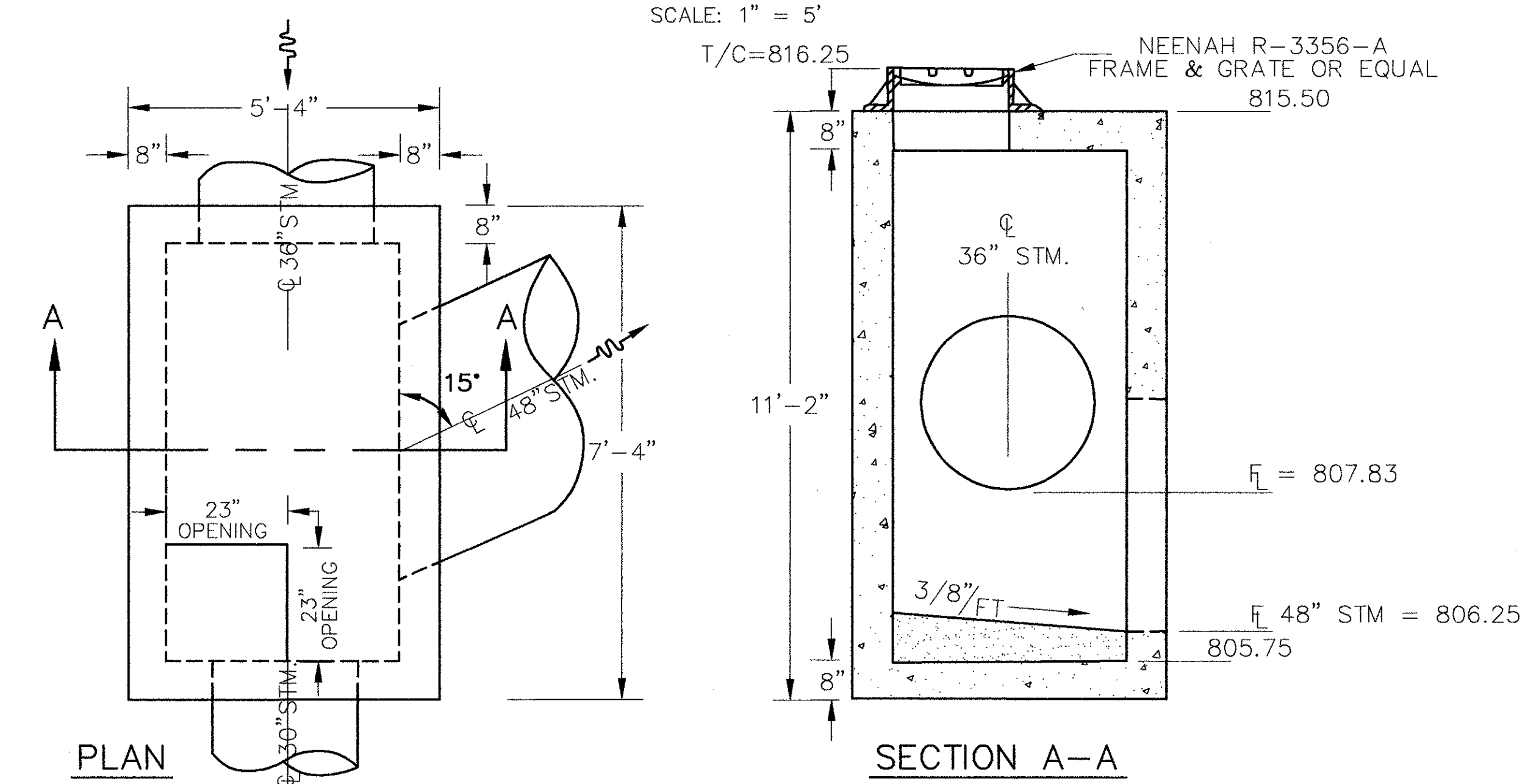


WATERMAIN LOWERING DETAIL

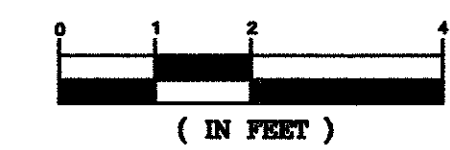
SCALE: 1" = 5'



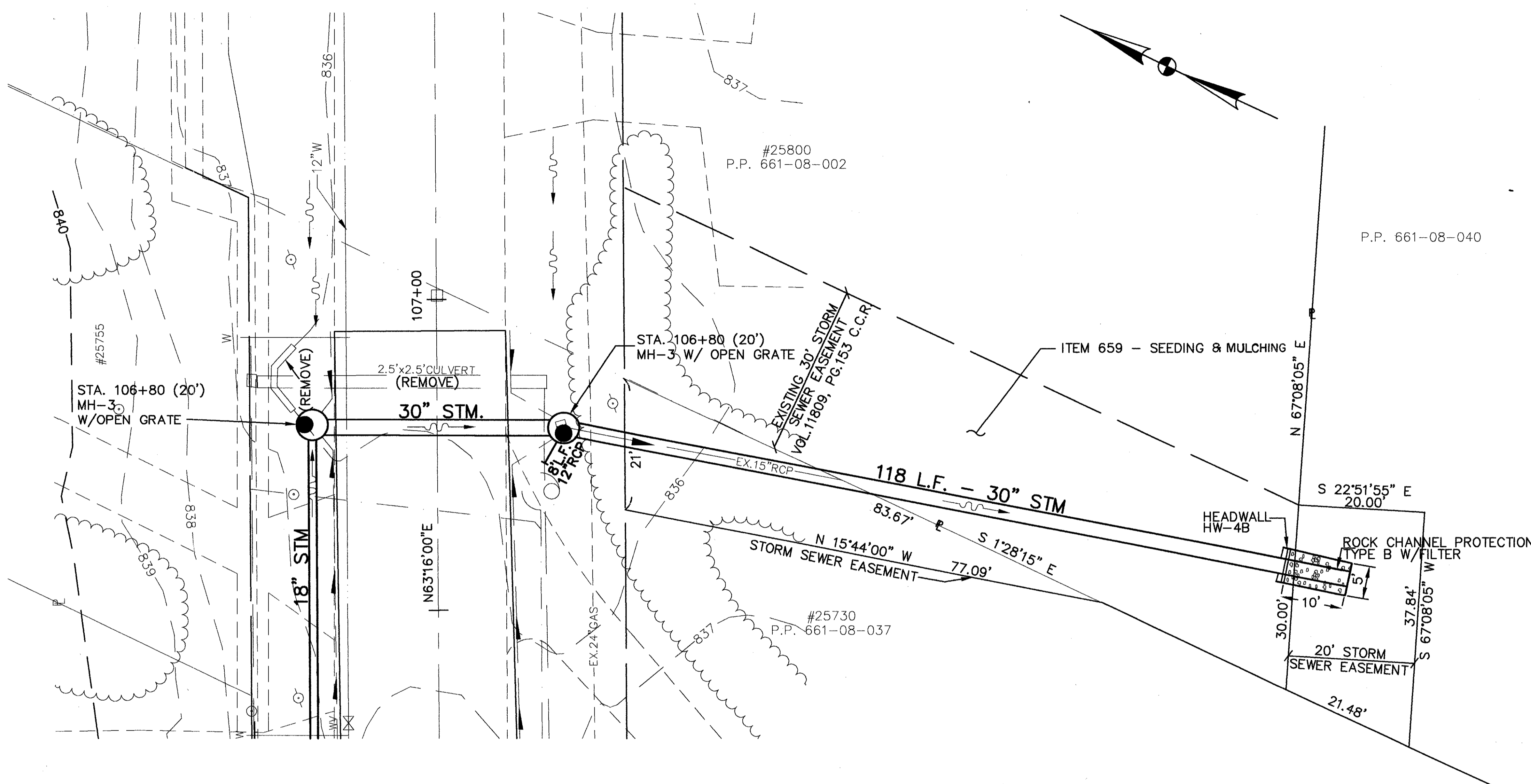
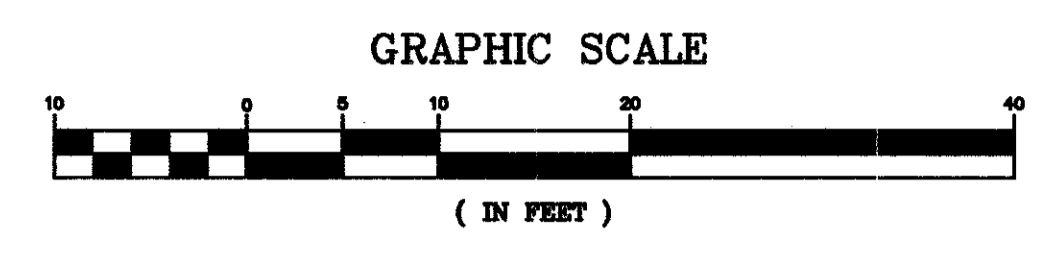
SCALE: 1" = 10' (HORIZONTAL)
 1" = 5' (VERTICAL)



CATCH BASIN NO. 5A - AS PER PLAN

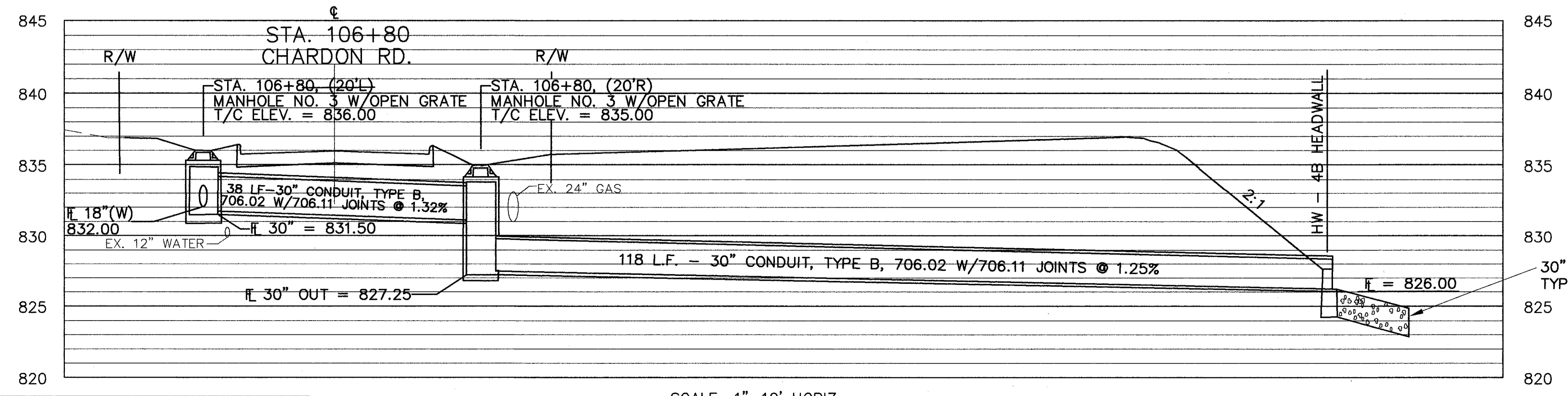


CHARDON ROAD



CULVERT QUANTITIES			
ITEM	DESCRIPTION	QTY	UNIT
601	ROCK CHANNEL PROTECTION TYPE B, W/FILTER	5.0	C.Y.
202	STRUCTURE REMOVED	LUMP	LUMP
602	CONCRETE MASONRY STD HW-4B	.56	C.Y.
603	30" CONDUIT, TYPE "B", 706.02, AS PER PLAN	40	L.F.
603	30" CONDUIT, TYPE "C", 706.02, AS PER PLAN	118	L.F.
604	MANHOLE NO. 3 AS PER PLAN B	2	EA.
659	SEEDING AND MULCHING	250	S.Y.

CULVERT QUANTITIES CARRIED TO SHEET 41.



SCALE: 1"=10' HORIZ.
1"=5' VERT.

SEEDING
END
WIDTH
SQ.
YDS.

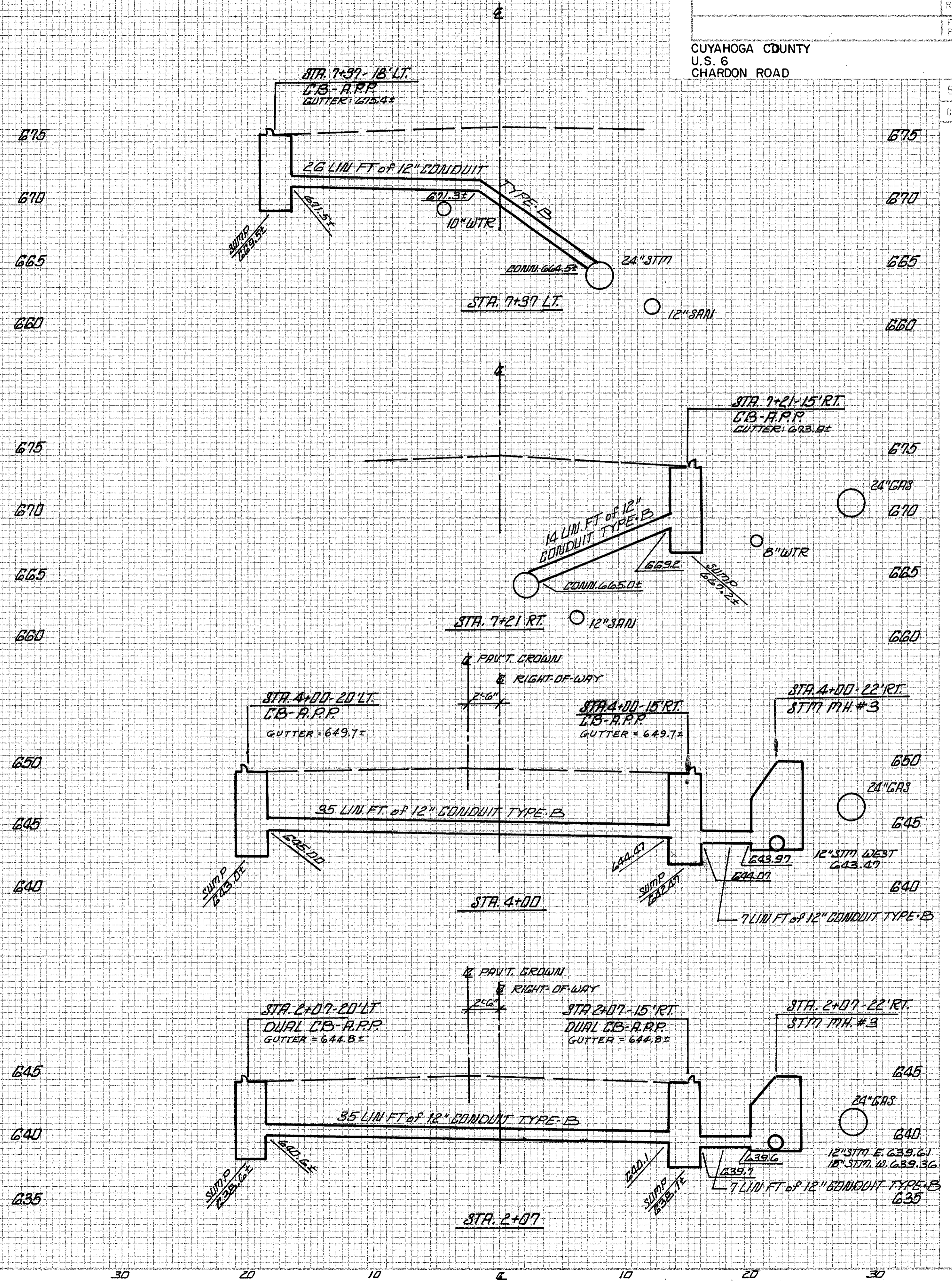
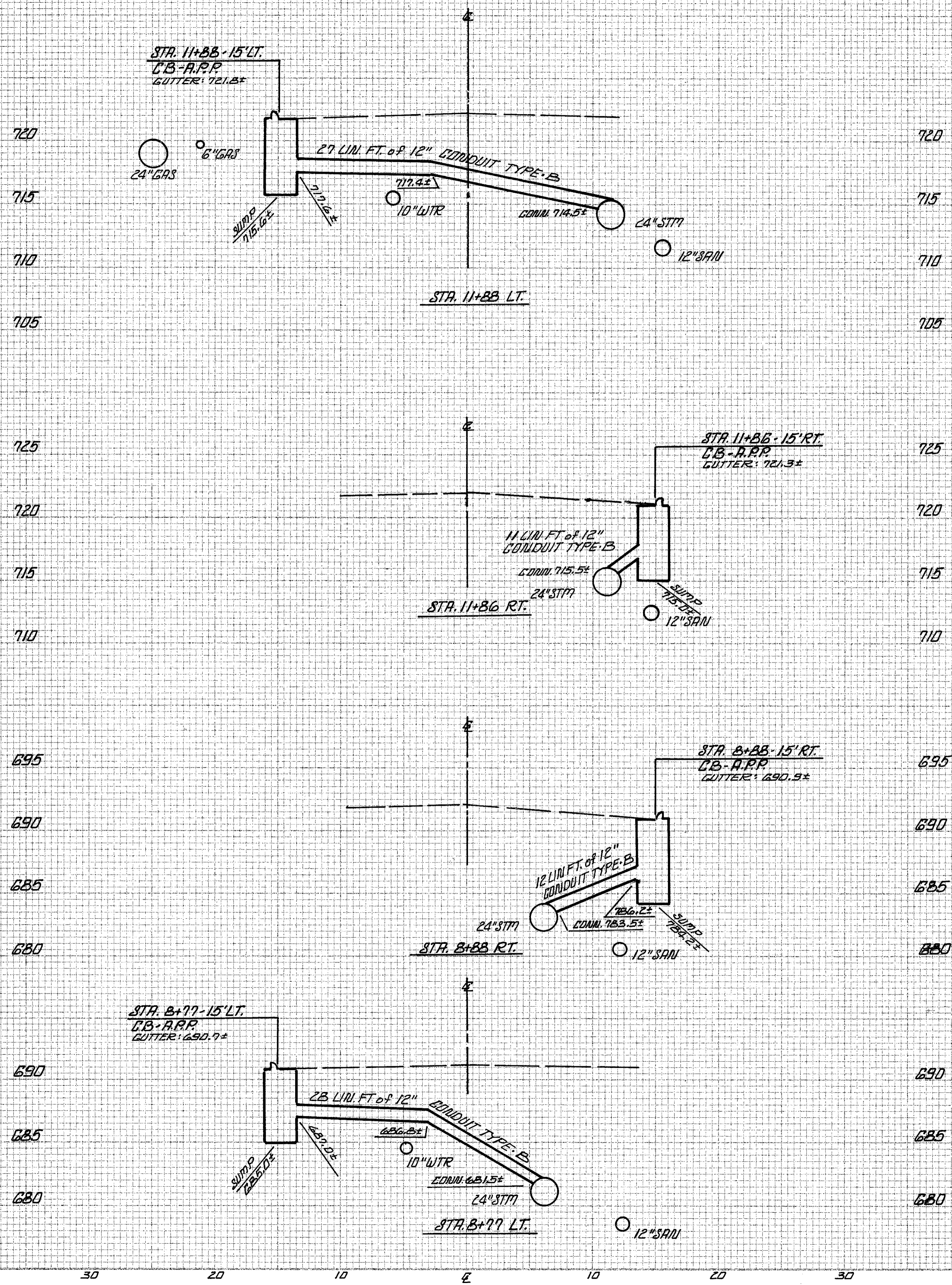
CUY-6-25.94

OHIO
FHA
REGION 5
FEDERAL
PROJECT

III
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

END AREA		VOLUME	
GUT	FILL	GUT	FILL



720 675
715 670
710 665
705 660
725 675
720 670
715 665
710 660
695 650
690 645
685 640
680 635
690 645
685 640
680 635

675
670
665
660
675
670
665
660
650
645
640
640
645
640
635

30 20 10 0 10 20 30 30 20 10 0 10 20 30

SEEDING
END WIDTH
SQ. YDS.

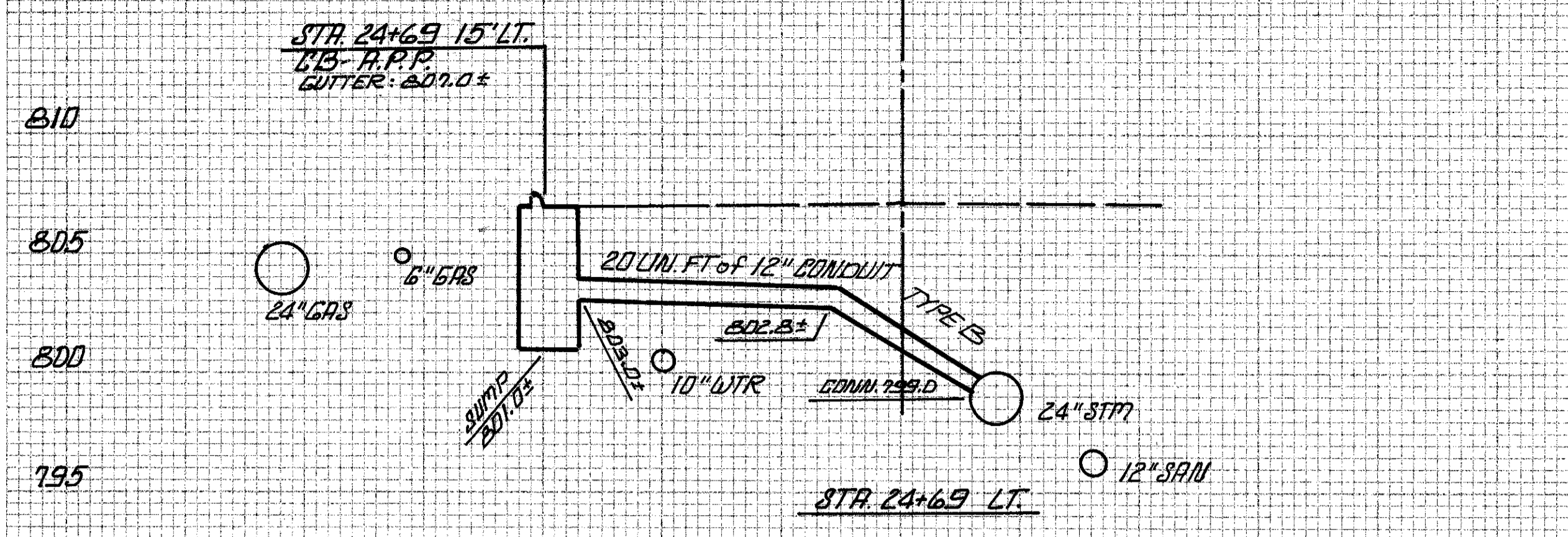
CUY-6-25.94

OHIO
FEMA REGION 5
FEDERAL PROJECT
112
126

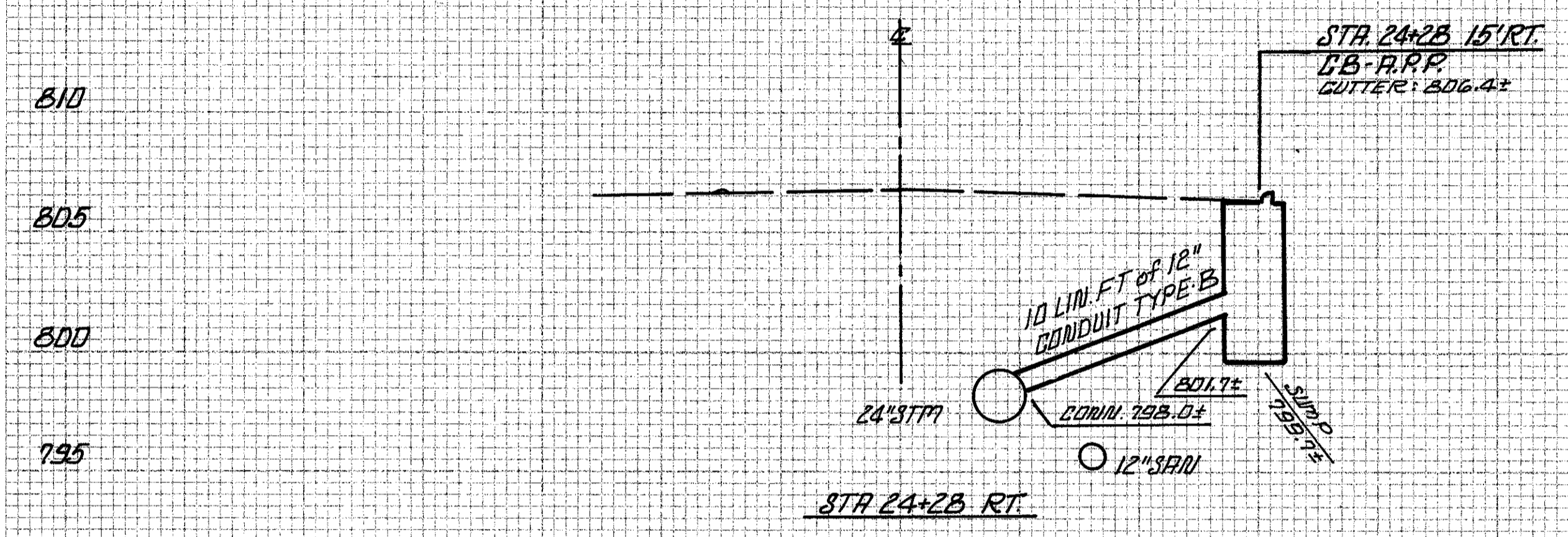
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

END AREA
VOLUME

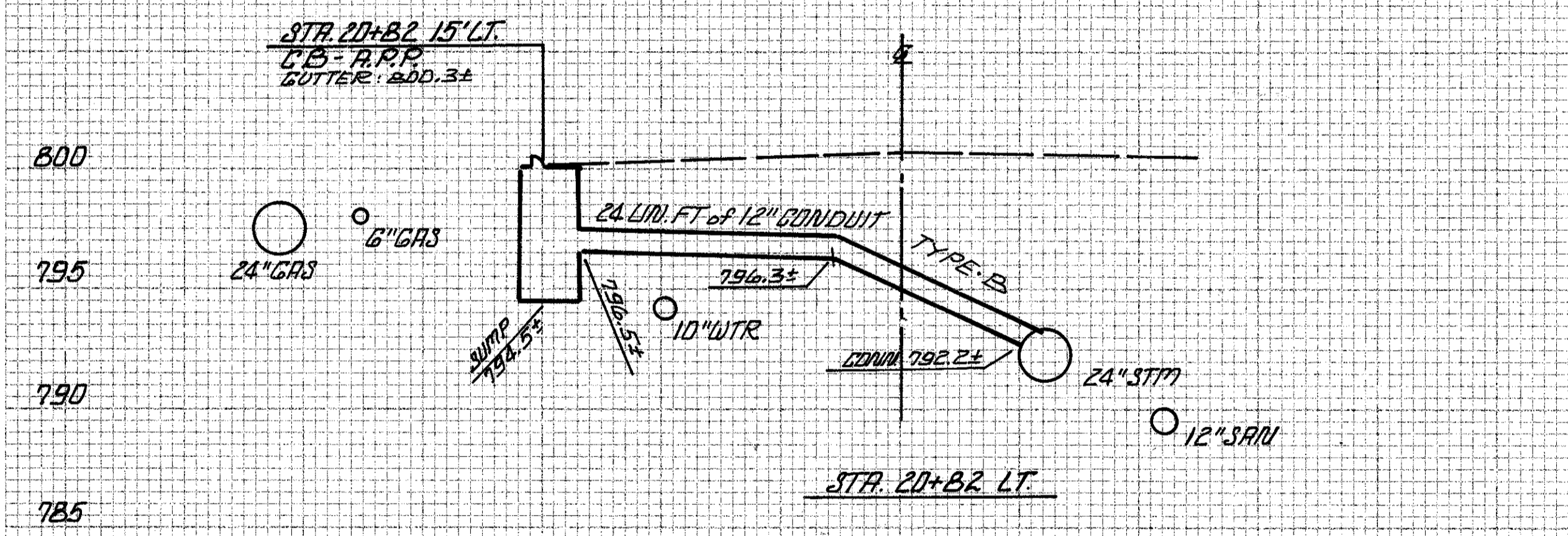
CUT FILL CUT FILL



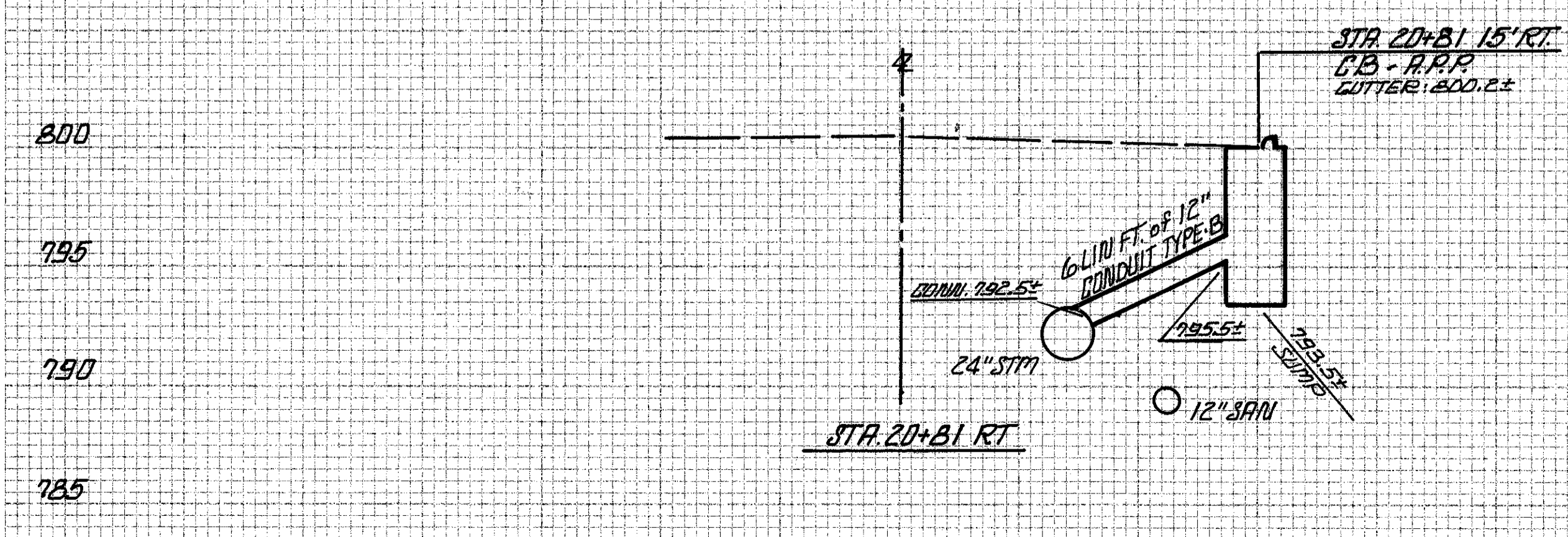
810	790
805	785
800	780
795	775



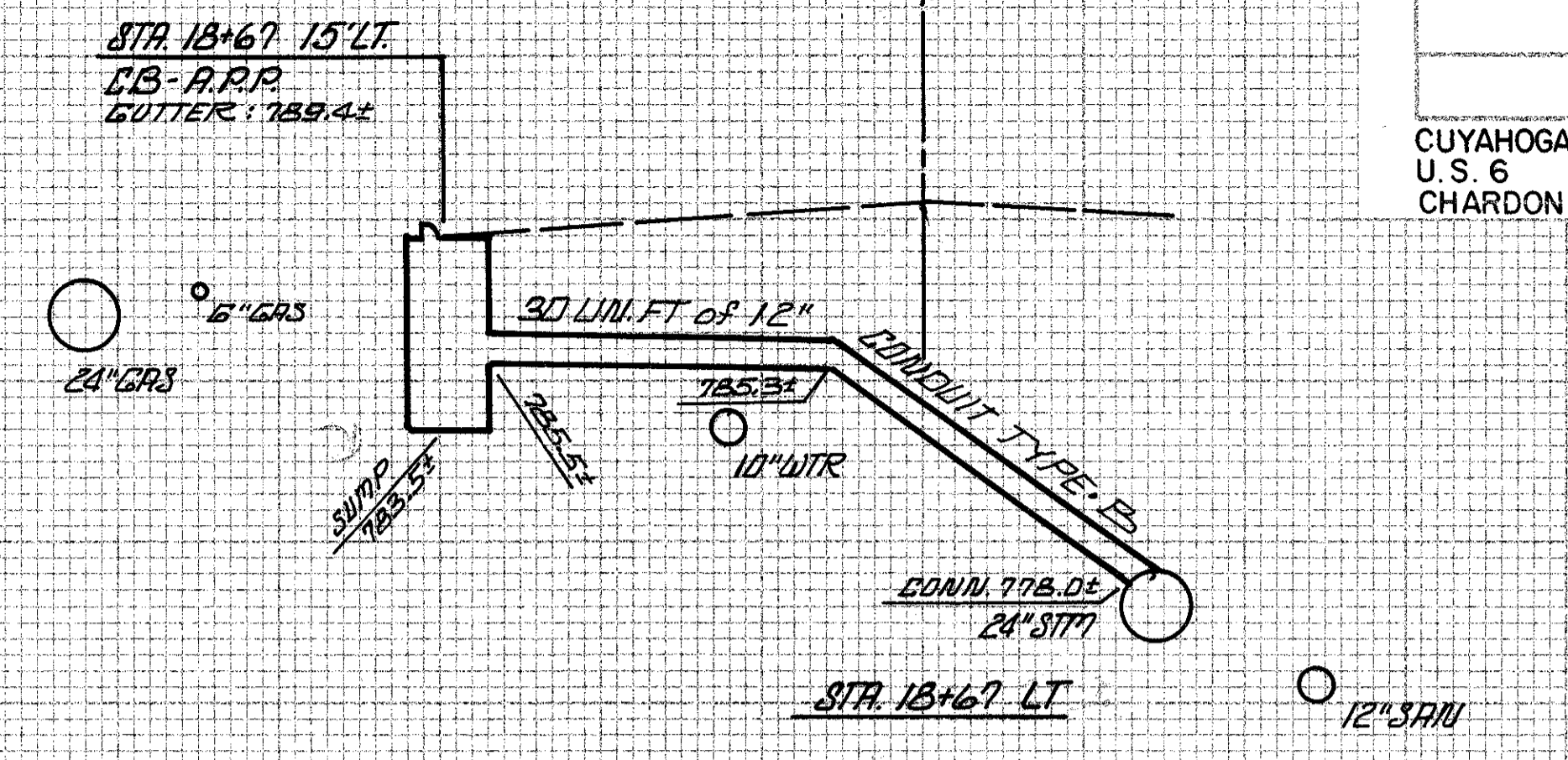
810	790
805	785
800	780
795	775



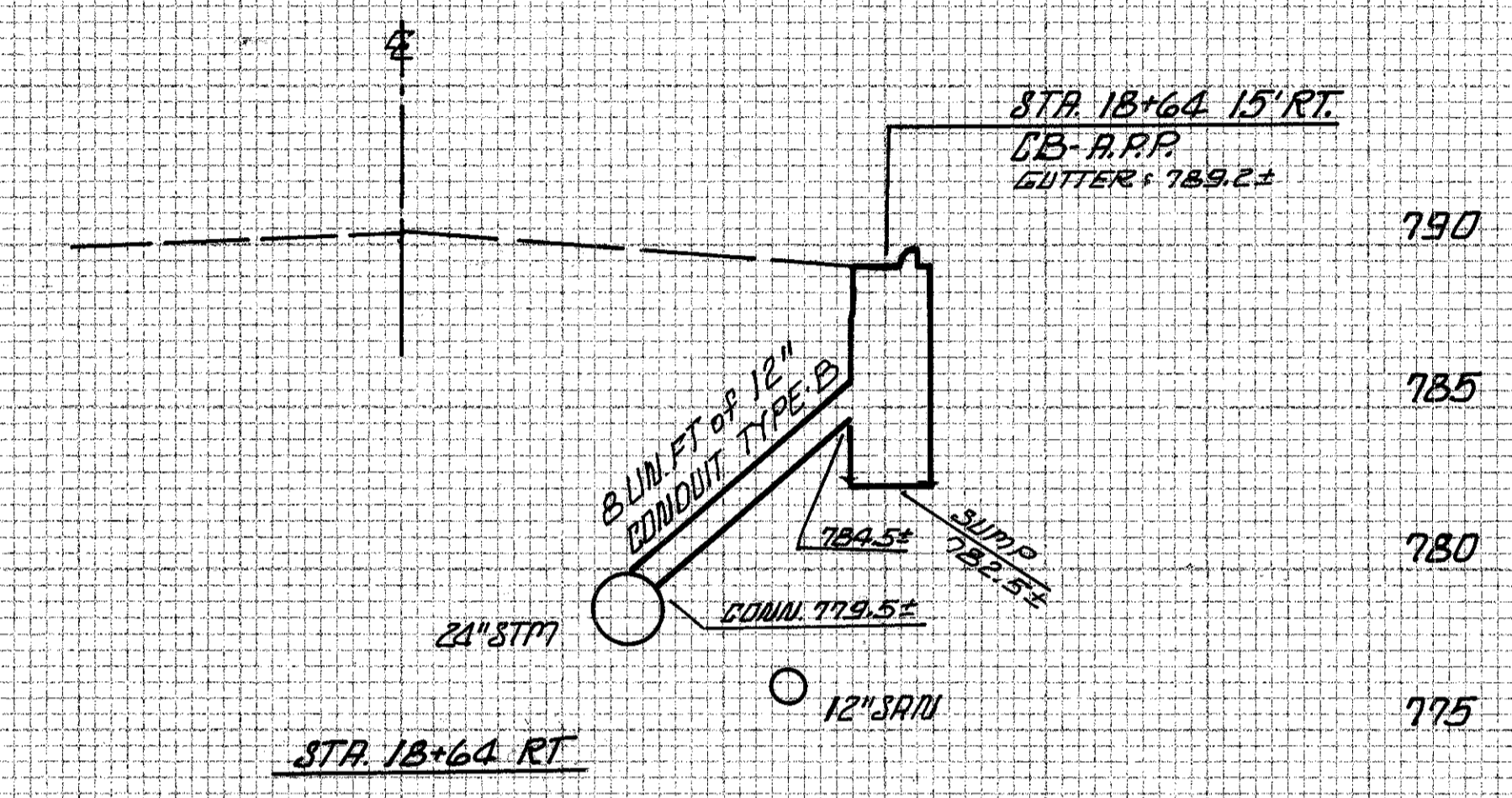
800	760
795	755
790	750
785	745



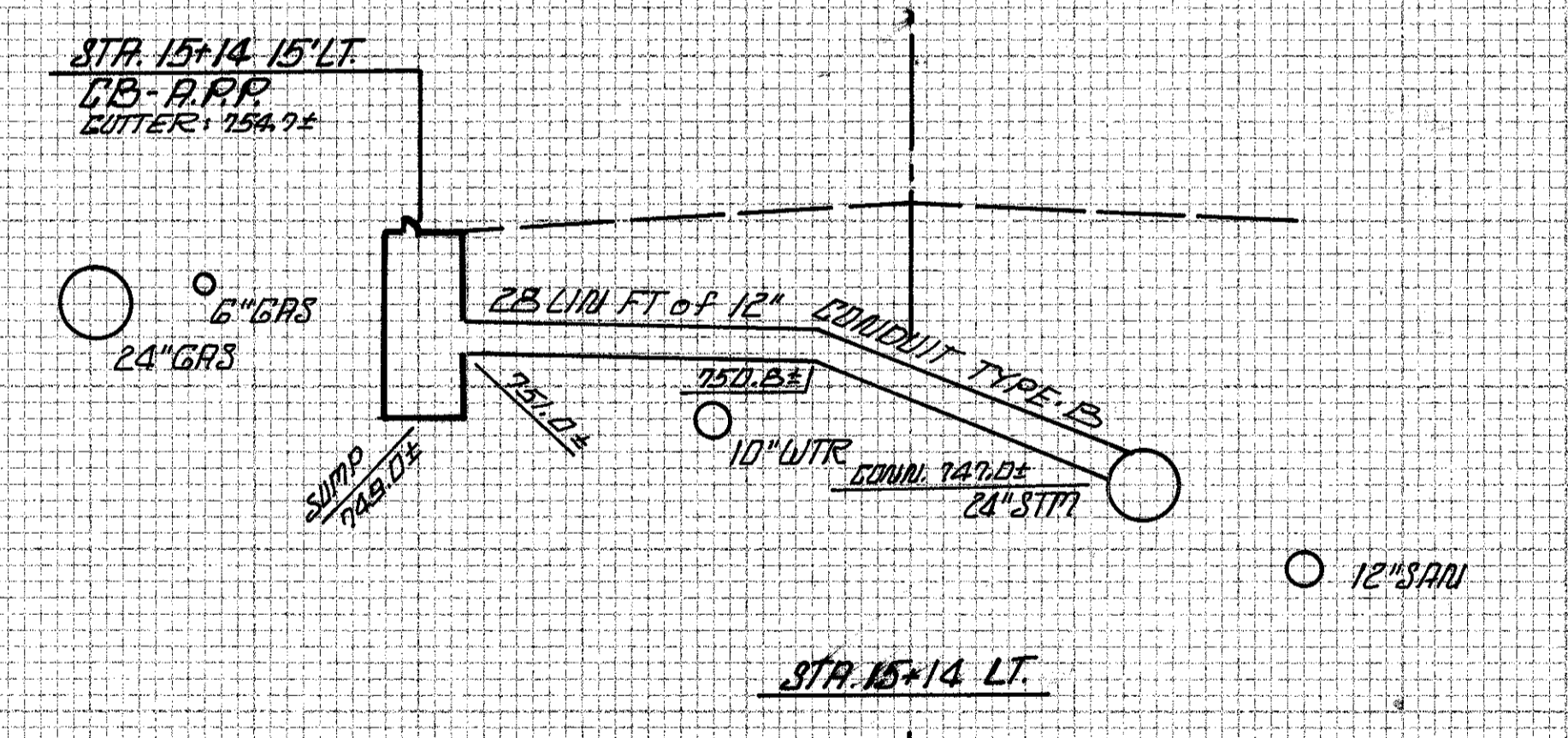
800	760
795	755
790	750
785	745



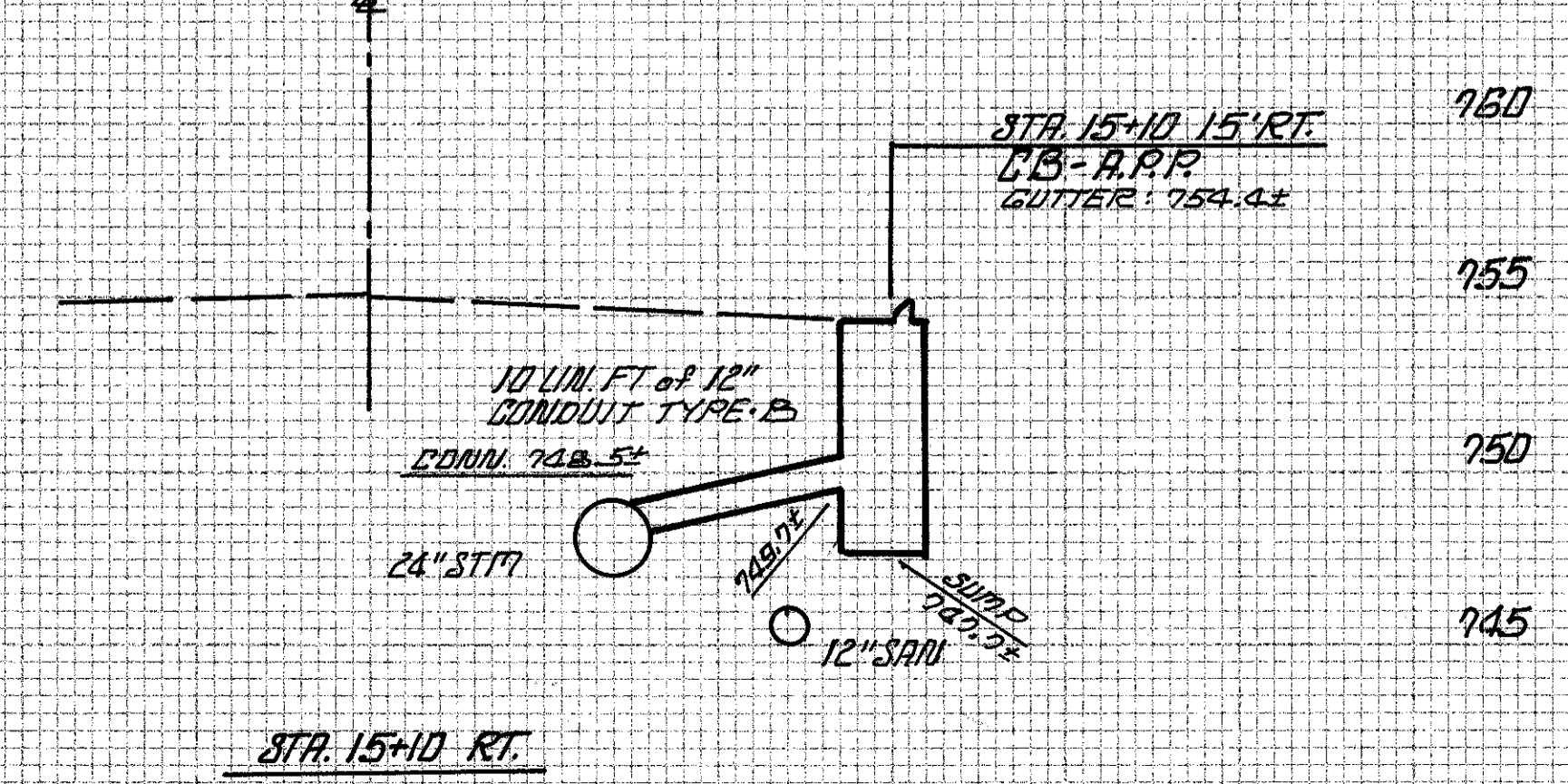
785
780
775



790
785
780
775



760
755
750
745



760
755
750
745

30 20 10 0 10 20 30 30 20 10 0 10 20 30

SEE DING
END
WIDTH
SQ.
YDS.

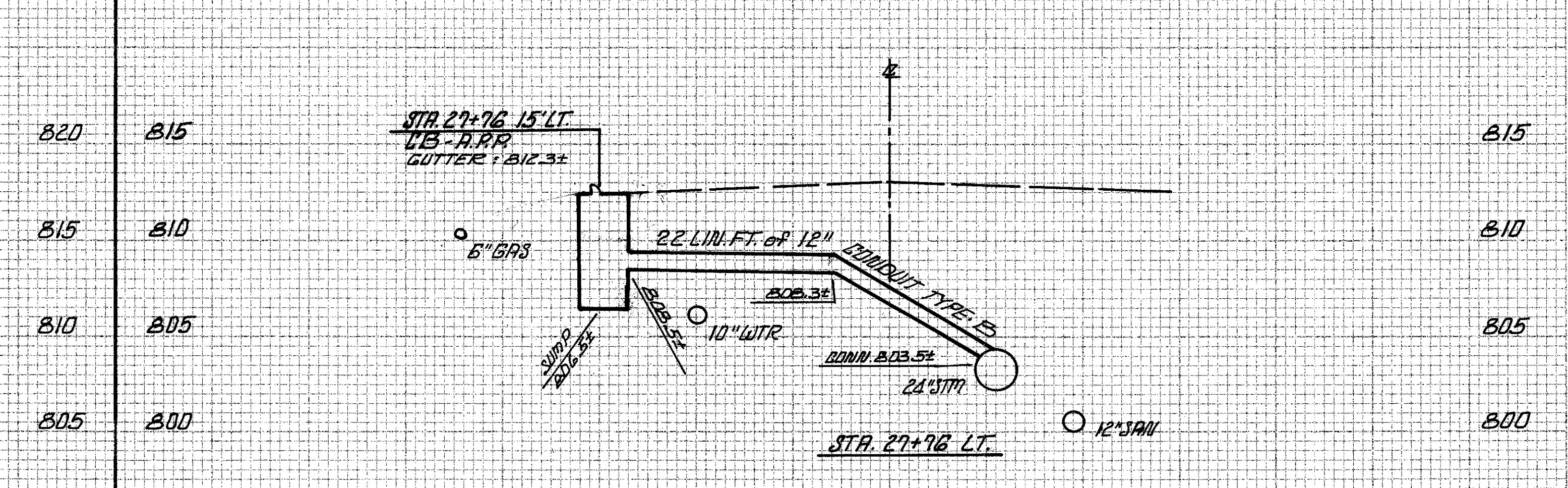
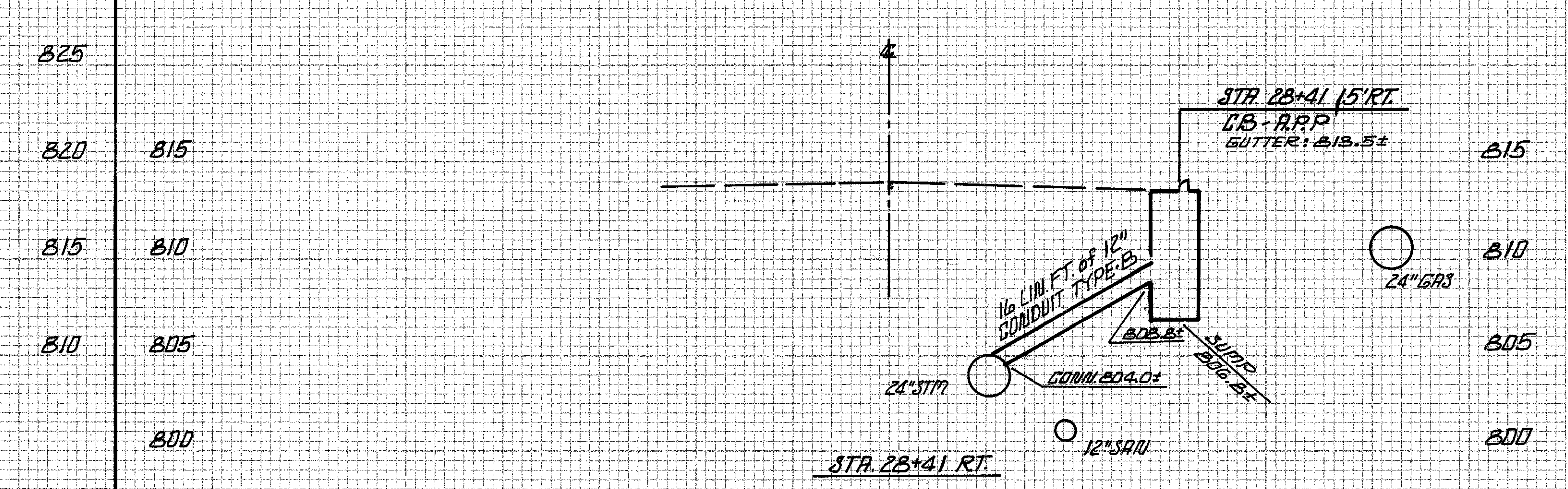
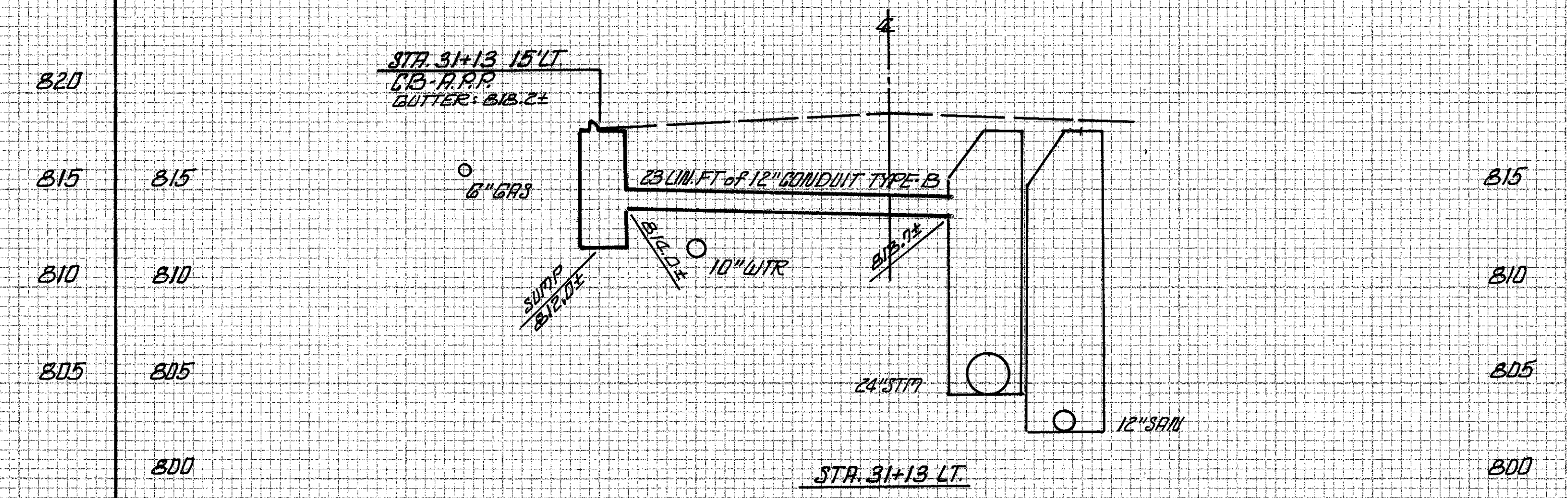
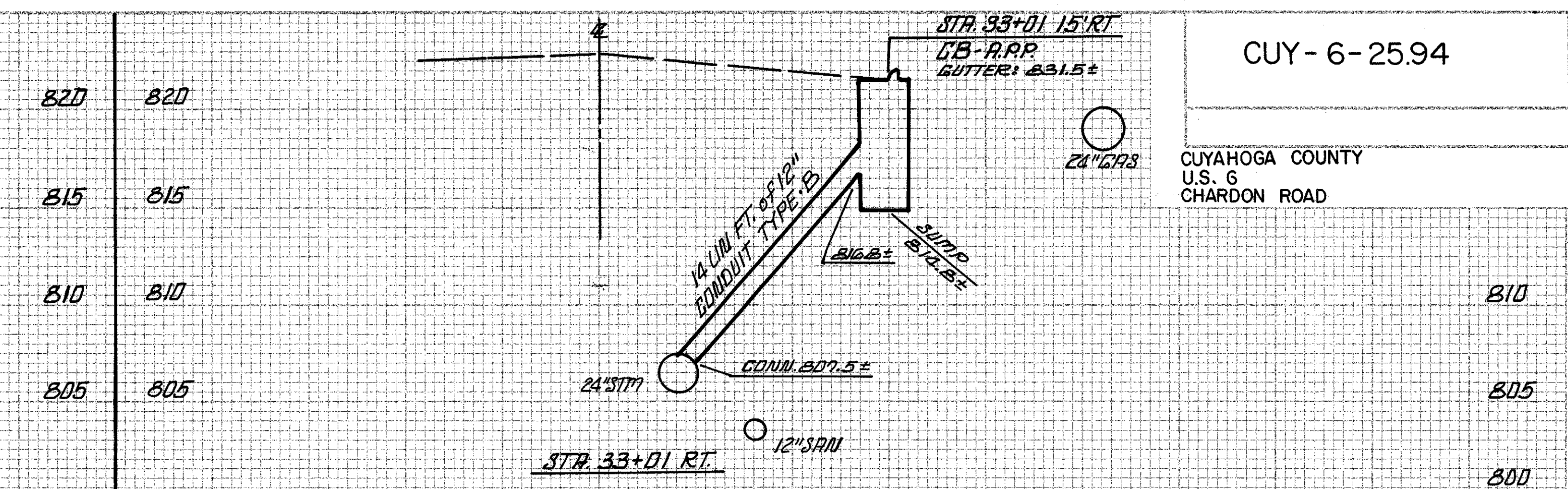
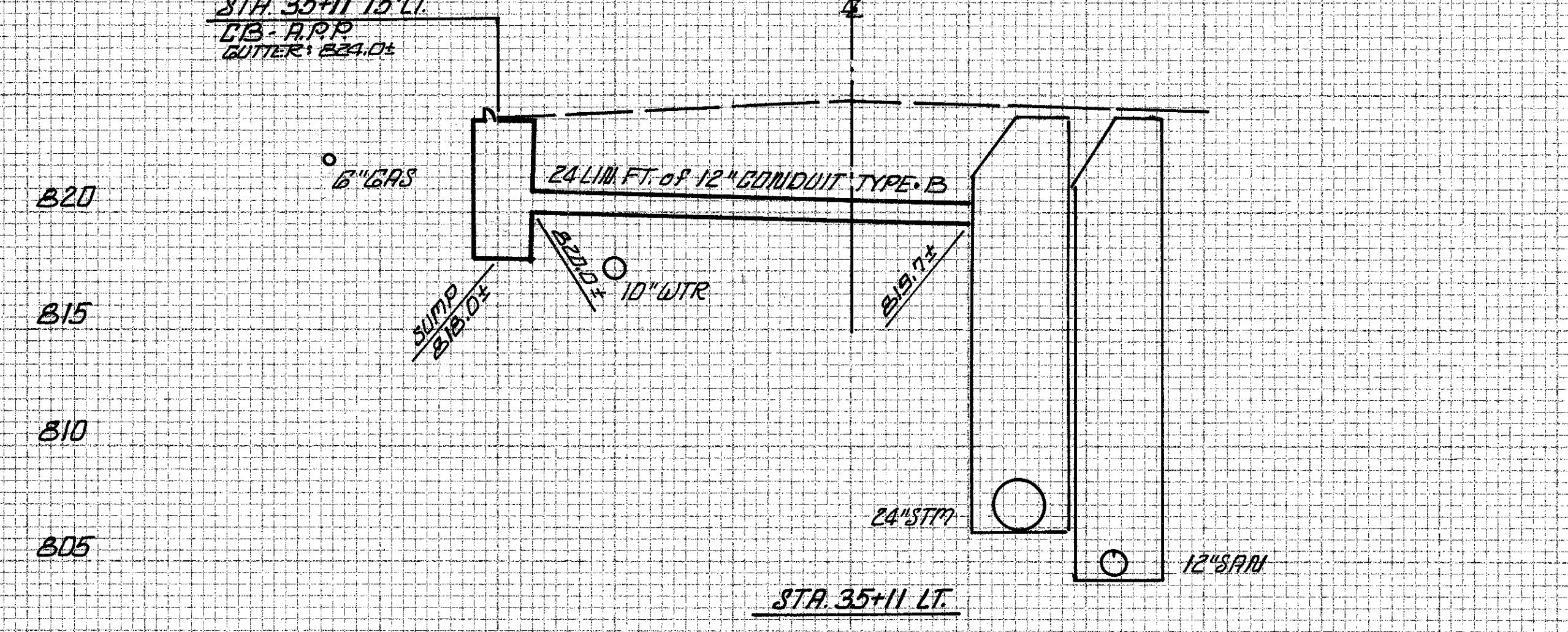
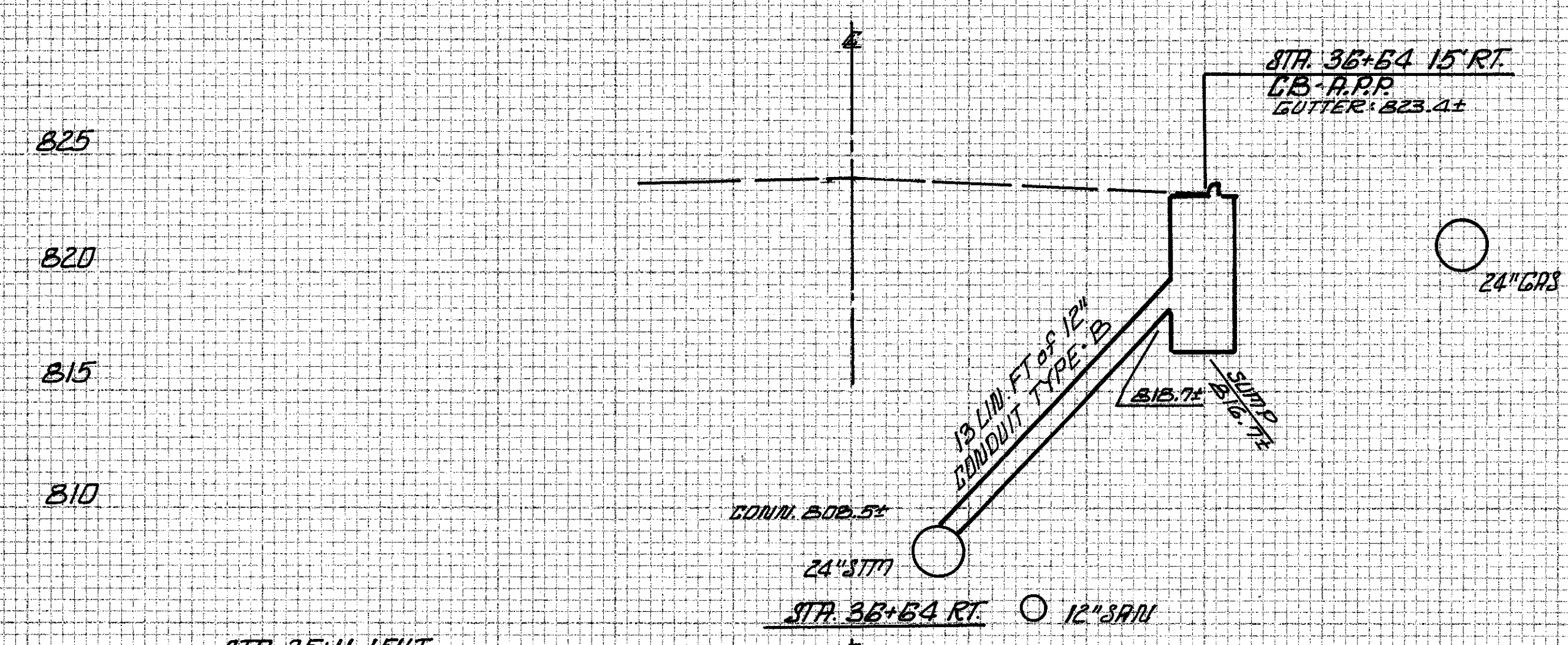
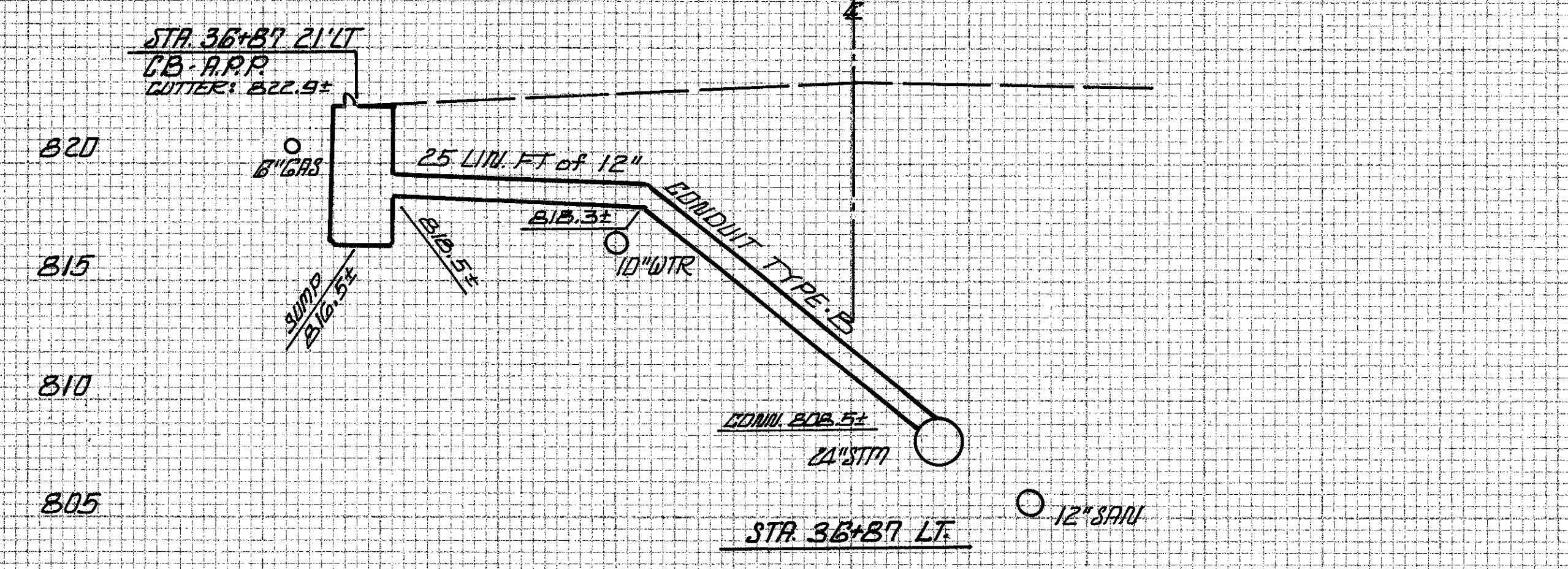
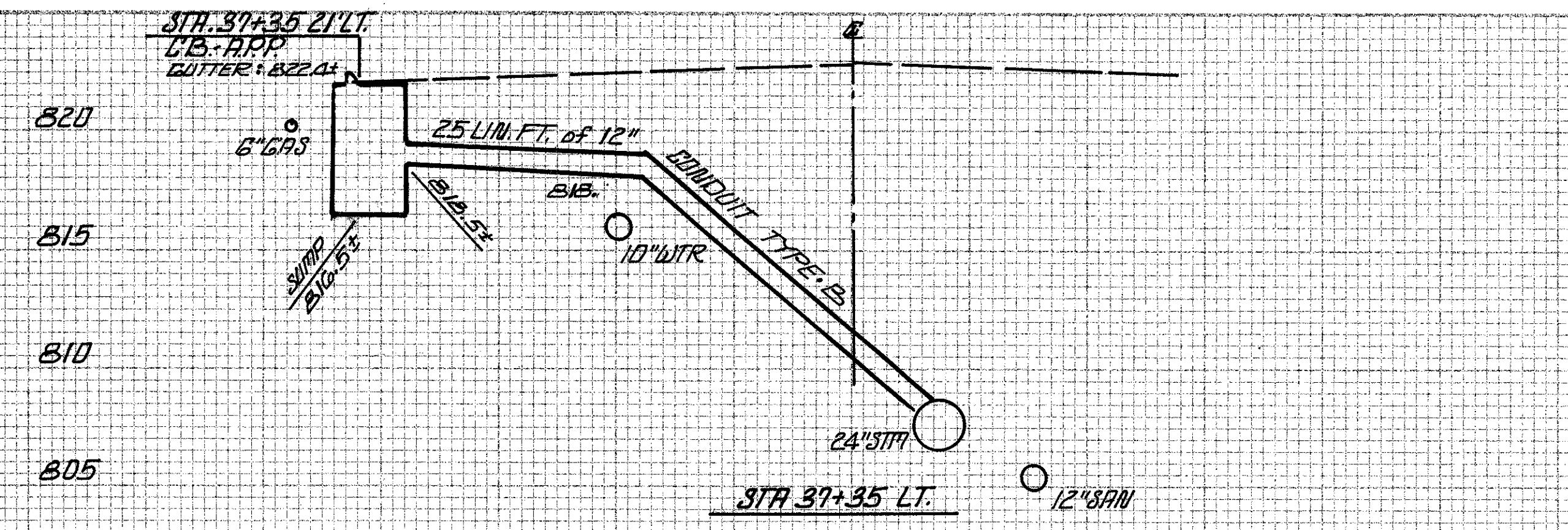
CUY-6-25.94

OHIO
FHWA
REGION 5
FEDERAL
PROJECT

113
126

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

END AREA
CUT FILL
VOLUME
CUT FILL



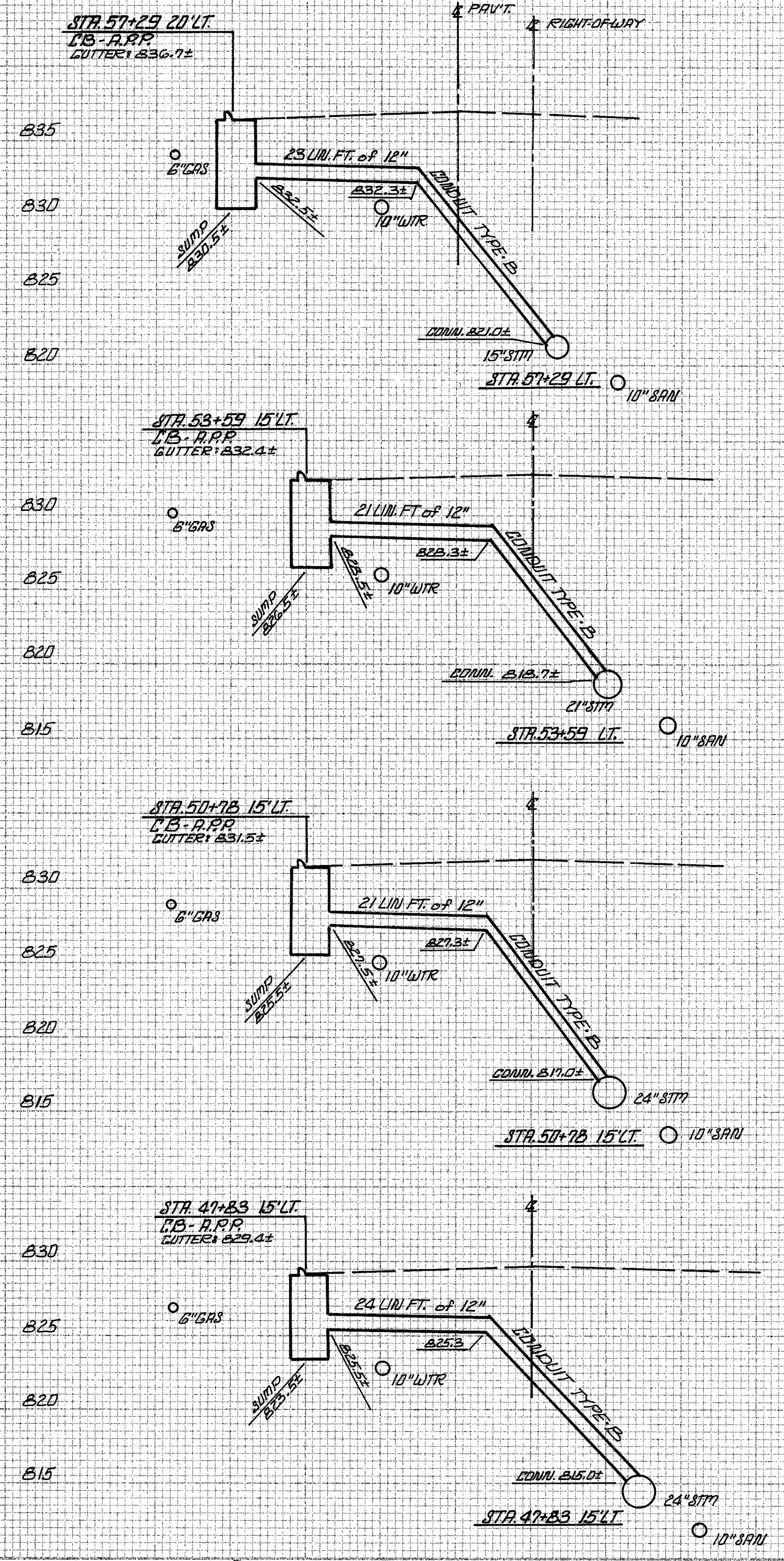
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SEEING
END WIDTH SQ YDS.

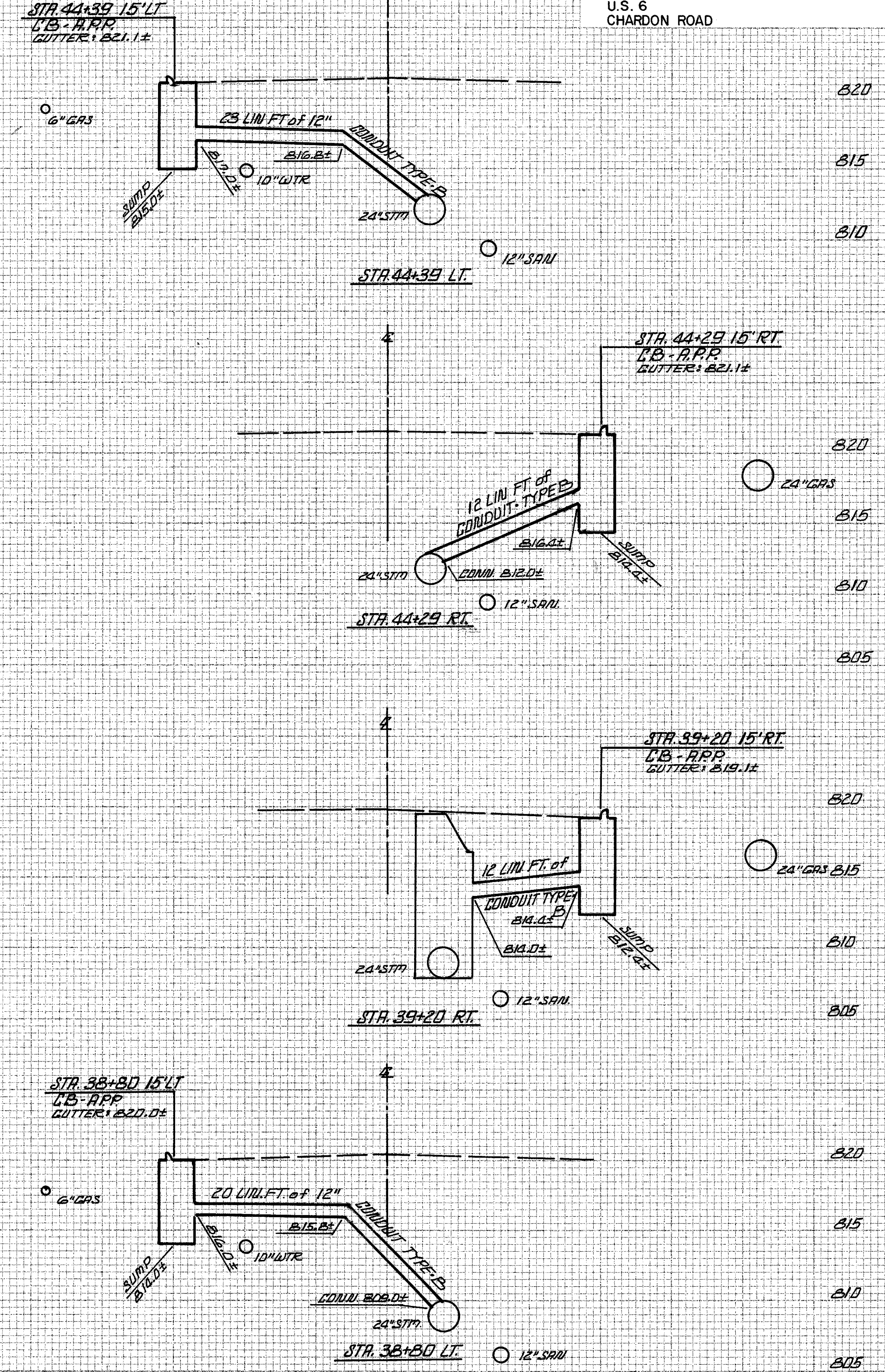
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

OHIO
REGION 5
FEDERAL PROJECT

114
126



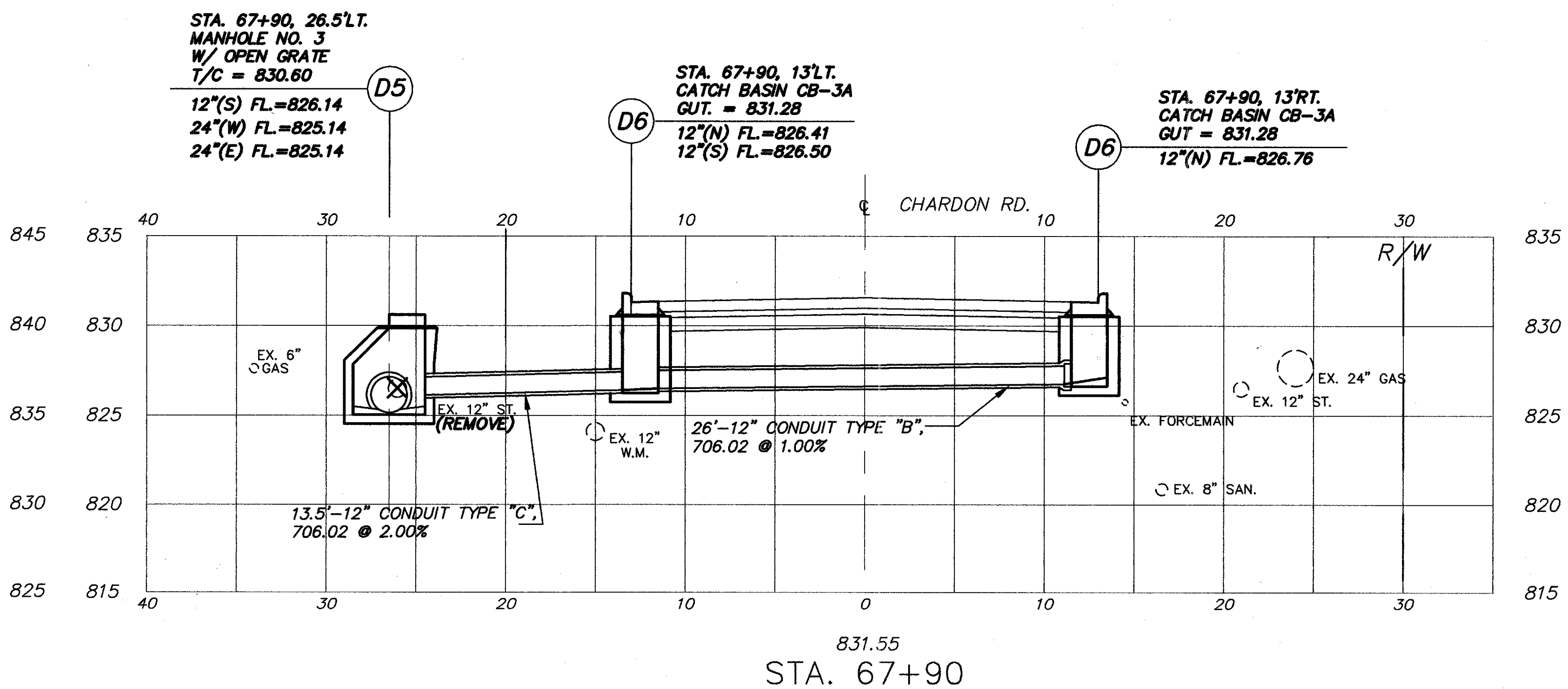
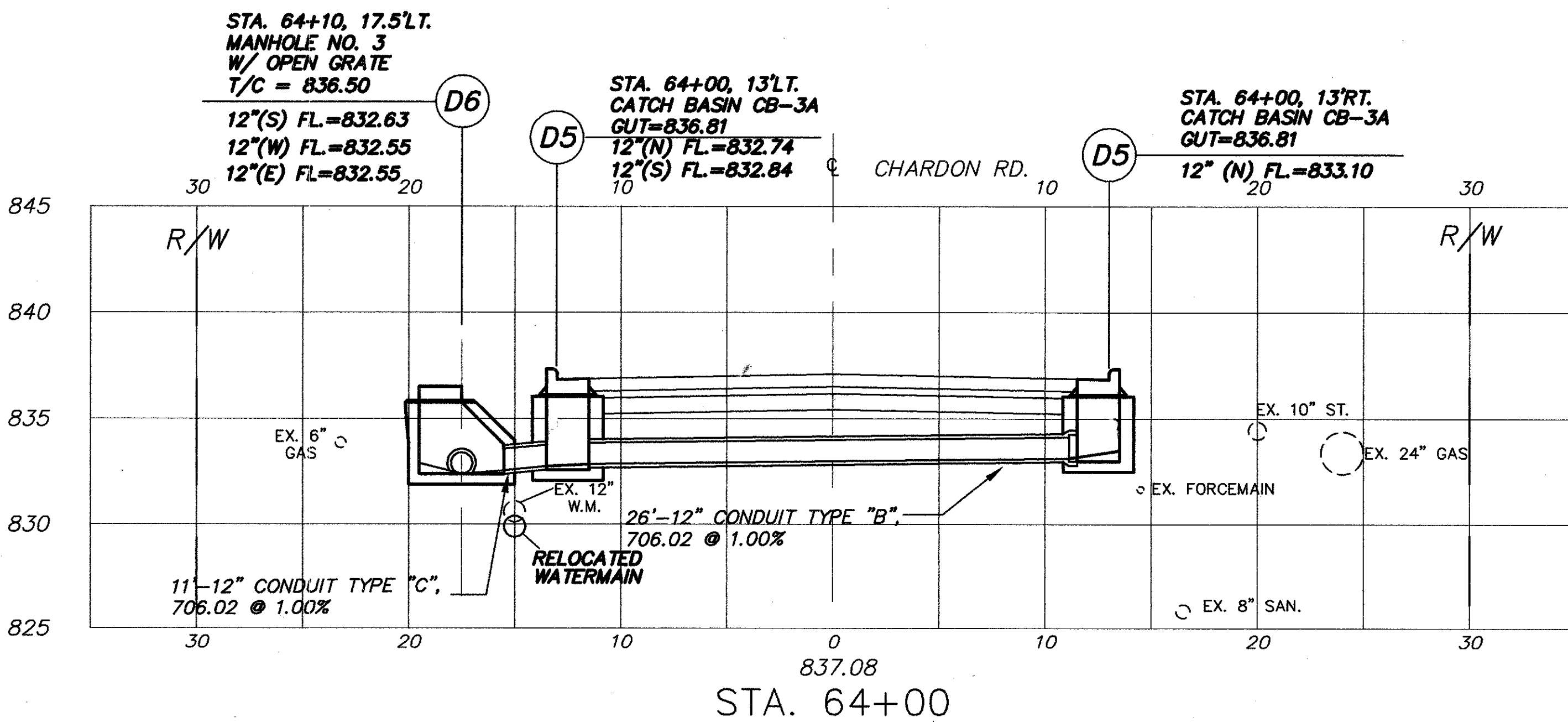
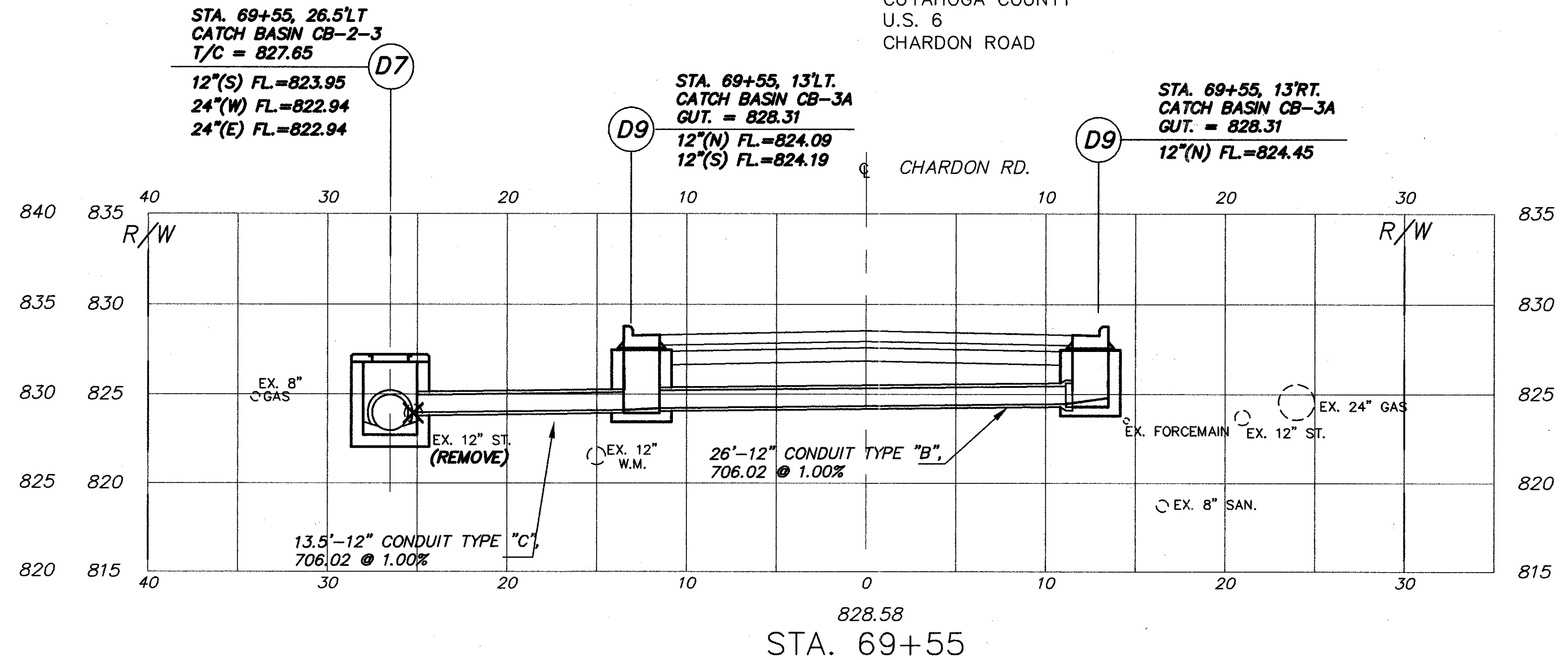
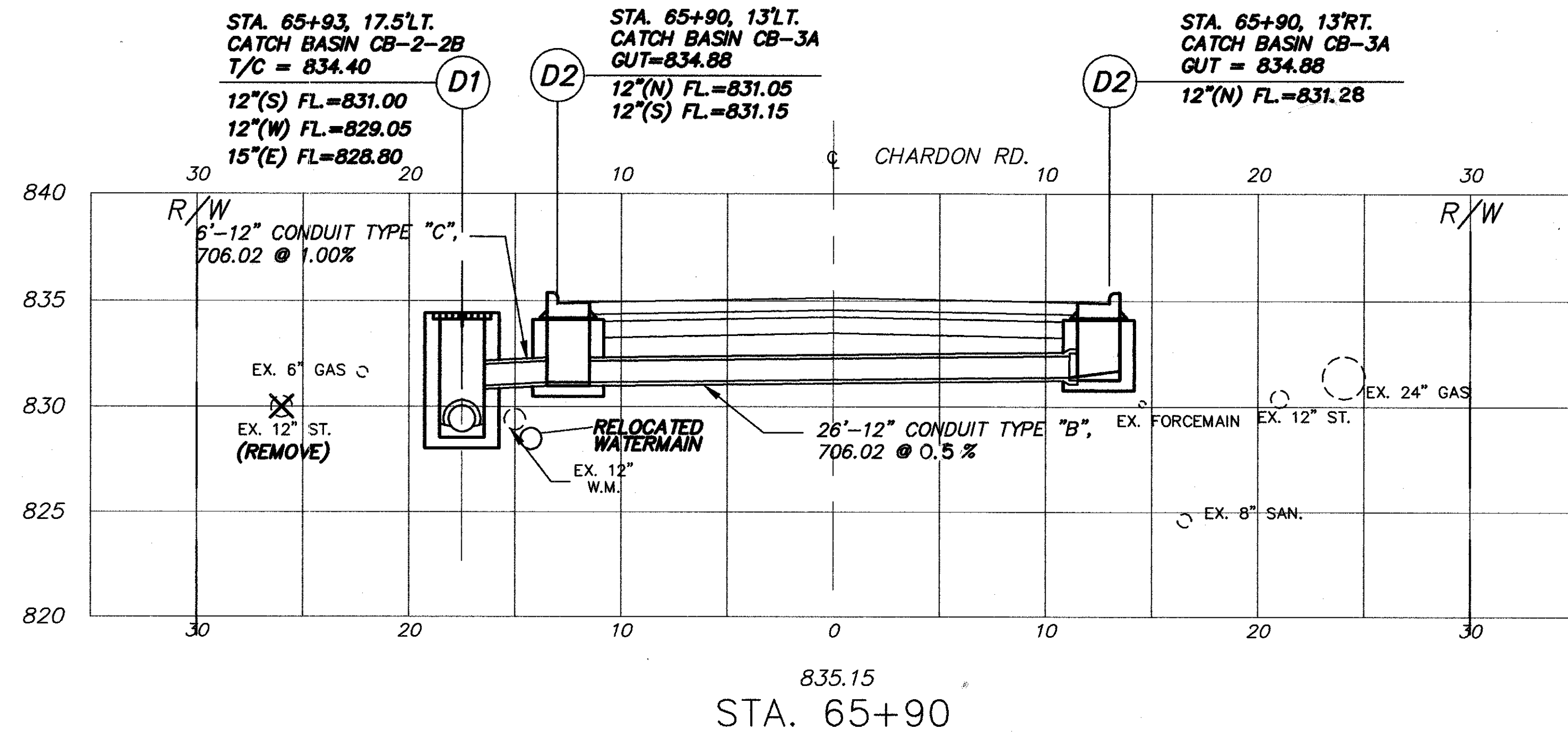
B35	B25
B30	B20
B25	B15
B20	B10
B30	B20
B25	B20
B20	B15
B15	B10
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B30	B20
B25	B20
B20	B15
B15	B10
B15	B10
B30	B20
B25	B20
B20	B15
B15	B10
B15	B10



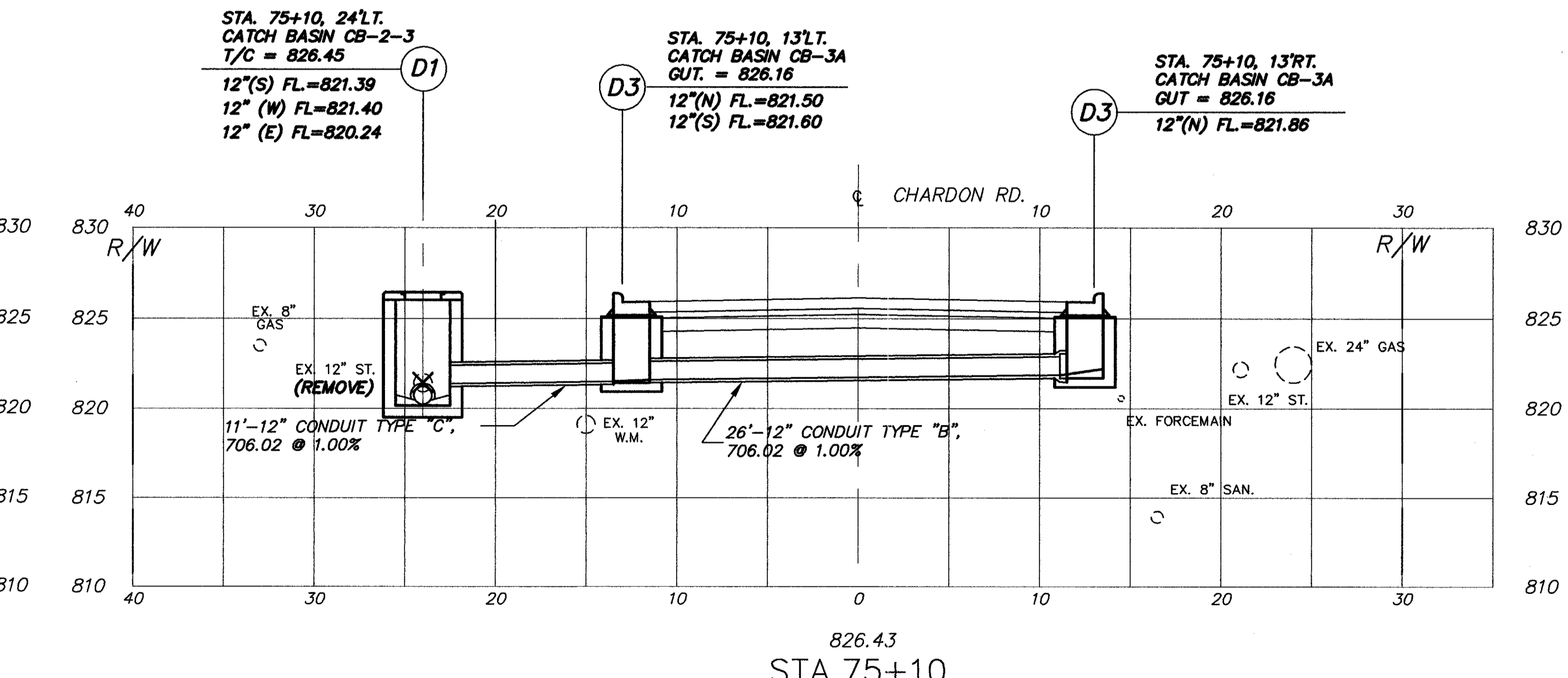
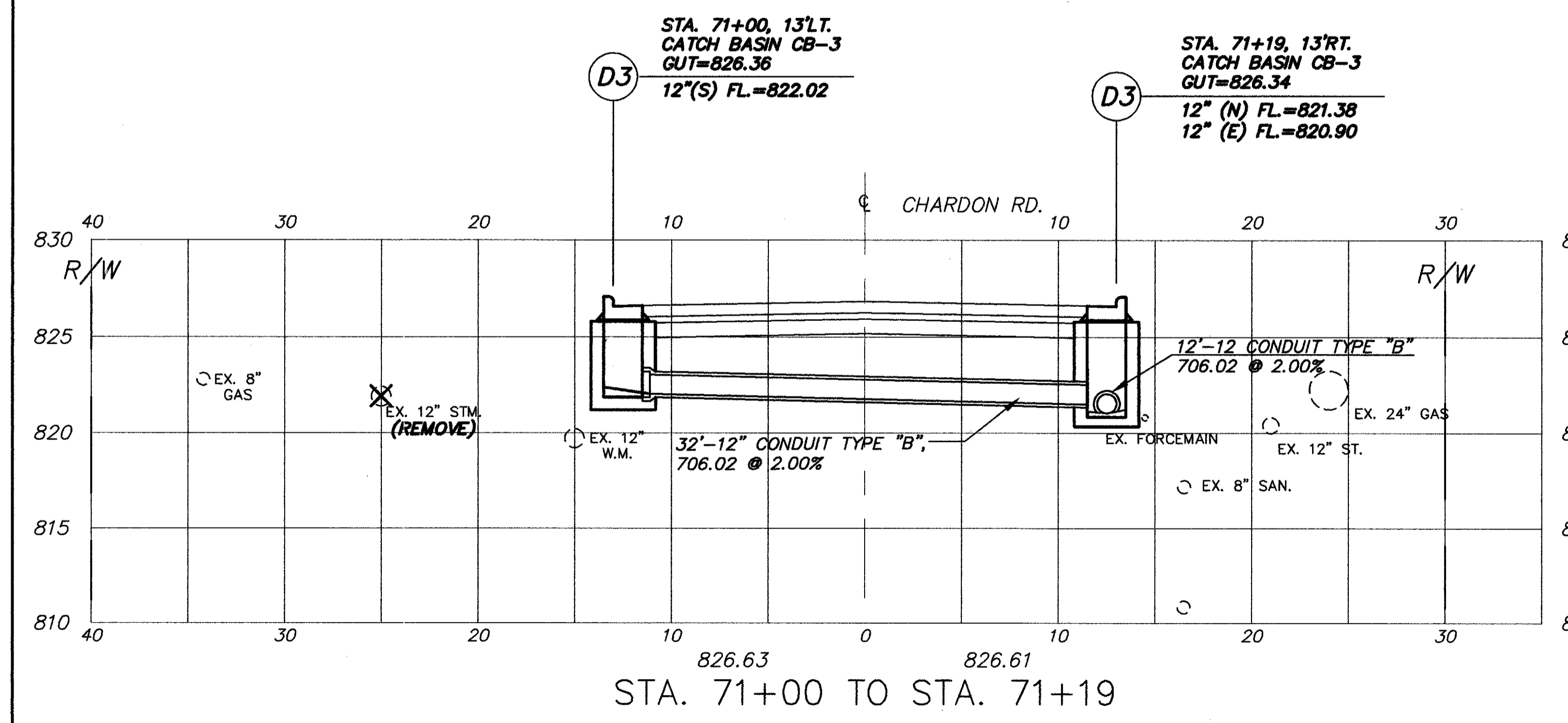
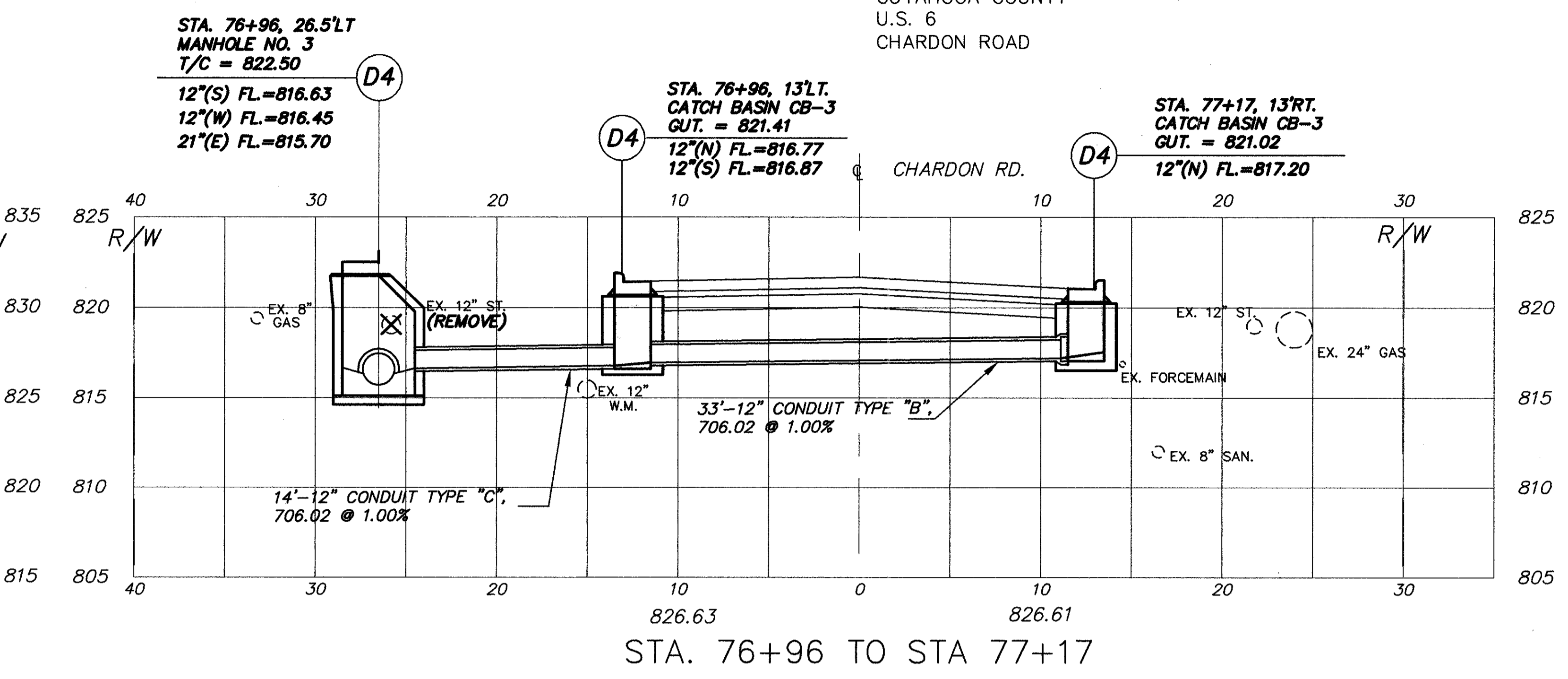
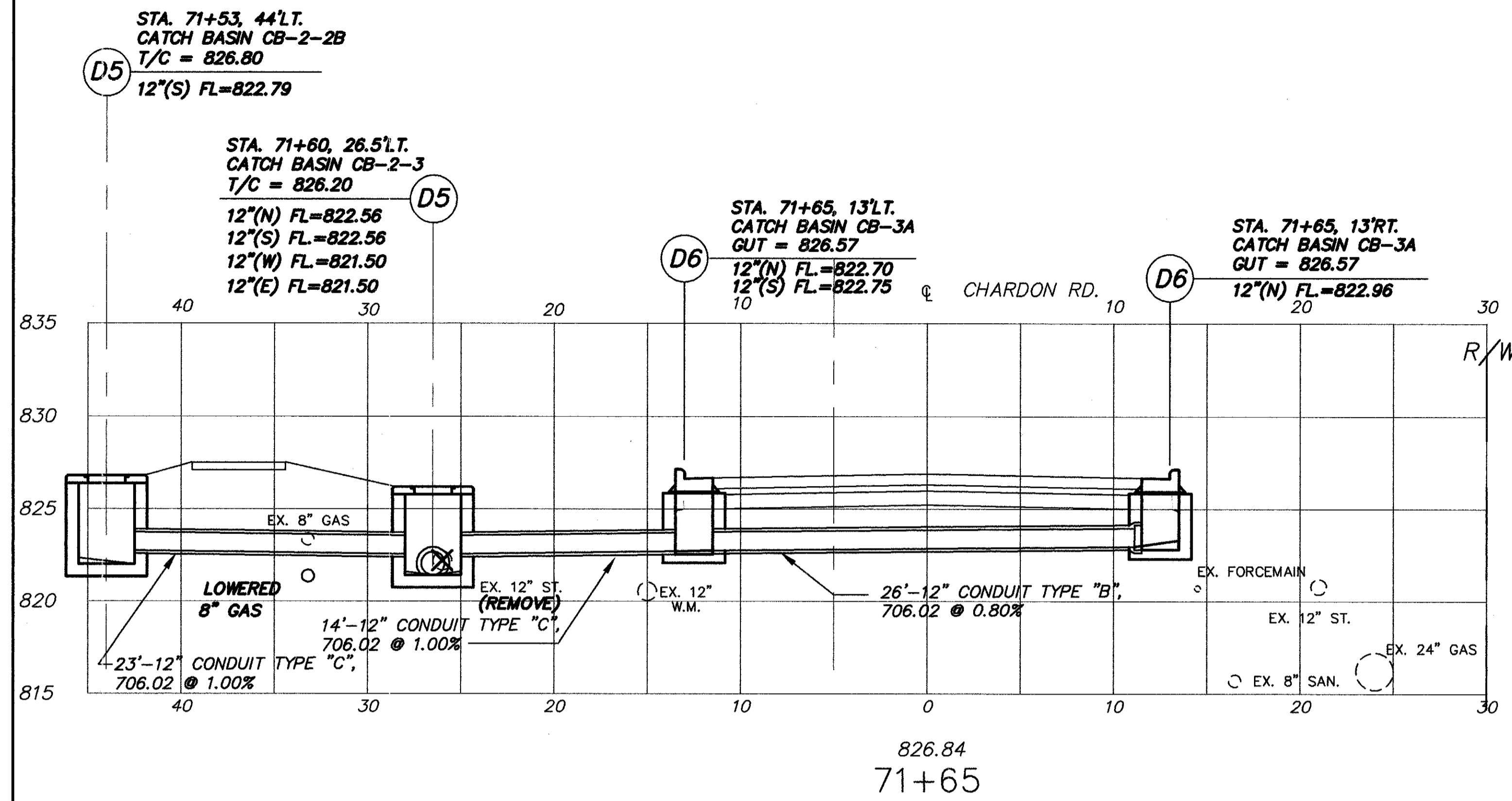
END AREA	VOLUME	
	CUT	FILL
B20		
B15		
B10		
B20		
B15		
B10		
B05		
B20		
B15		
B10		
B05		
B20		
B15		
B10		
B05		
B20		
B15		
B10		
B05		

30 20 10 0 10 20 30 30 20 10 0 10 20 30

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

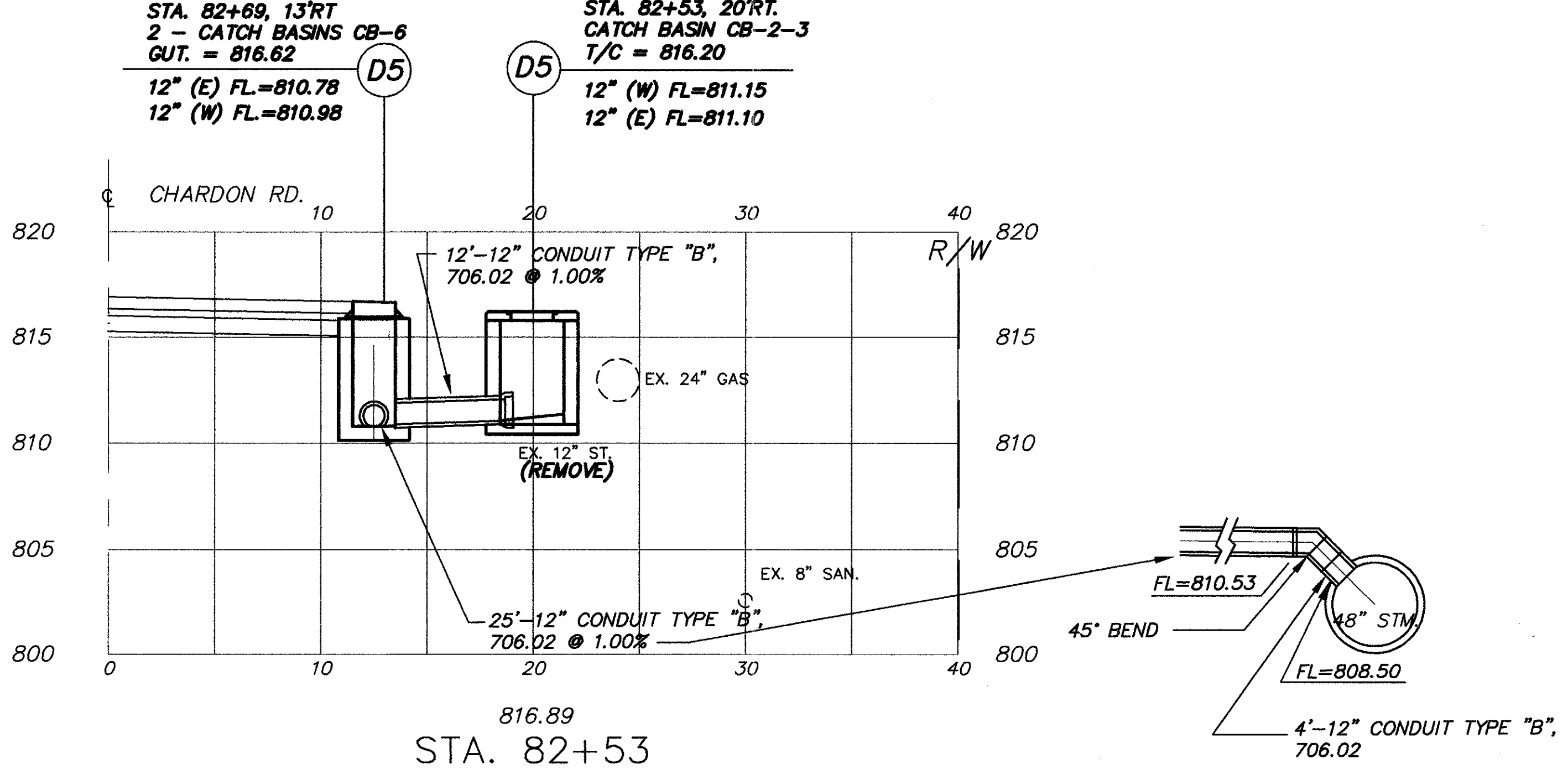
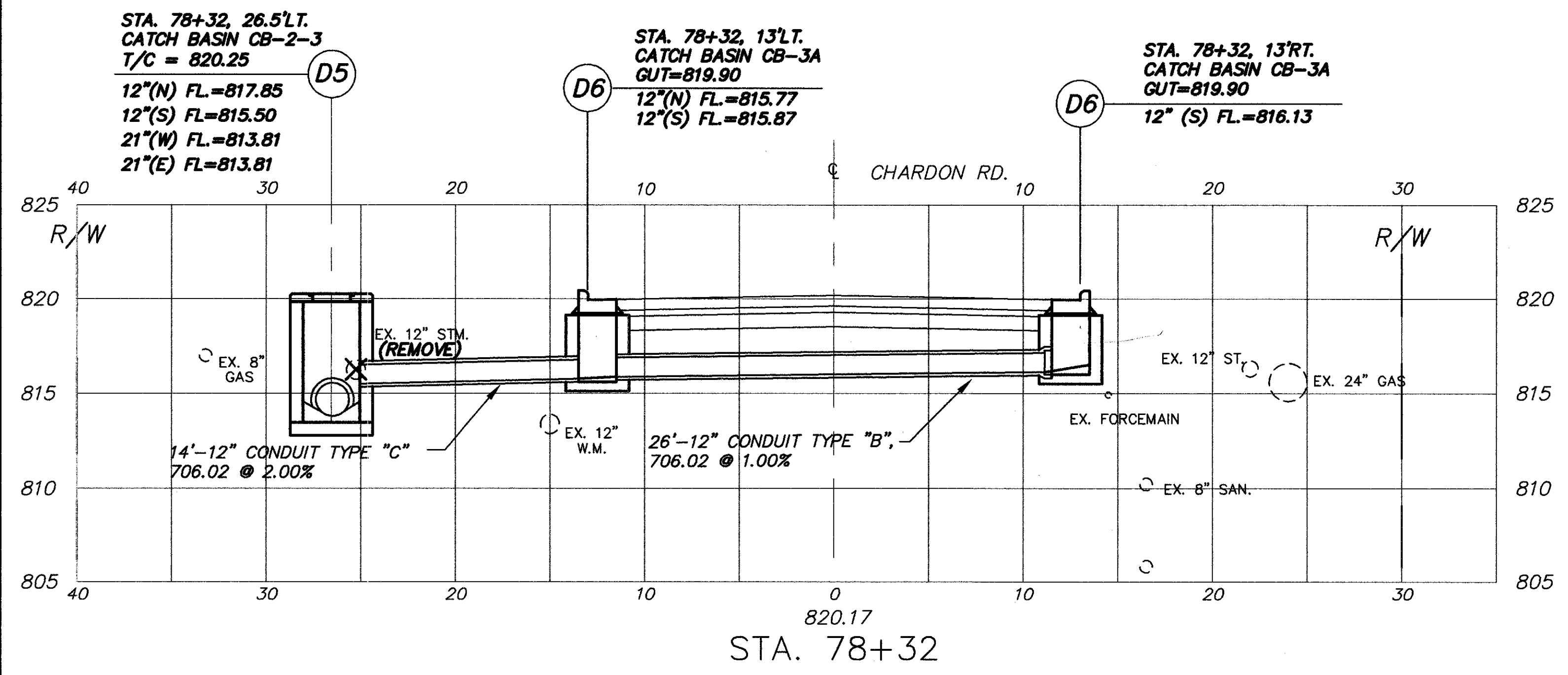
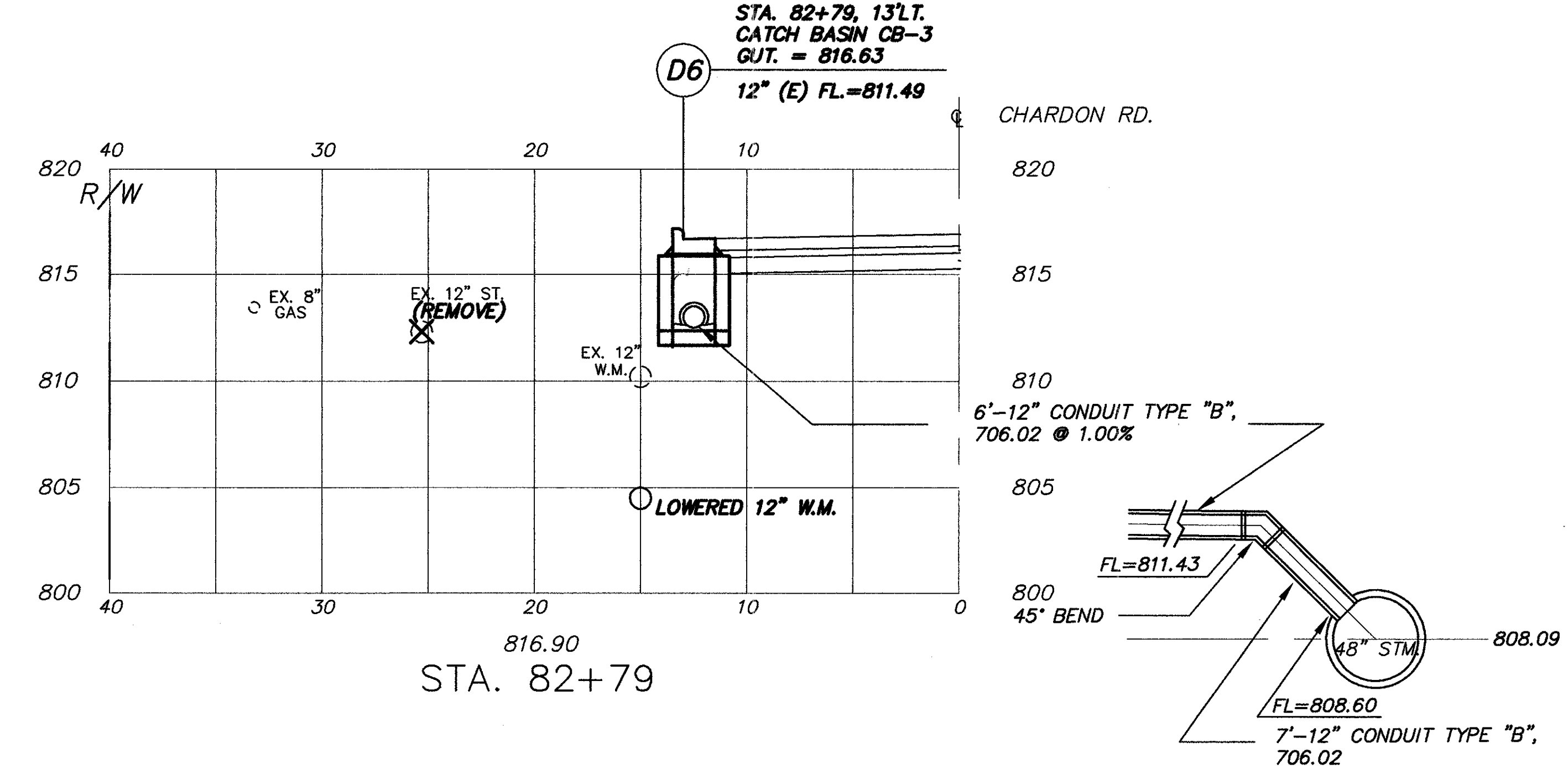
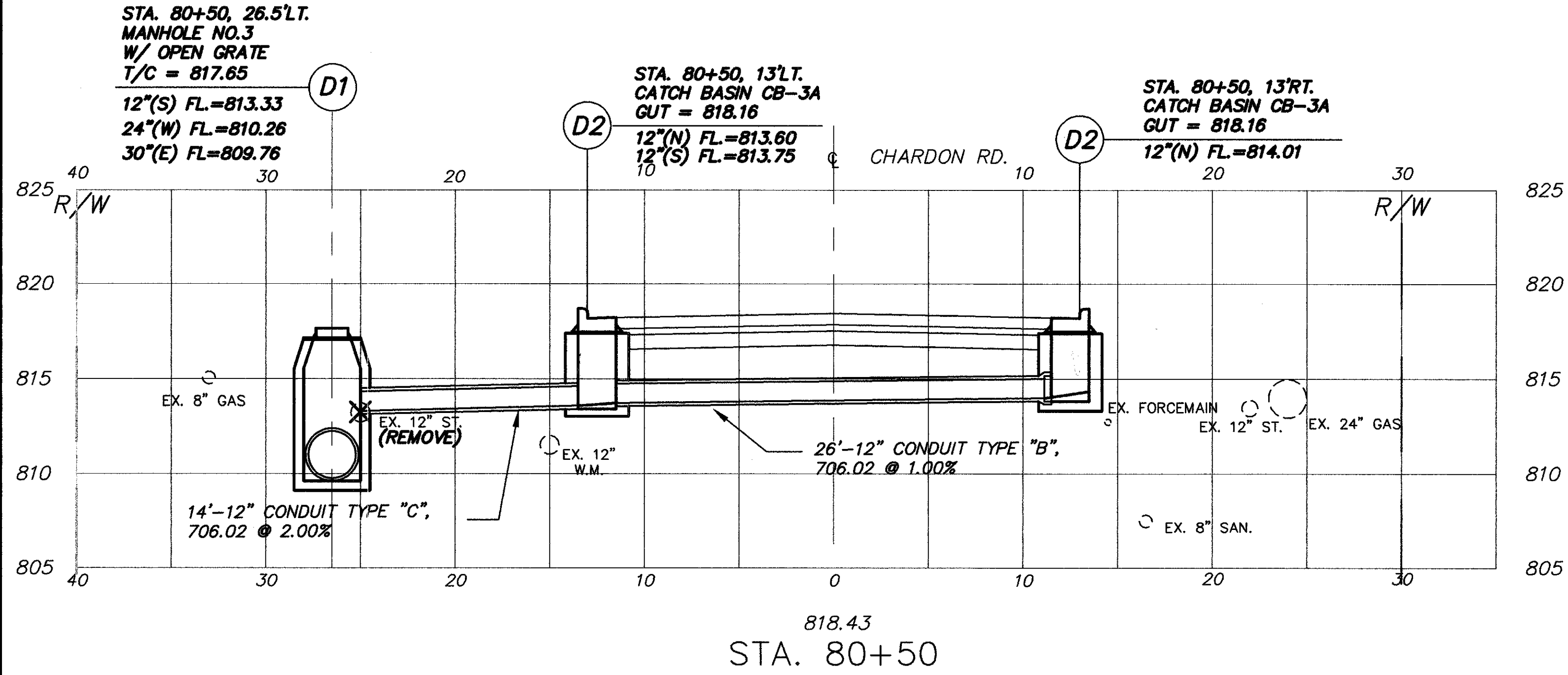


CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

STA. 82+79, 13'L.T.
CATCH BASIN CB-3
GUT. = 816.63
12" (E) FL.=811.49



STEPHEN HOVANCSEK & ASSOCIATES, INC.

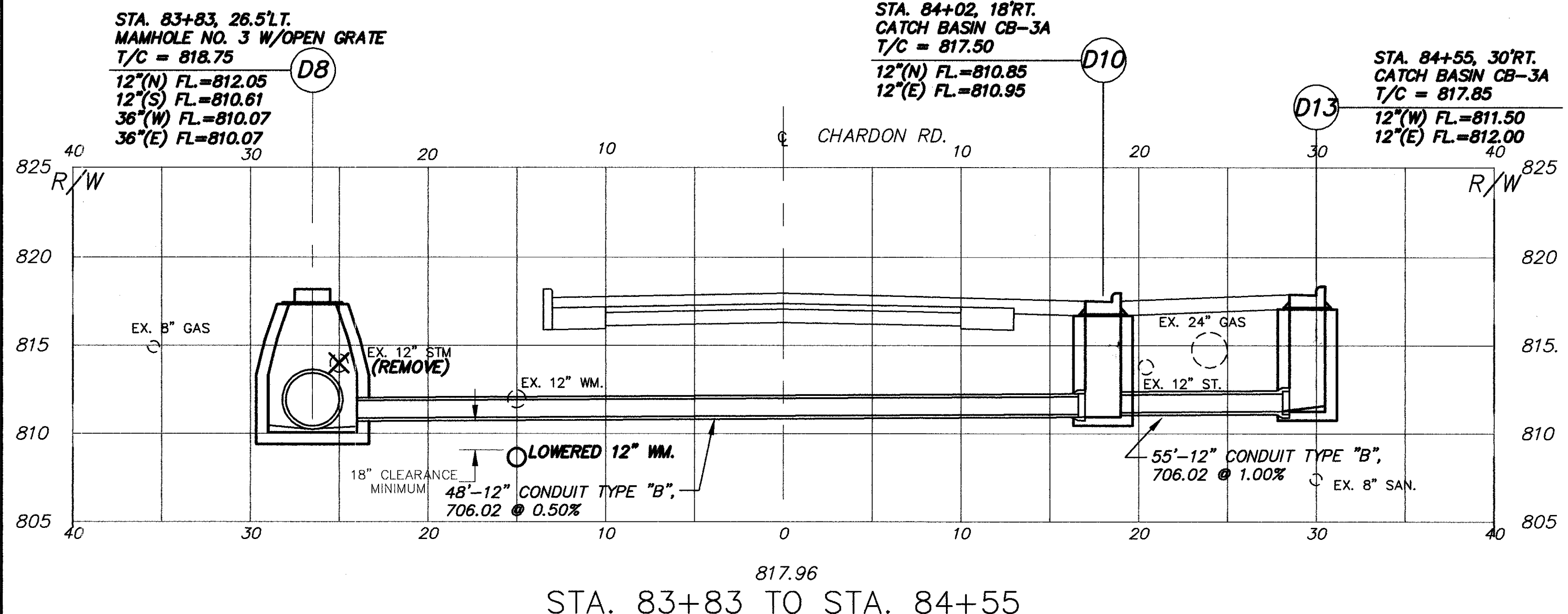
CATCH BASIN CROSSOVER PROFILES STA. 78+32 TO STA. 82+79

CHARDON ROAD

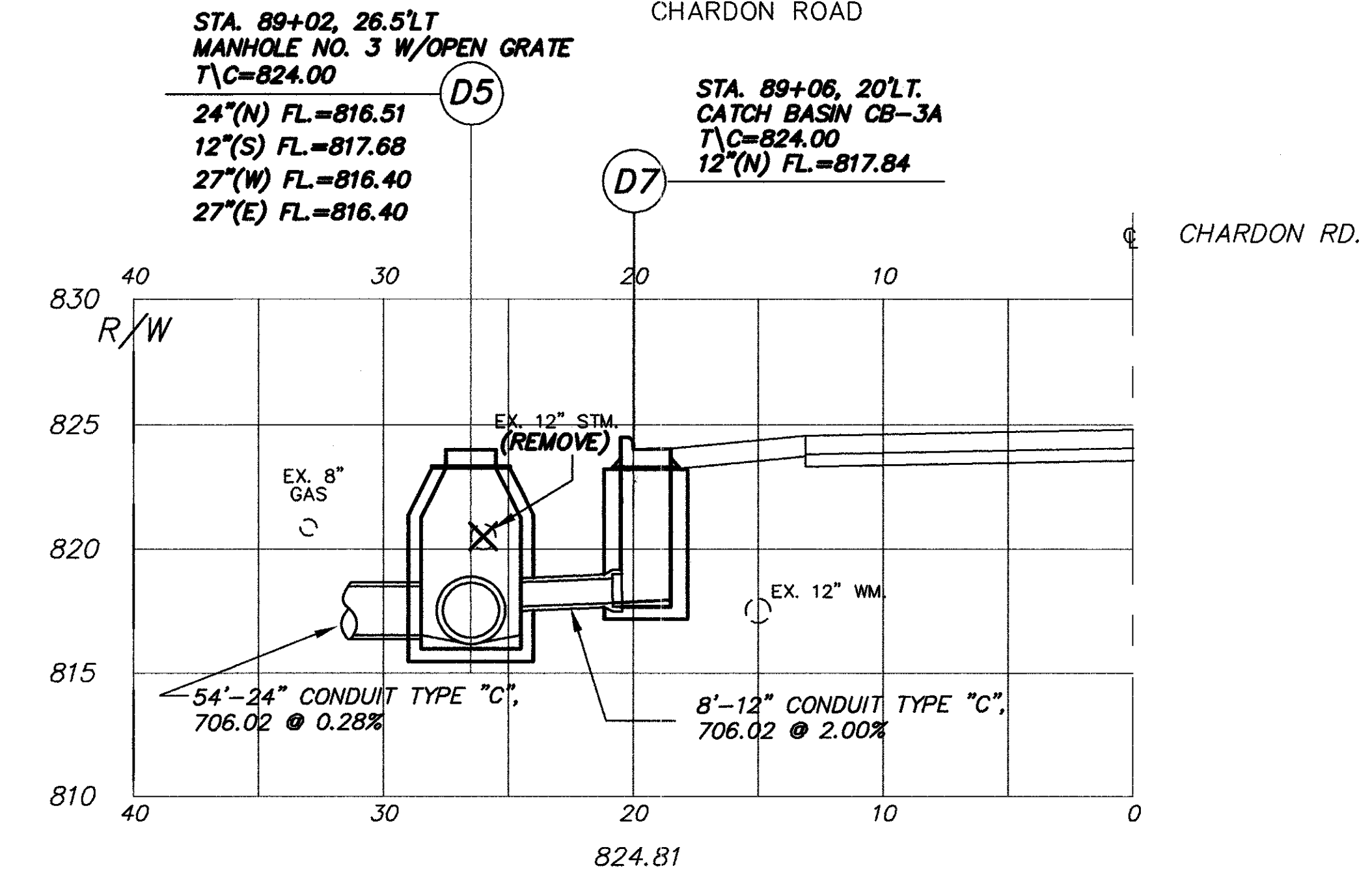
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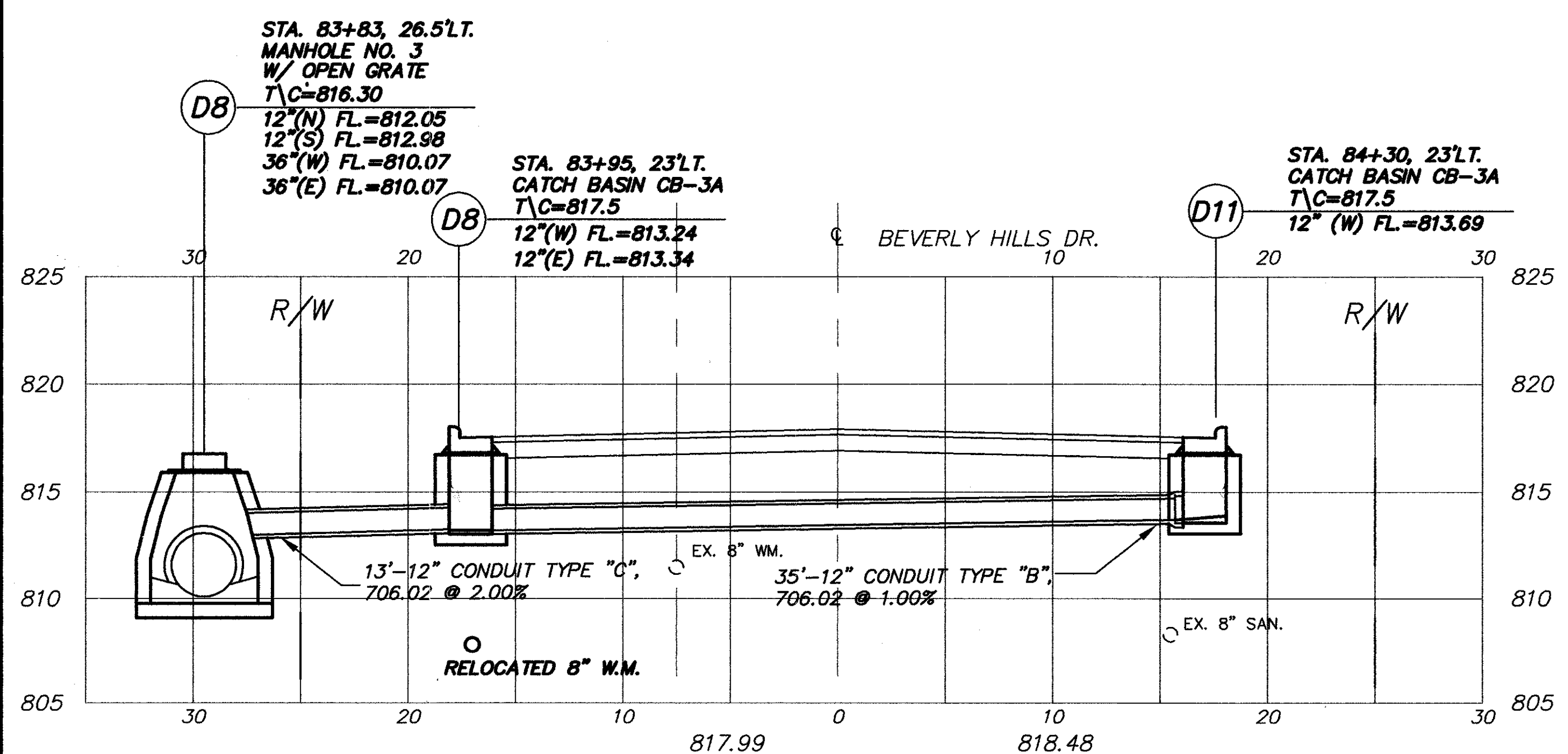
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



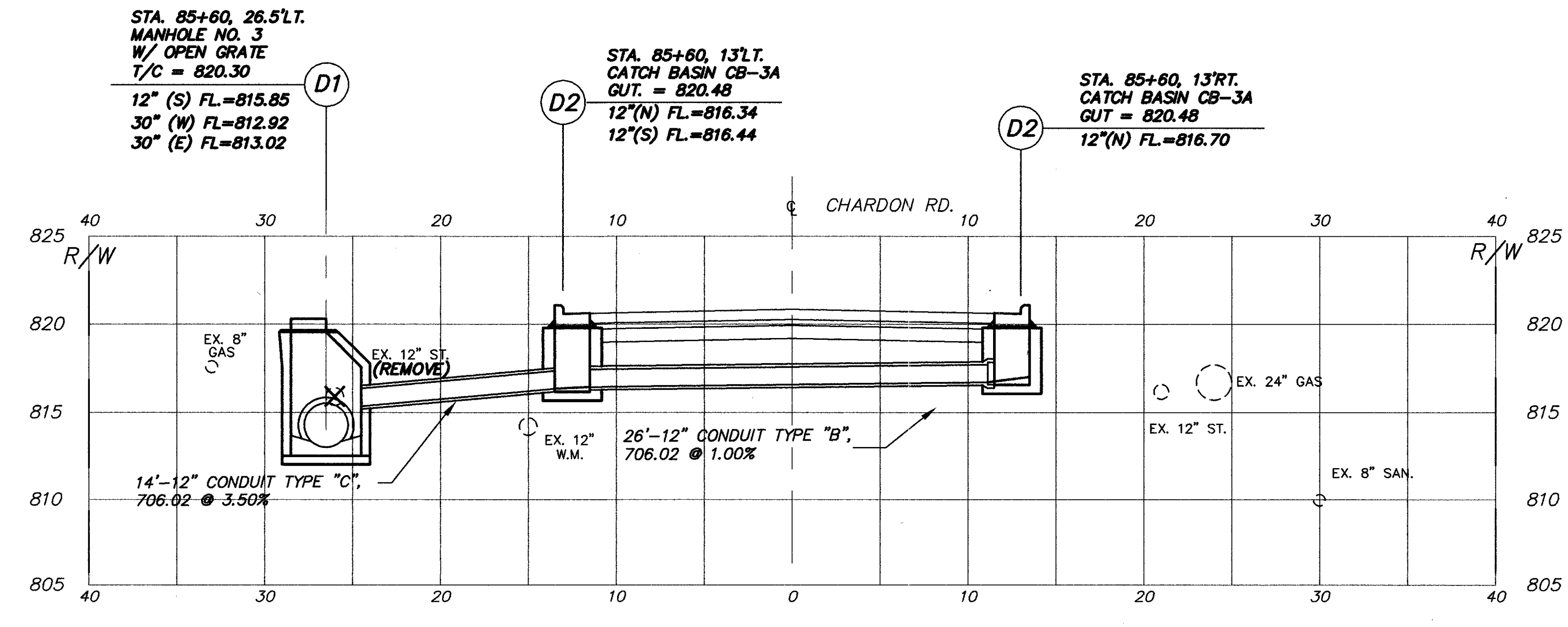
817.96
STA. 83+83 TO STA. 84+55



824.81
STA. 89+06

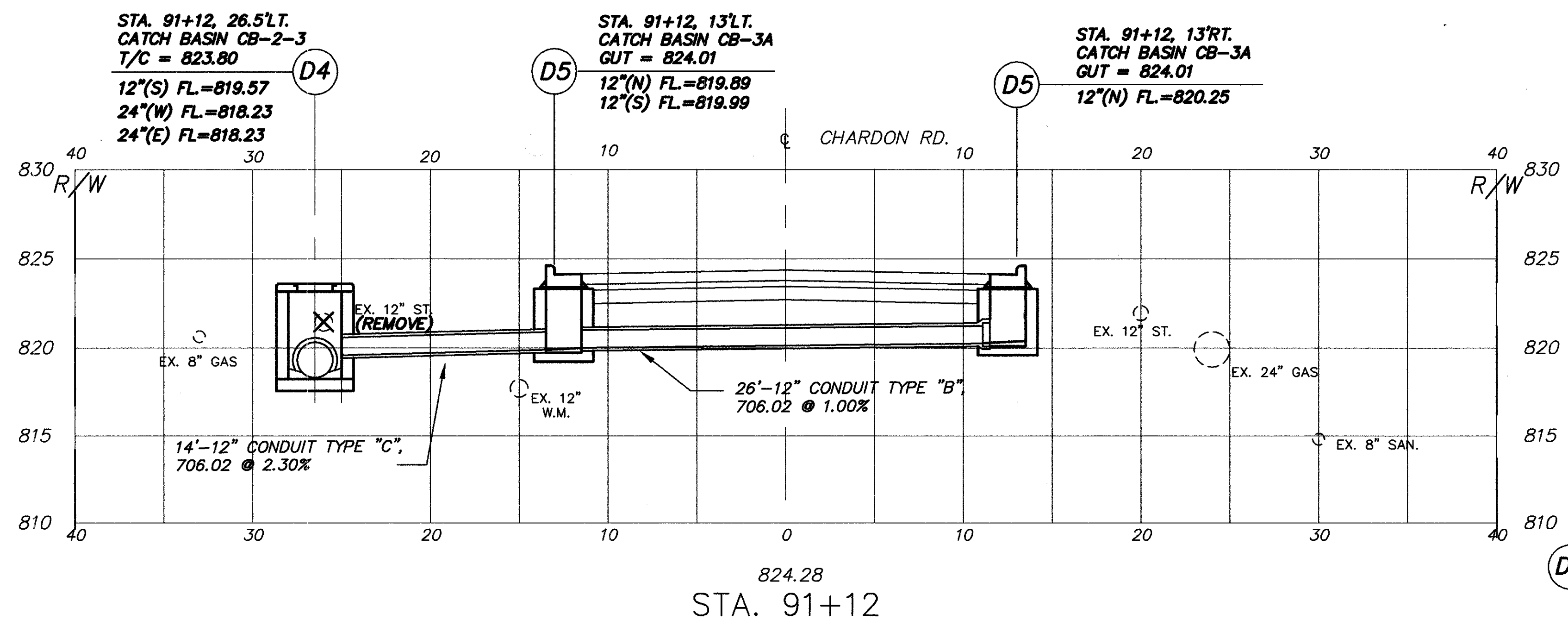


817.99 818.48
STA. 83+83 TO STA. 84+30

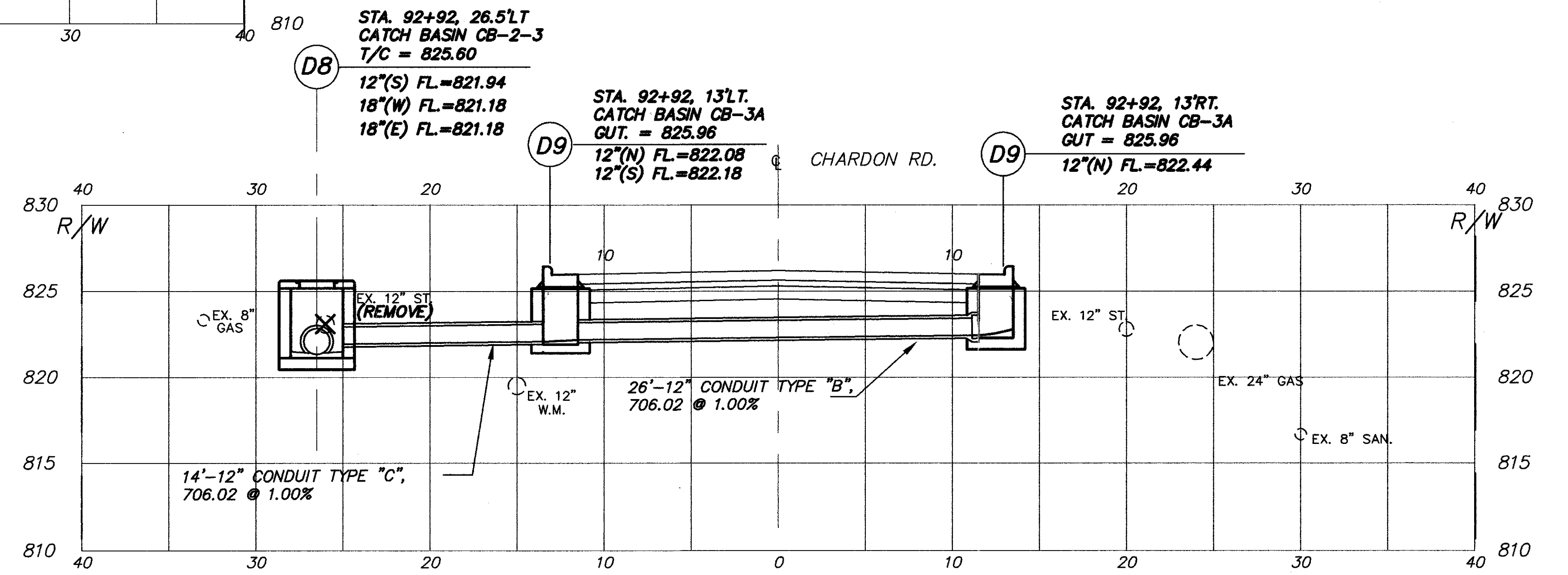


820.75
STA. 85+60

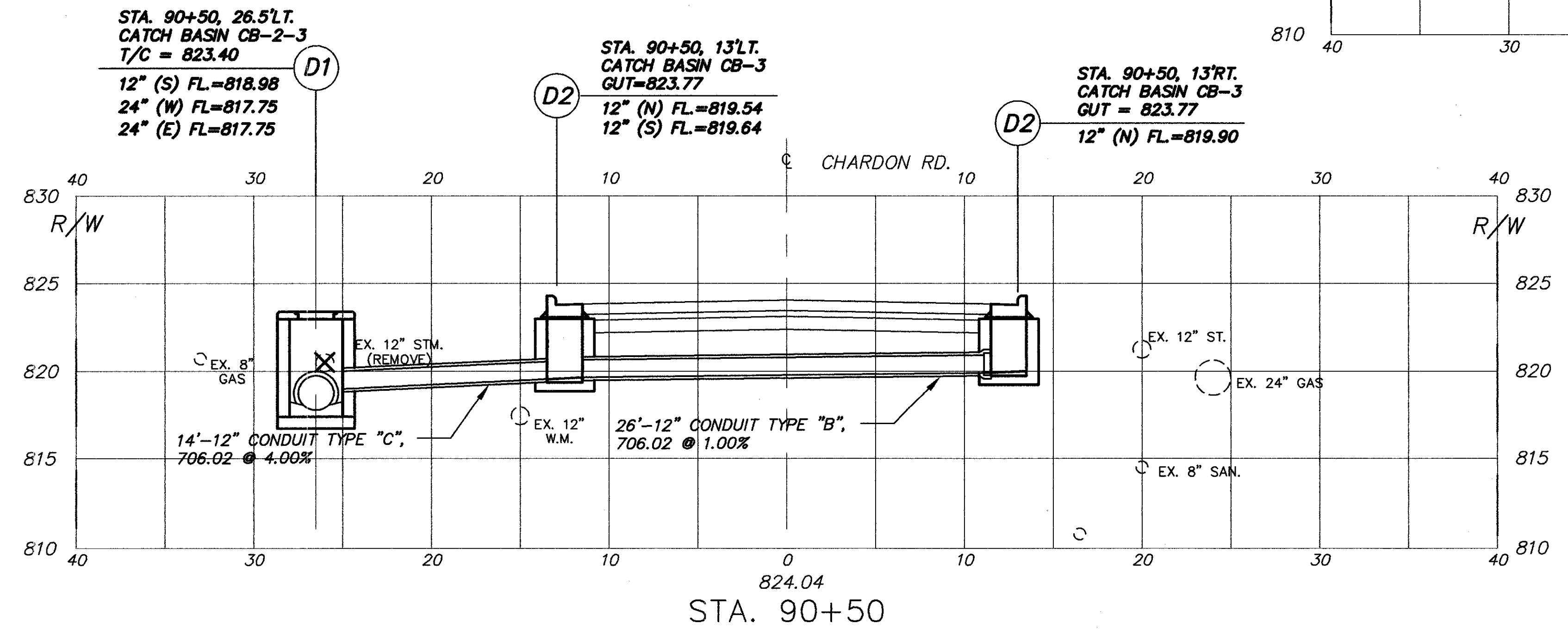
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



824.28
STA. 91+12

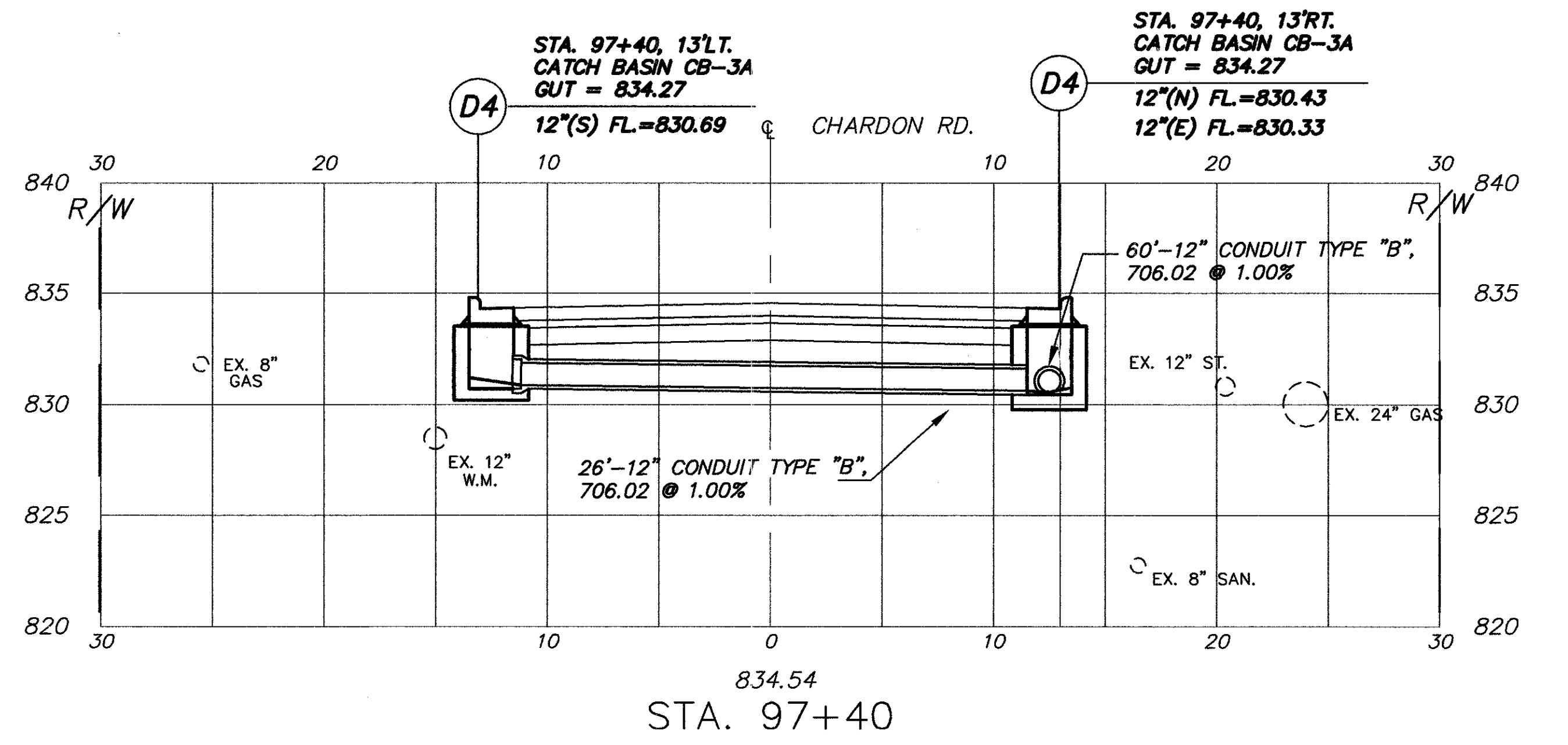
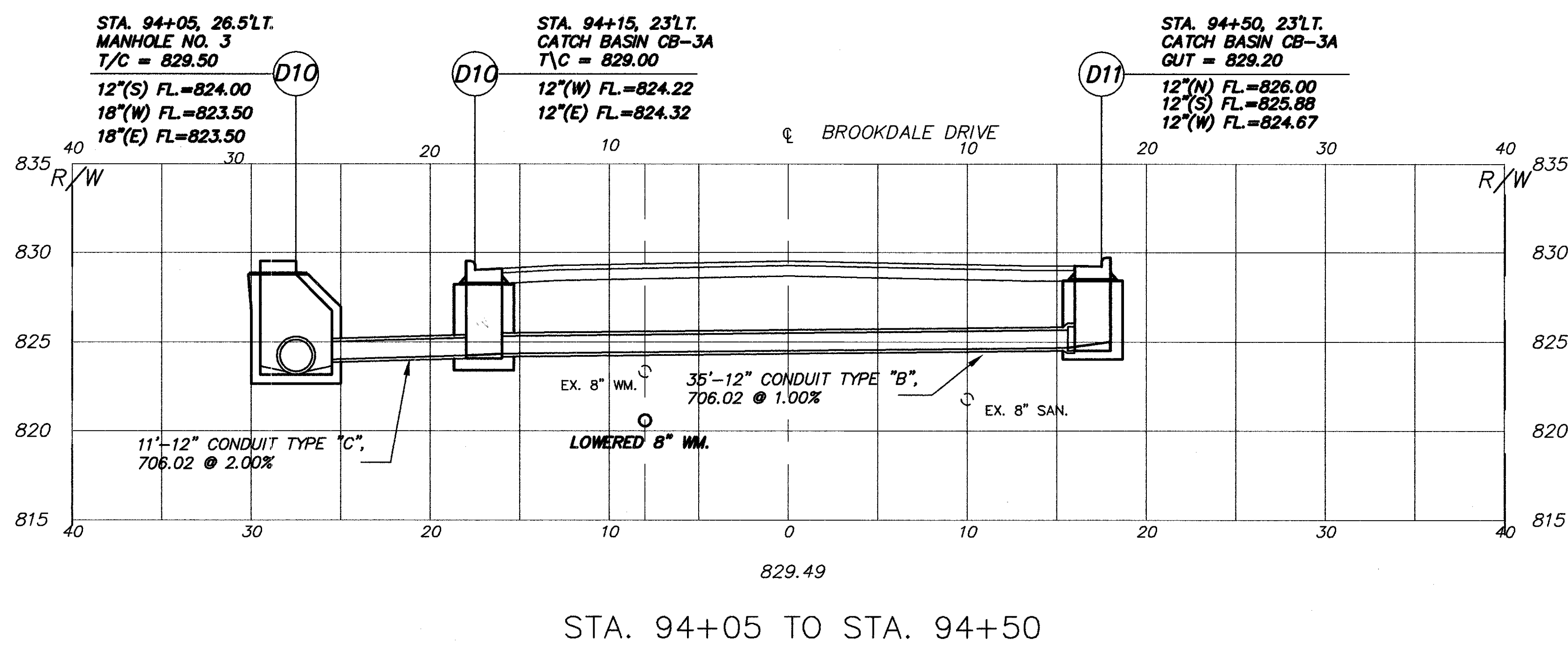
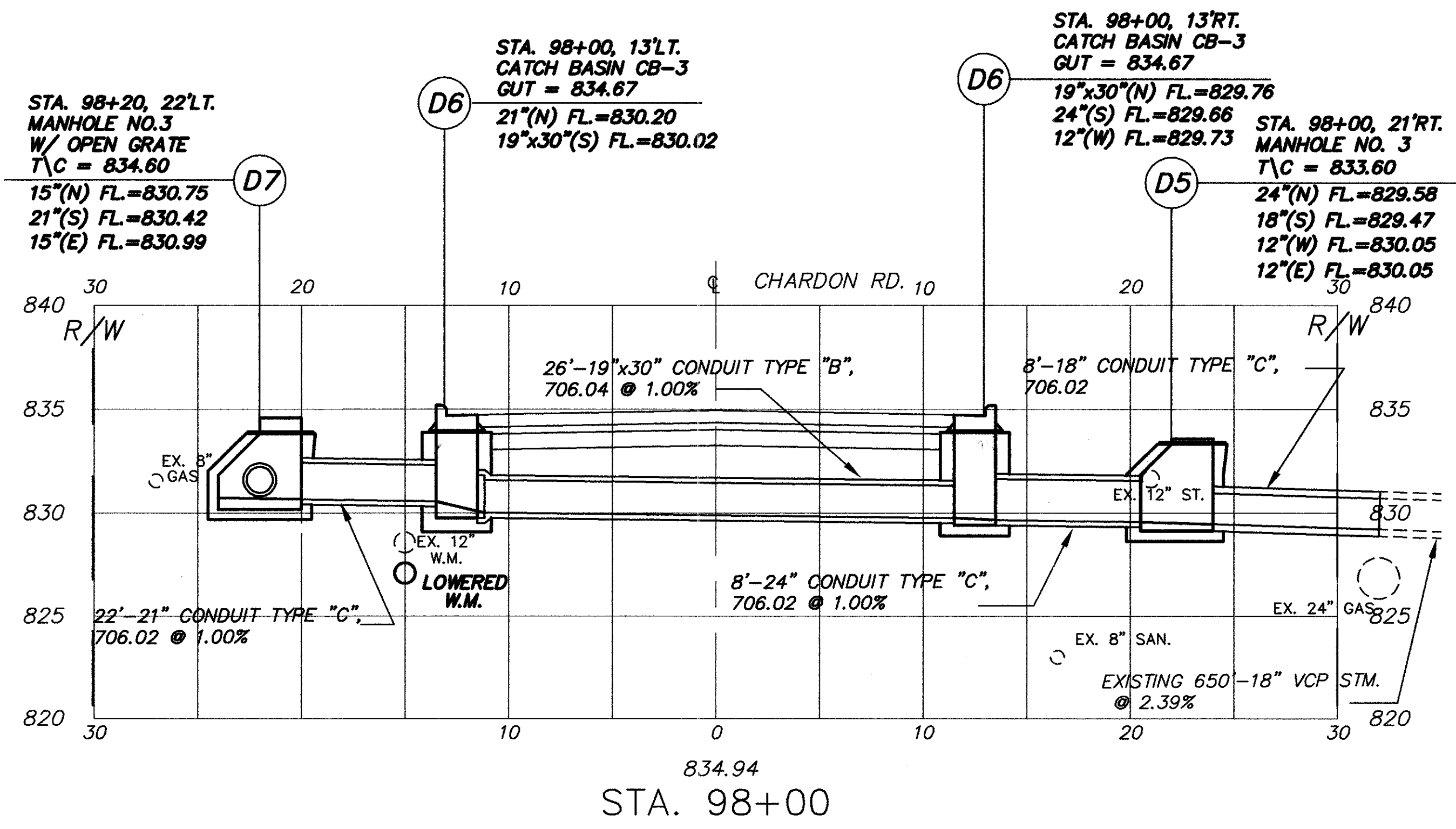
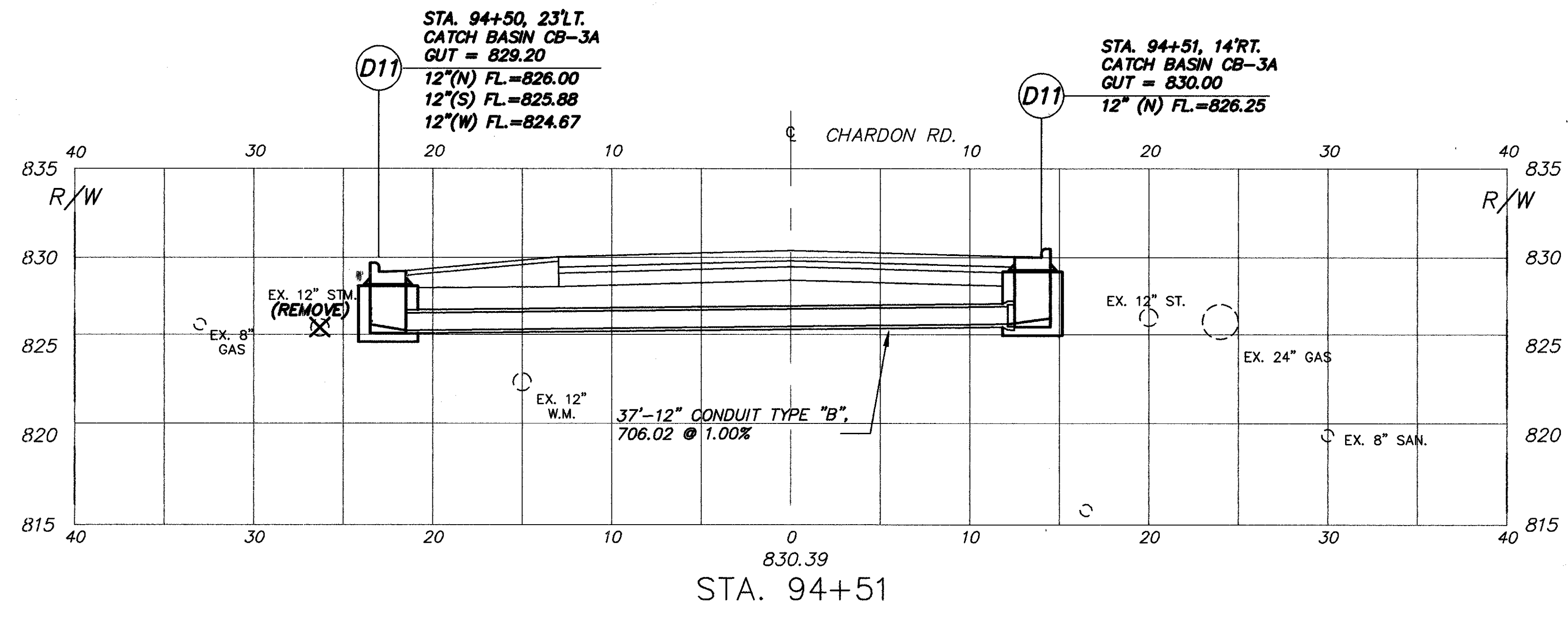


826.23
STA. 92+92



824.04
STA. 90+50

CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

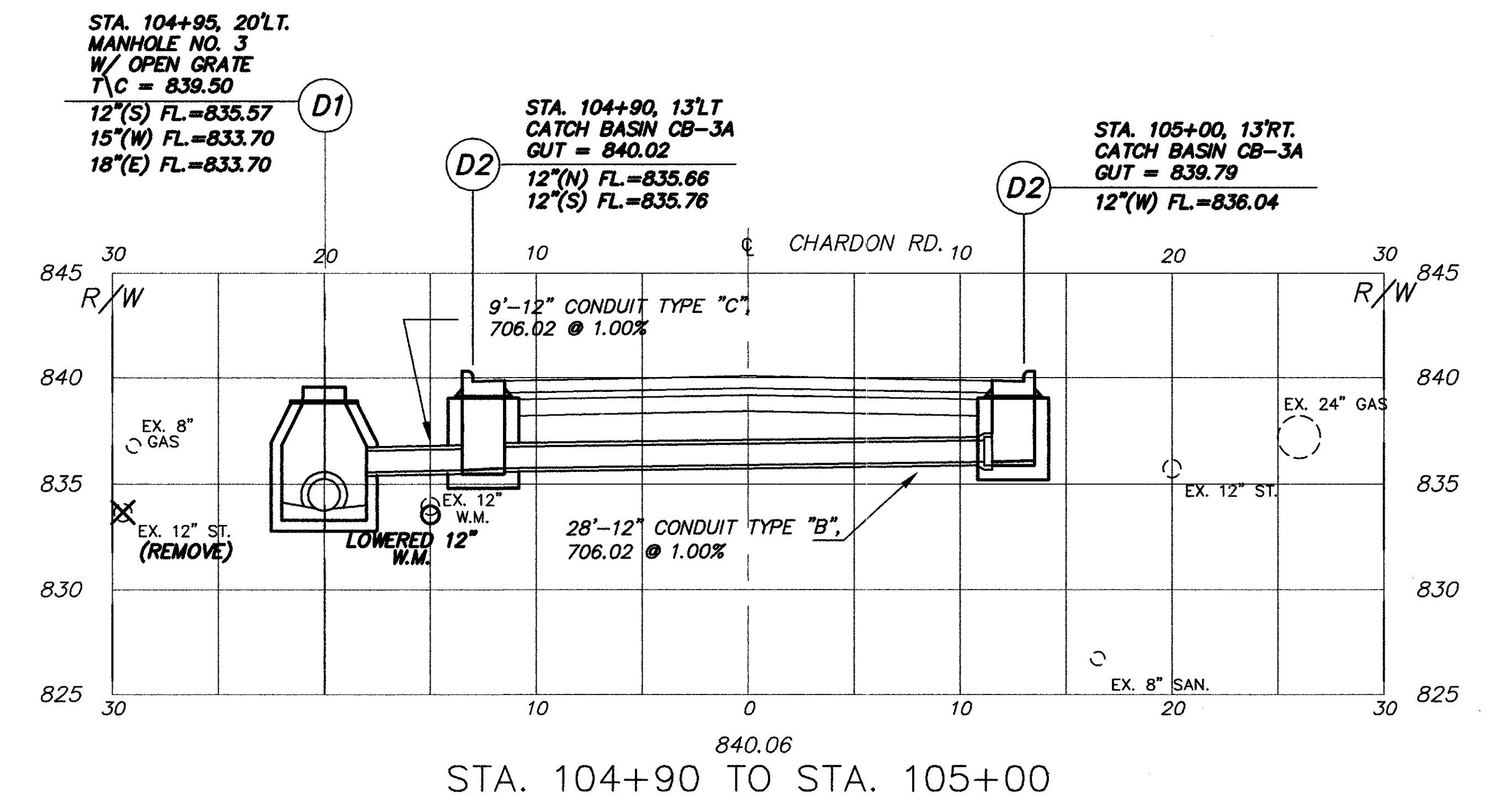
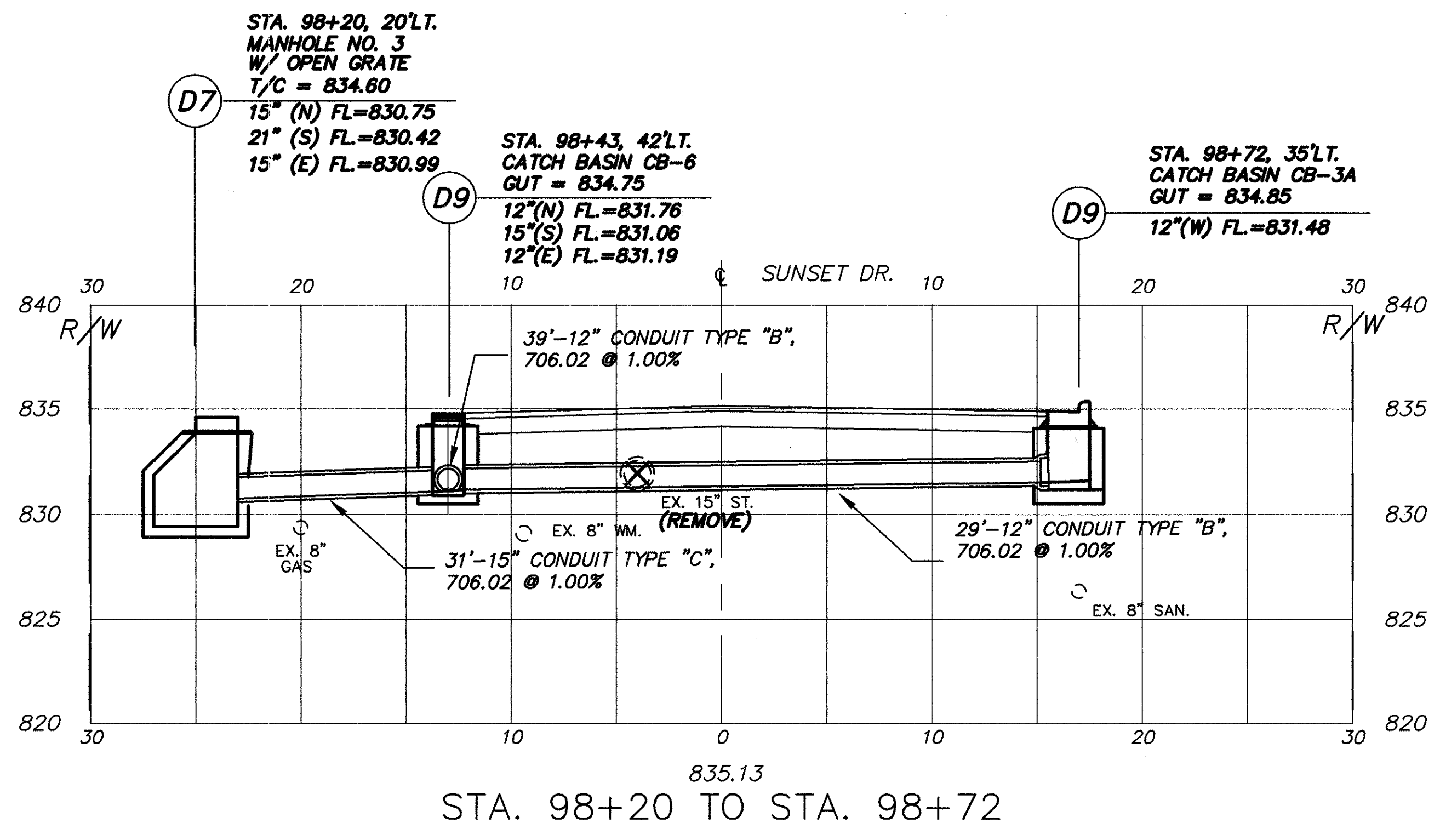
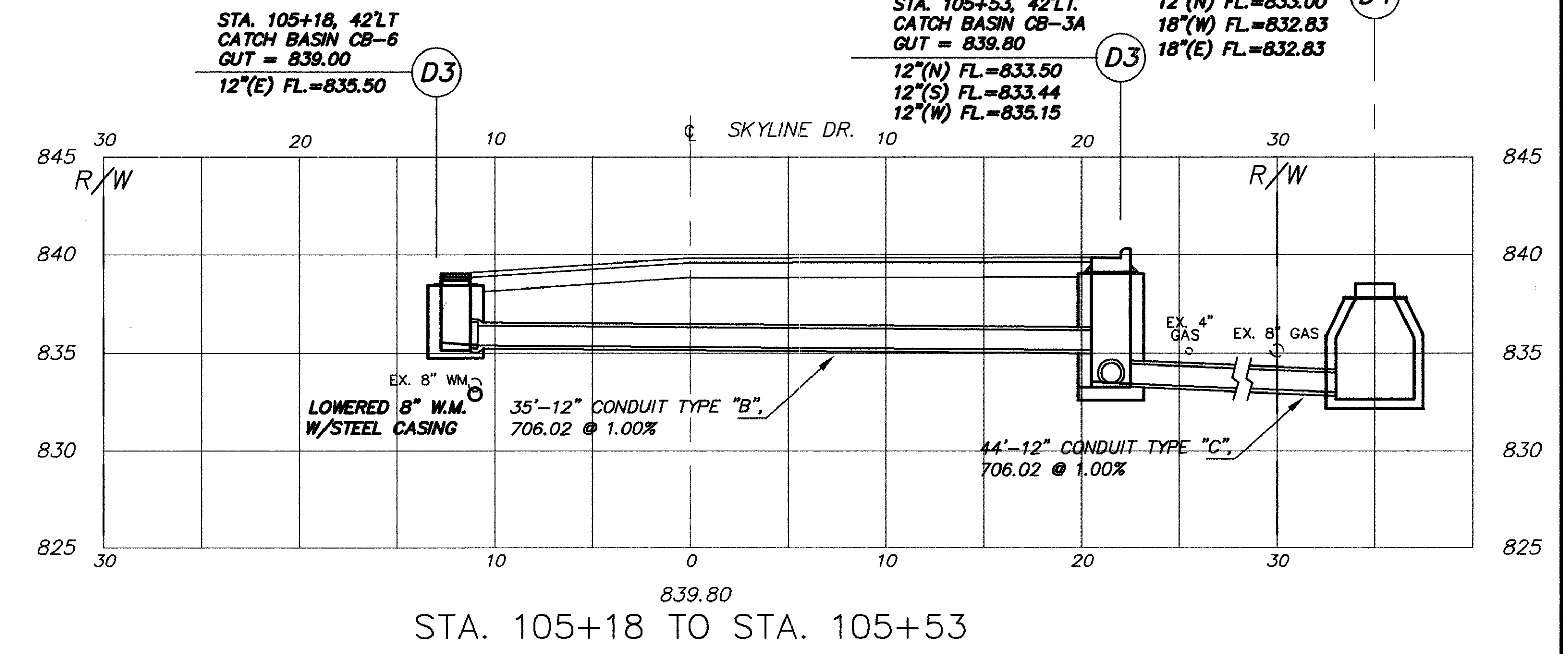
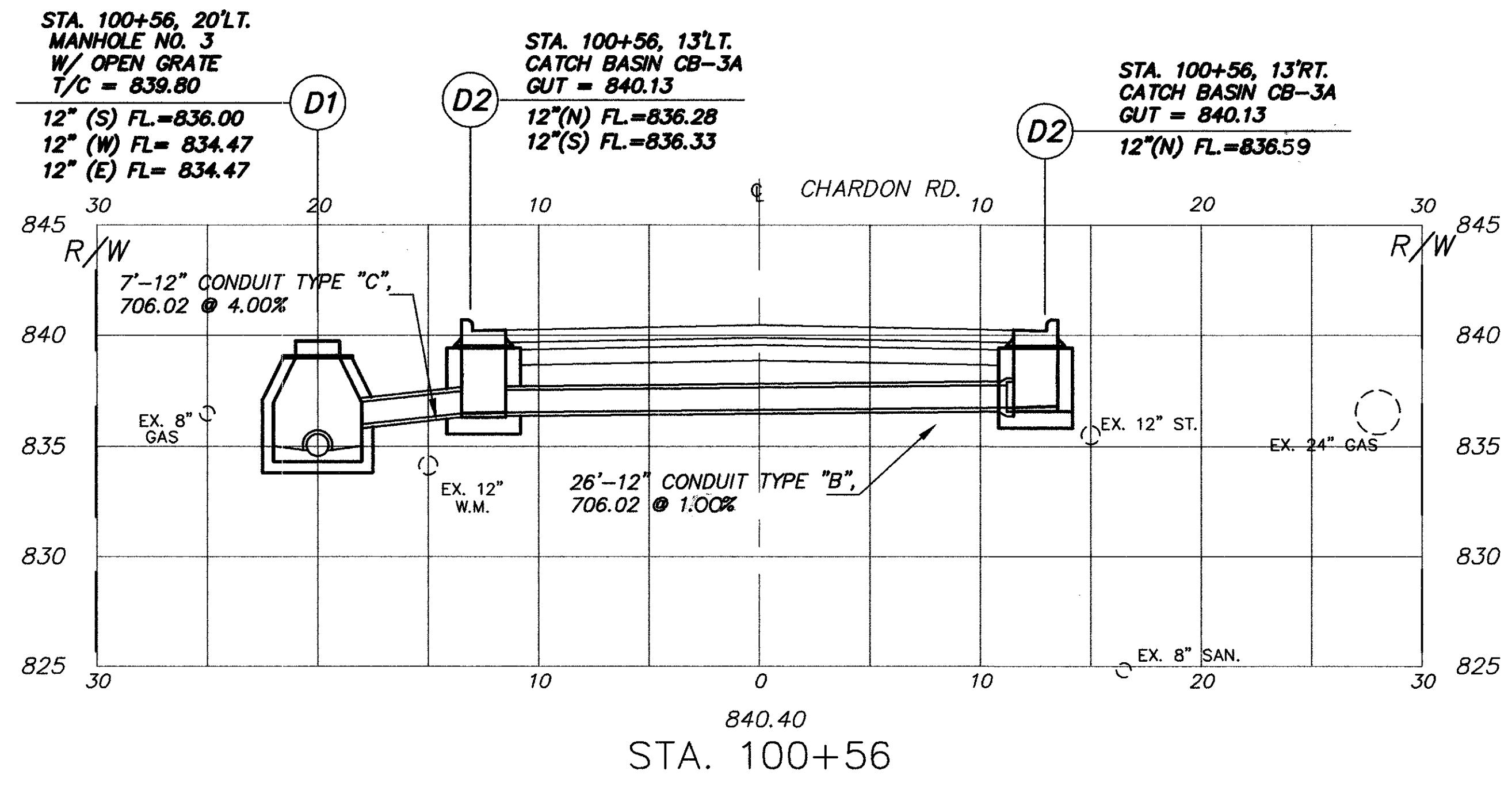


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CHARDON ROAD

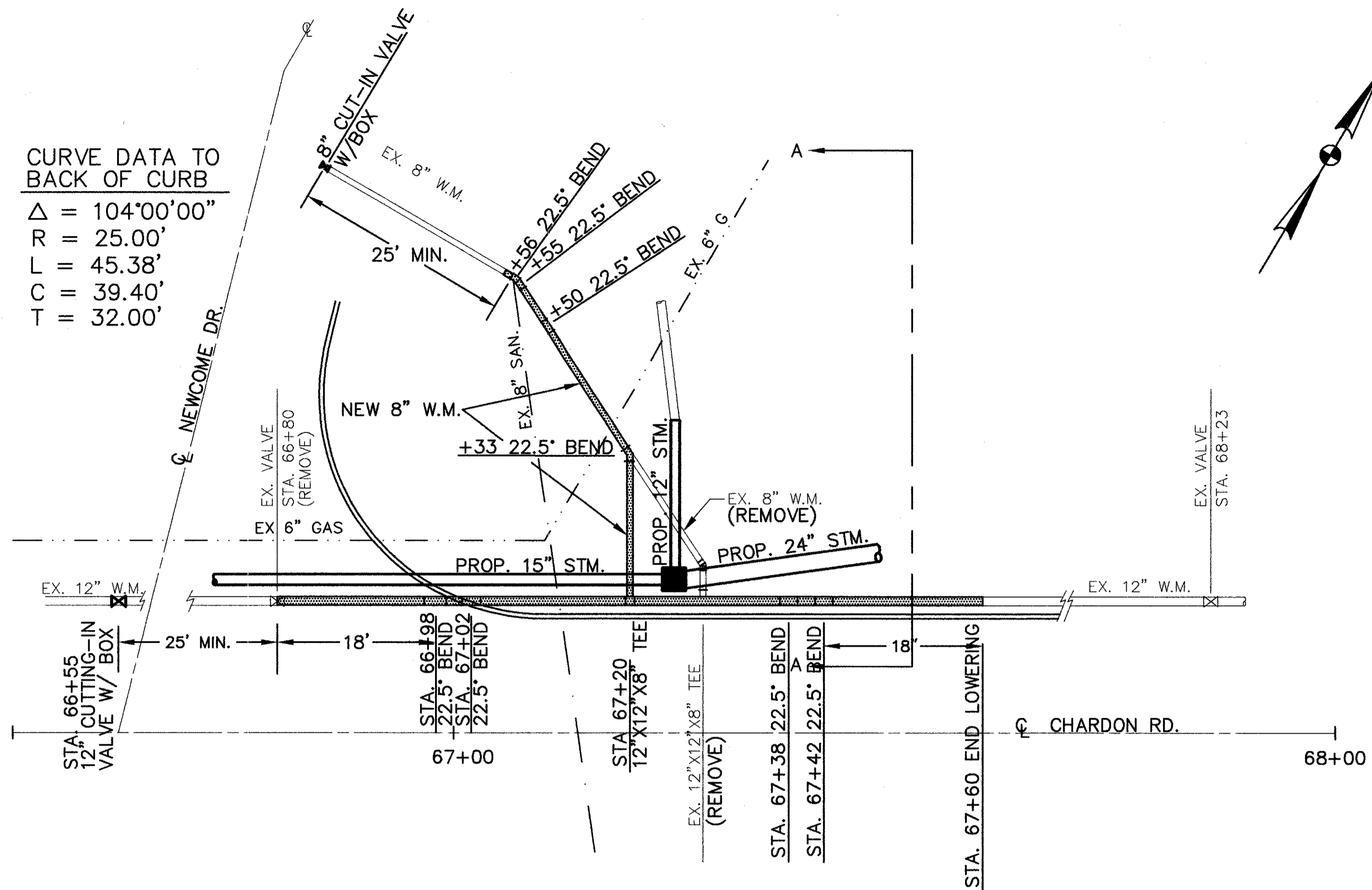
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

STA. 105+90, 20'L.T.
MANHOLE NO. 3
T/C = 838.50
12"(N) FL.=833.00
18"(W) FL.=832.83
18"(E) FL.=832.83

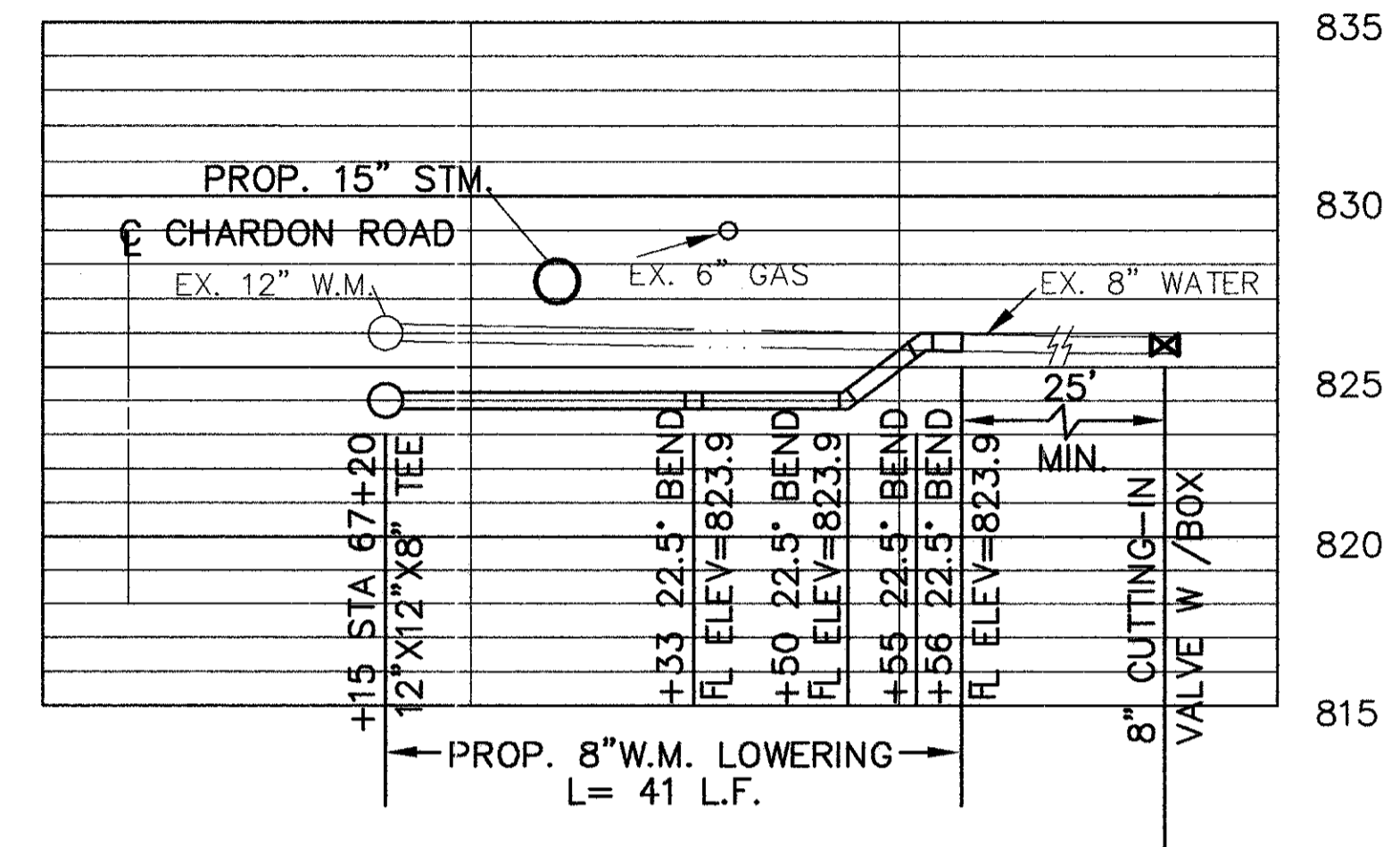


CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD

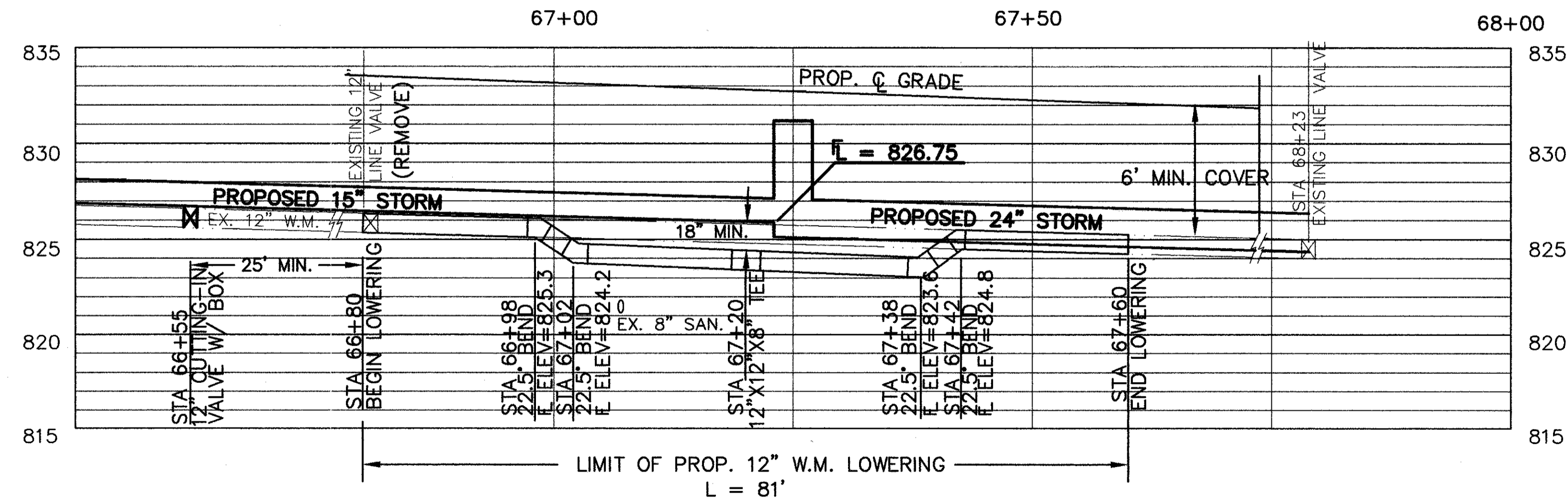
CURVE DATA TO BACK OF CURB
 $\Delta = 104^{\circ}00'00''$
 $R = 25.00'$
 $L = 45.38'$
 $C = 39.40'$
 $T = 32.00'$



PLAN
SCALE: 1"=10'



SECTION A-A
SCALE: 1"=10' HORIZONTAL
SCALE: 1"=5' VERTICAL

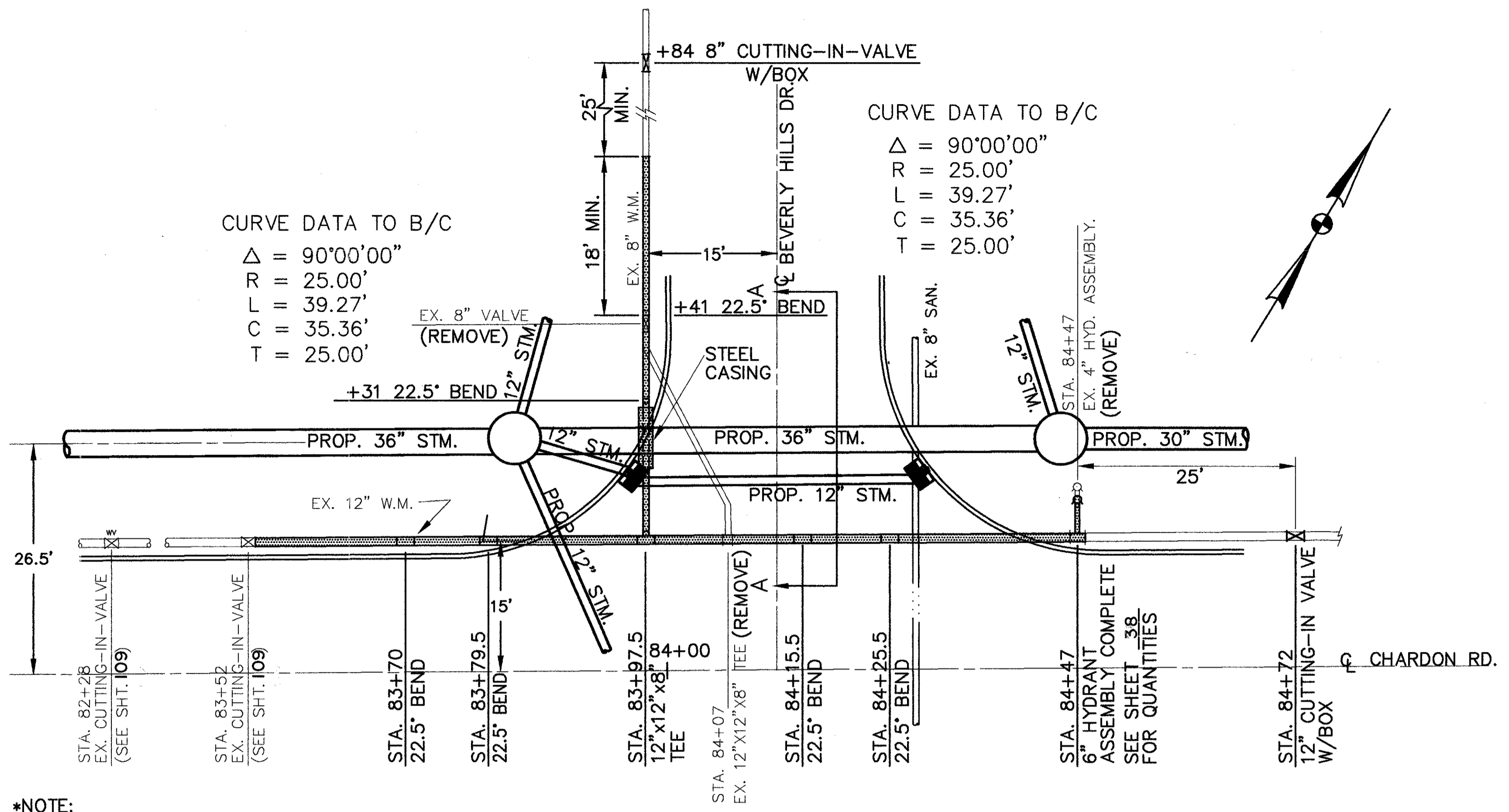


PROFILE
SCALE: 1"=10' HORIZONTAL
SCALE: 1"=5' VERTICAL

WATERWORK QUANTITIES			
ITEM	DESCRIPTION	UNIT	QTY.
638	12" WATER MAIN, DUCTILE IRON PIPE, ANSI CL. 56 W/BOLTLESS RESTRAINED MECH. JOINTS & FITTINGS	L.F.	81
638	8" WATER MAIN, DUCTILE IRON PIPE, ANSI CL. 56 W/BOLTLESS RESTRAINED MECH. JOINTS & FITTINGS	L.F.	41
638	12" CUTTING-IN & SLEEVE VALVE & VALVE BOX	EA.	1
638	8" CUTTING-IN & SLEEVE VALVE & VALVE BOX	EA.	1

QUANTITIES CARRIED TO SHEET 39

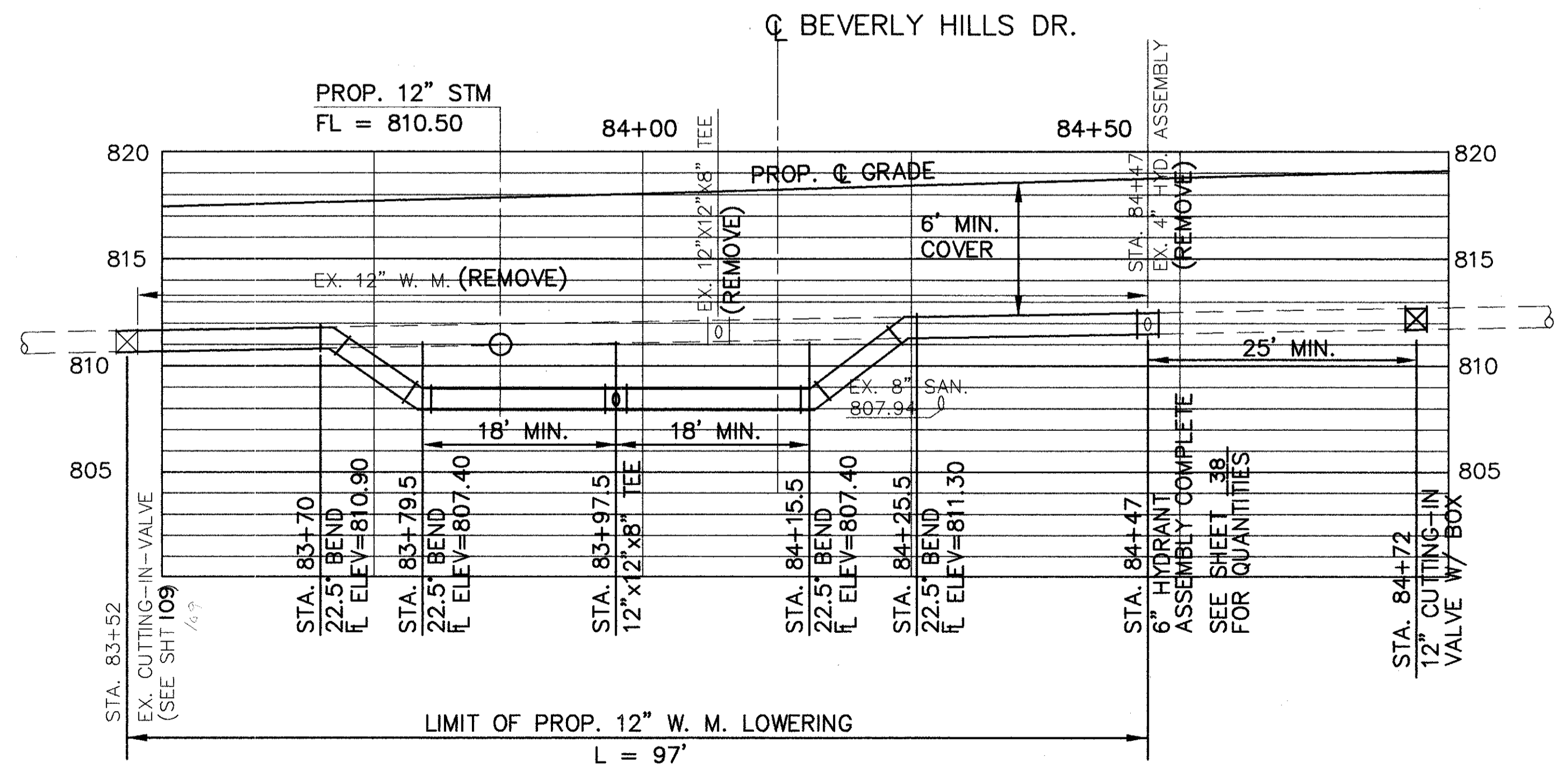
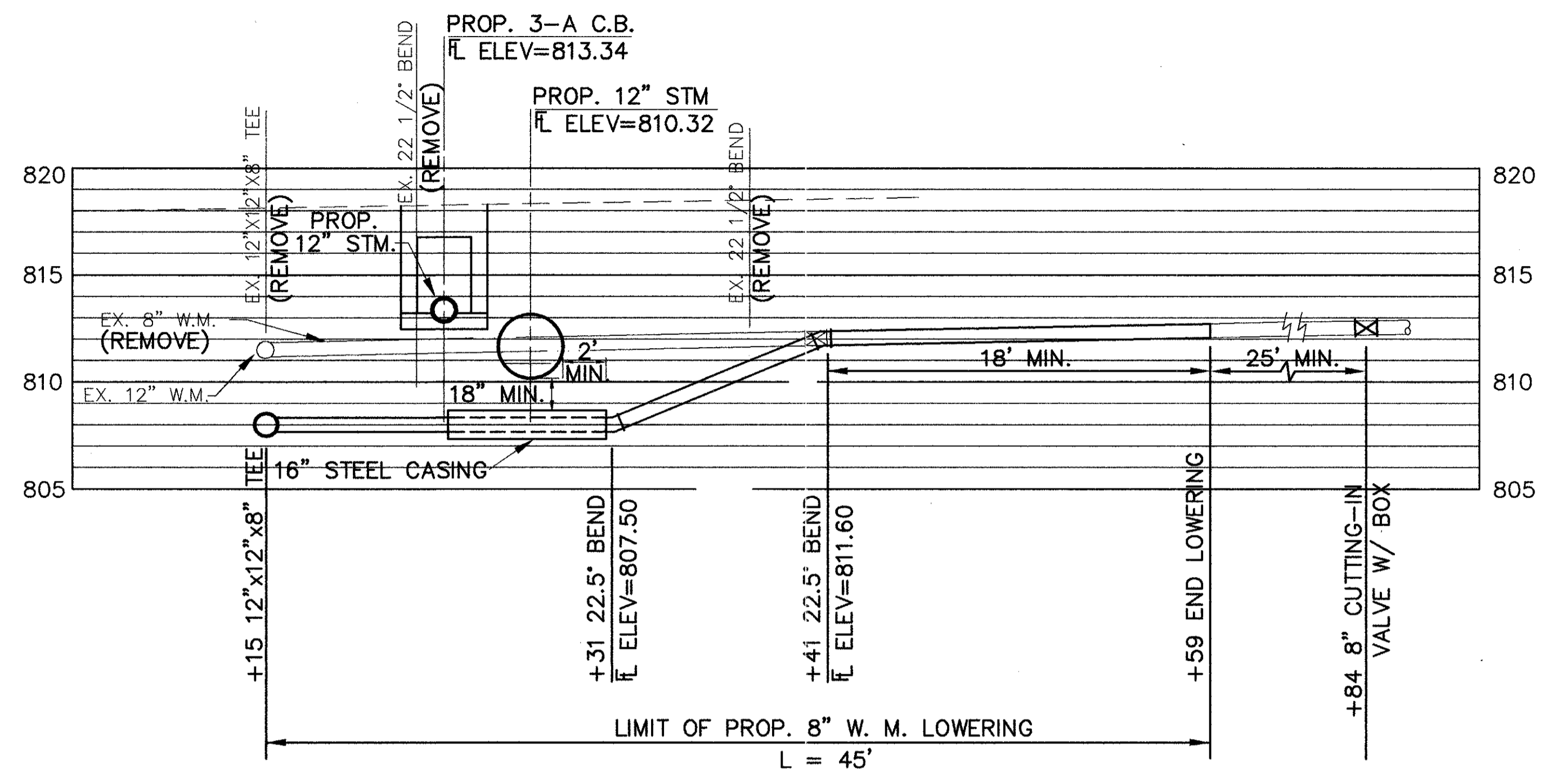
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



*NOTE:
IN PERFORMING THE 12" WATERMAIN LOWERING, PRESSURE SHOULD BE SHUT OFF AT VALVE LOCATED AT STATION 82+28

WATERMAIN LOWERING - BEVERLY HILLS DR.

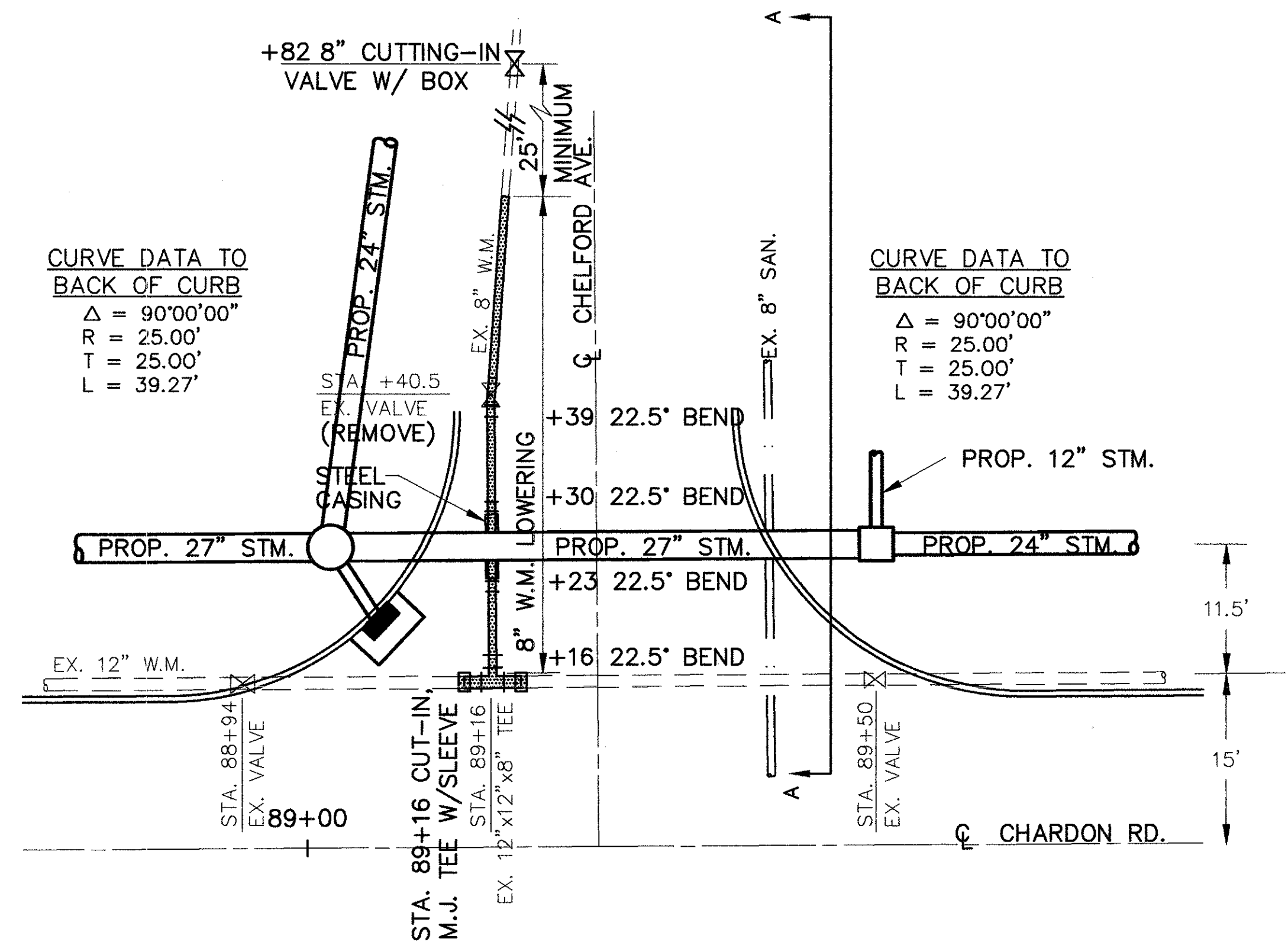
SCALE: 1"=10'



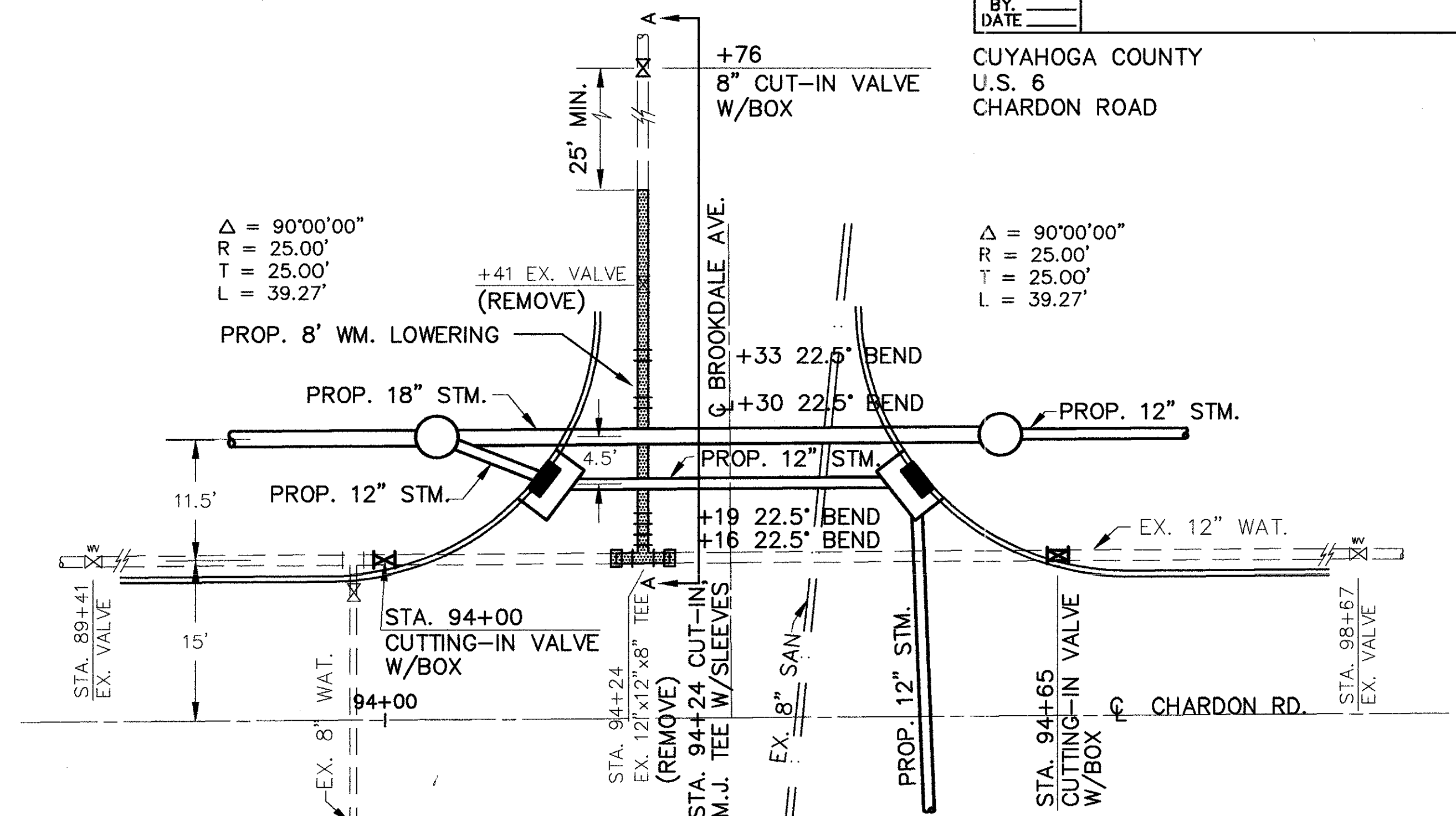
WATERWORK QUANTITIES			
ITEM	DESCRIPTION	QTY.	UNIT
638	12" WATER MAIN, DUCTILE IRON PIPE, ANSI CL. 56 W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	97	L.F.
638	8" WATER MAIN, DUCTILE IRON PIPE, ANSI CL. 56 W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	45	L.F.
638	12" CUTTING-IN & SLEEVE, VALVE & VALVE BOX	1	EA.
638	8" CUTTING-IN & SLEEVE, VALVE & VALVE BOX	1	EA.
638	16" STEEL CASING PIPE	7	L.F.

QUANTITIES CARRIED TO SHEET 39

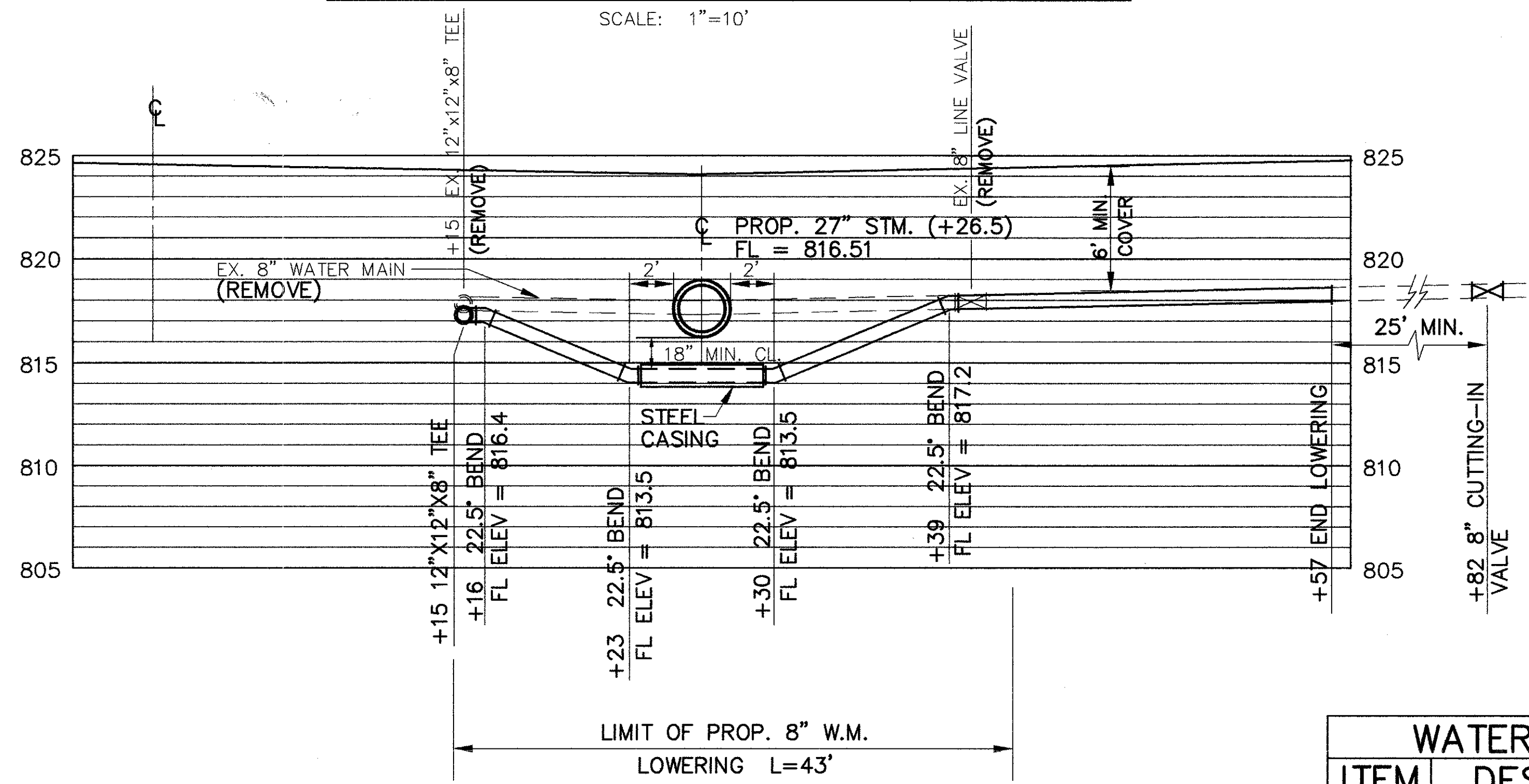
CHARDON ROAD



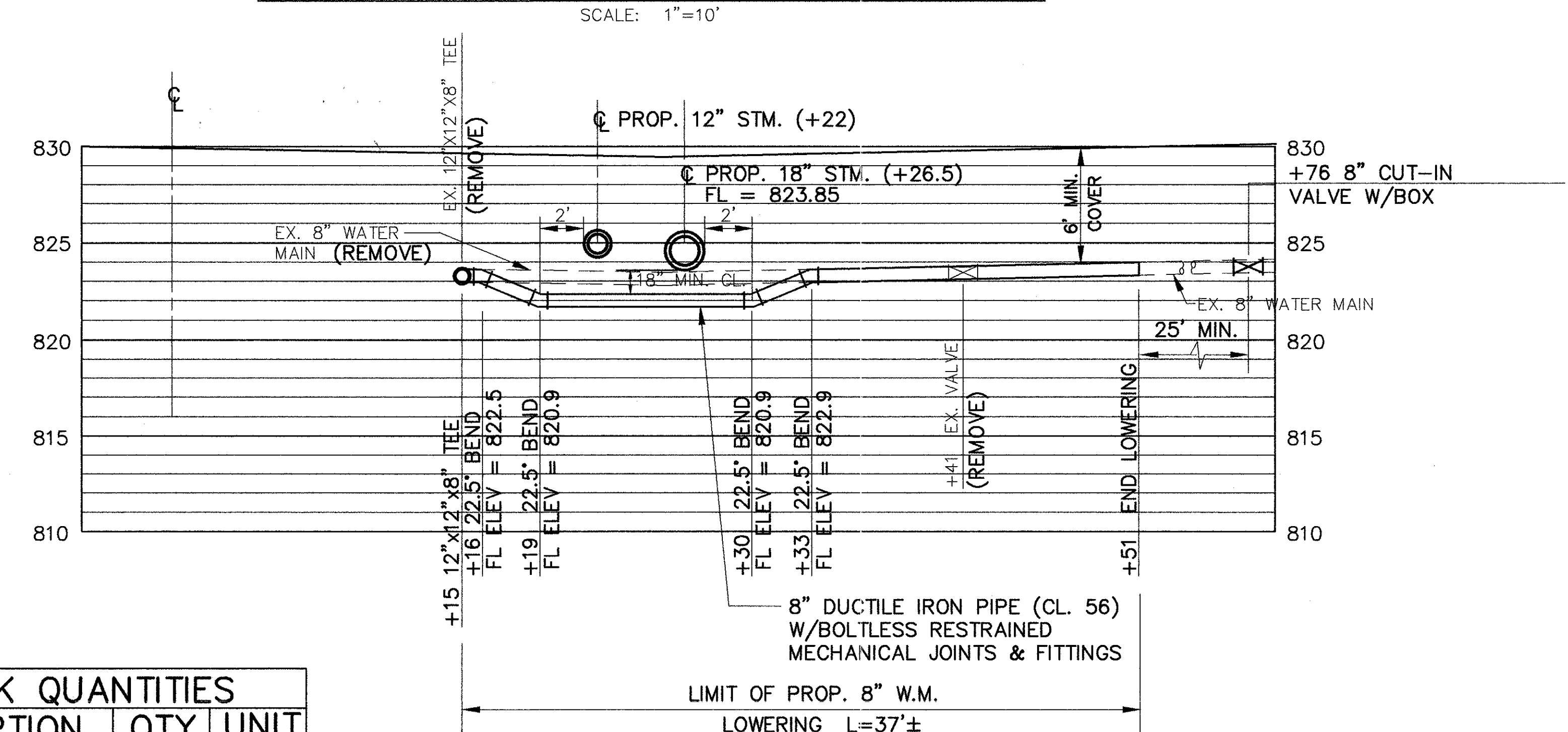
WATERMAIN LOWERING - CHELFORD AVE.



WATERMAIN LOWERING - BROOKDALE AVE.



SECTION A-A
 SCALE: 1"=5' HORIZONTAL
 1"=5' VERTICAL

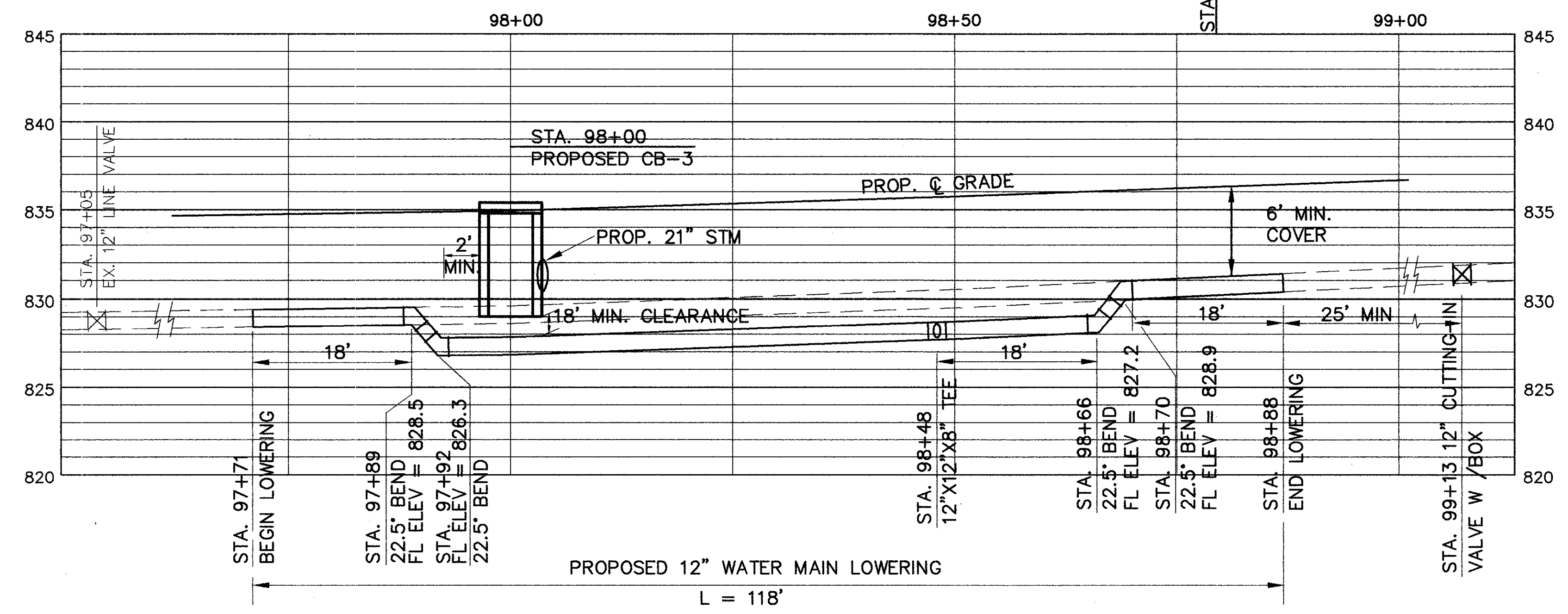
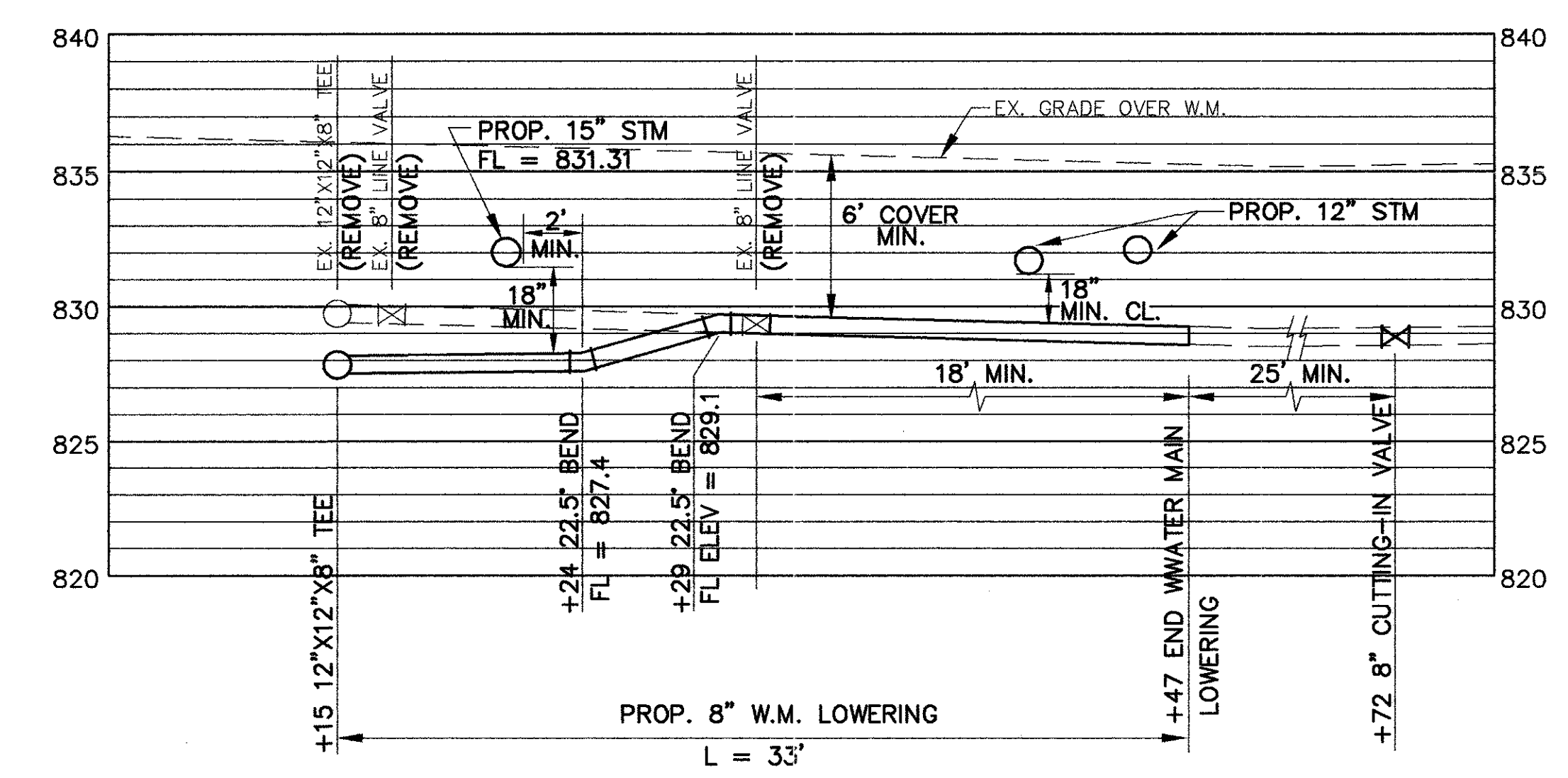
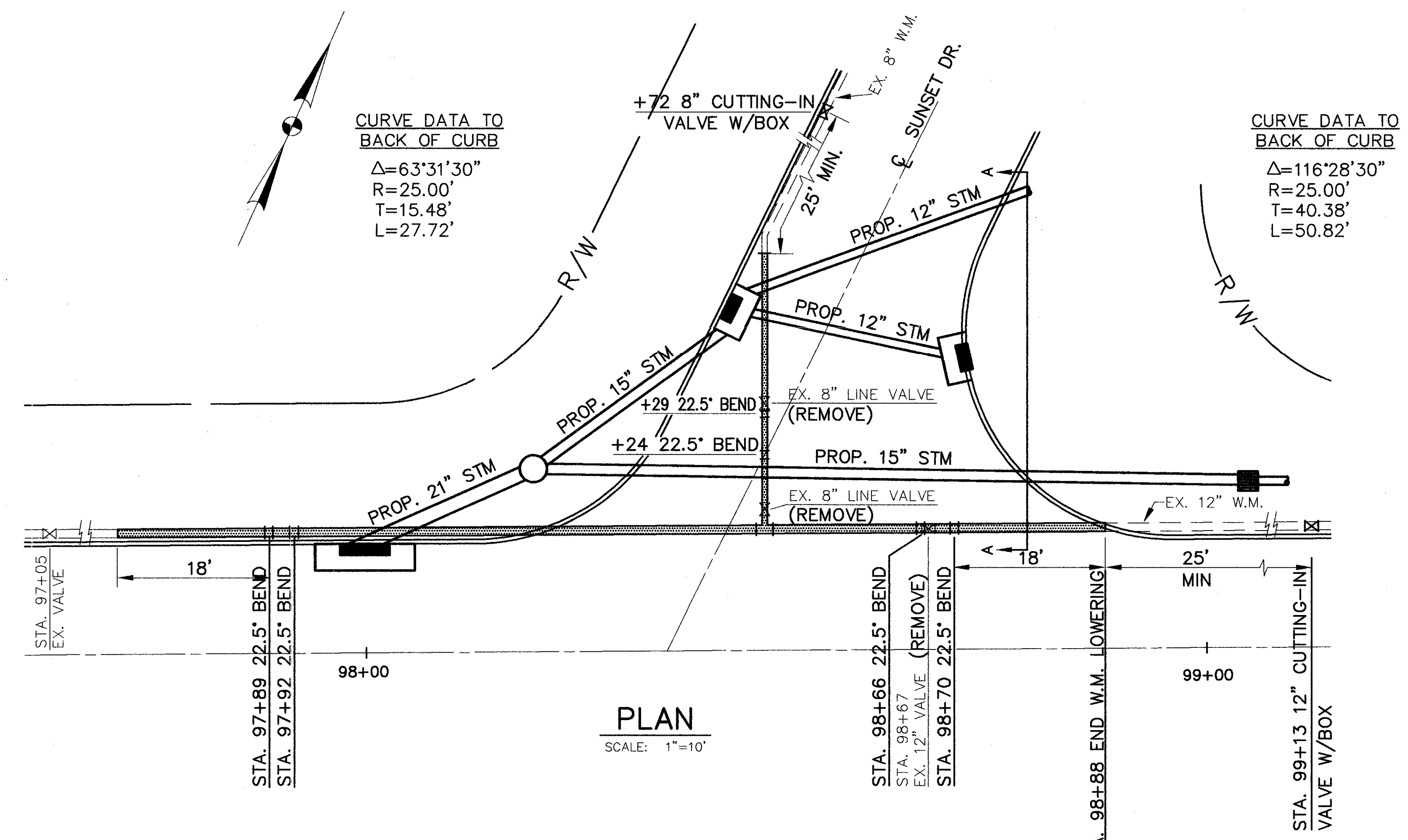


SECTION A-A
 SCALE: 1"=5' HORIZONTAL
 1"=5' VERTICAL

WATERWORK QUANTITIES			
ITEM	DESCRIPTION	QTY.	UNIT
638	8" DUCTILE IRON PIPE (CL. 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	80	L.F.
638	12" CUTTING-IN SLEEVE VALVE & BOX	2	EA.
638	8" CUTTING-IN SLEEVE VALVE & BOX	2	EA.
638	16" STEEL CASING PIPE	6	L.F.

QUANTITIES CARRIED TO SHEET 39

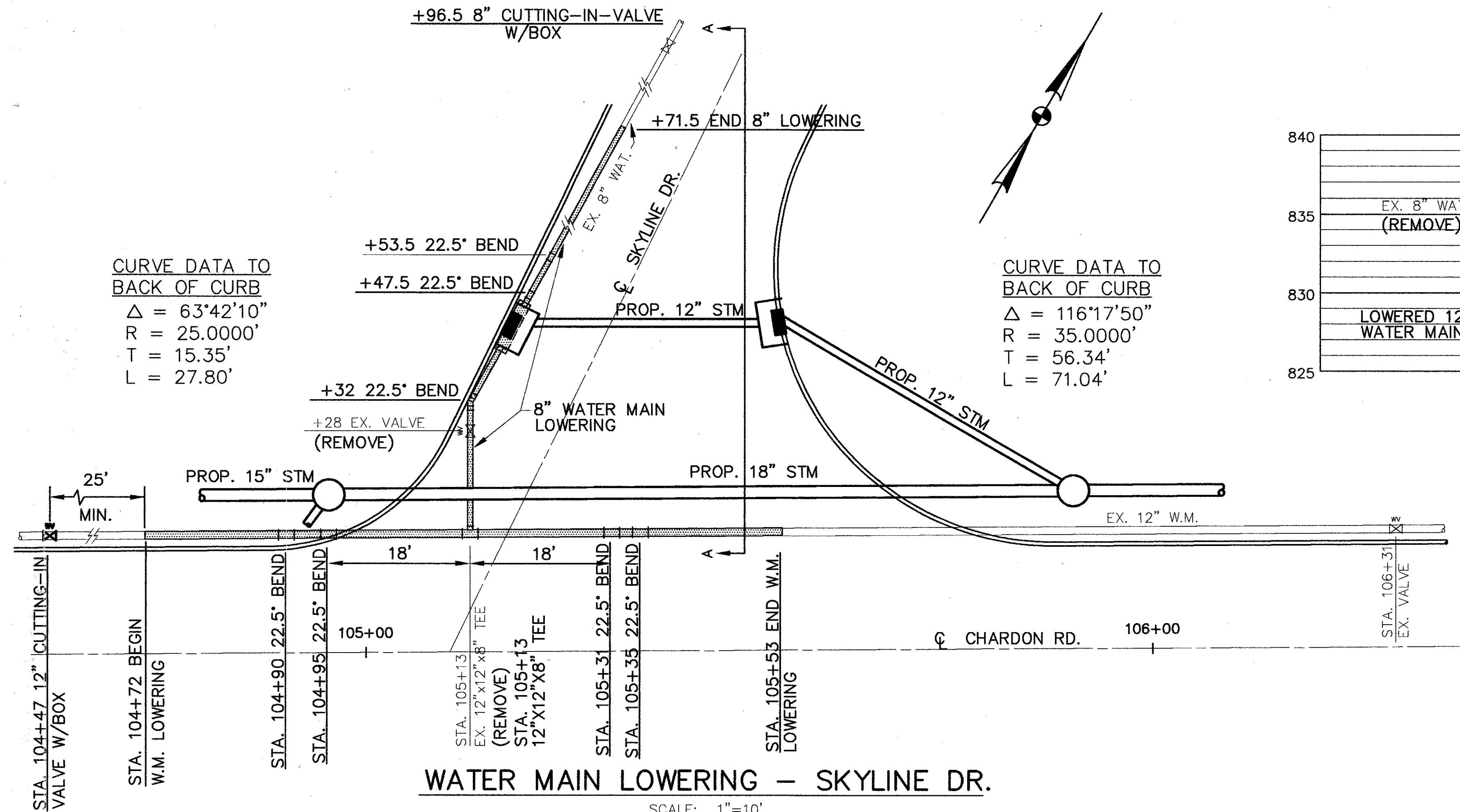
CUYAHOGA COUNTY
U.S. 6
CHARDON ROAD



WATERWORK QUANTITIES			
ITEM	DESCRIPTION	QTY.	UNIT
638	8" DUCTILE IRON PIPE (CL. 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	33	L.F.
638	12" DUCTILE IRON PIPE (CL. 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	118	L.F.
638	8" CUTTING-IN SLEEVE VALVE & VALVE BOX	1	EA.
638	12" CUTTING-IN SLEEVE VALVE & VALVE BOX	1	EA.

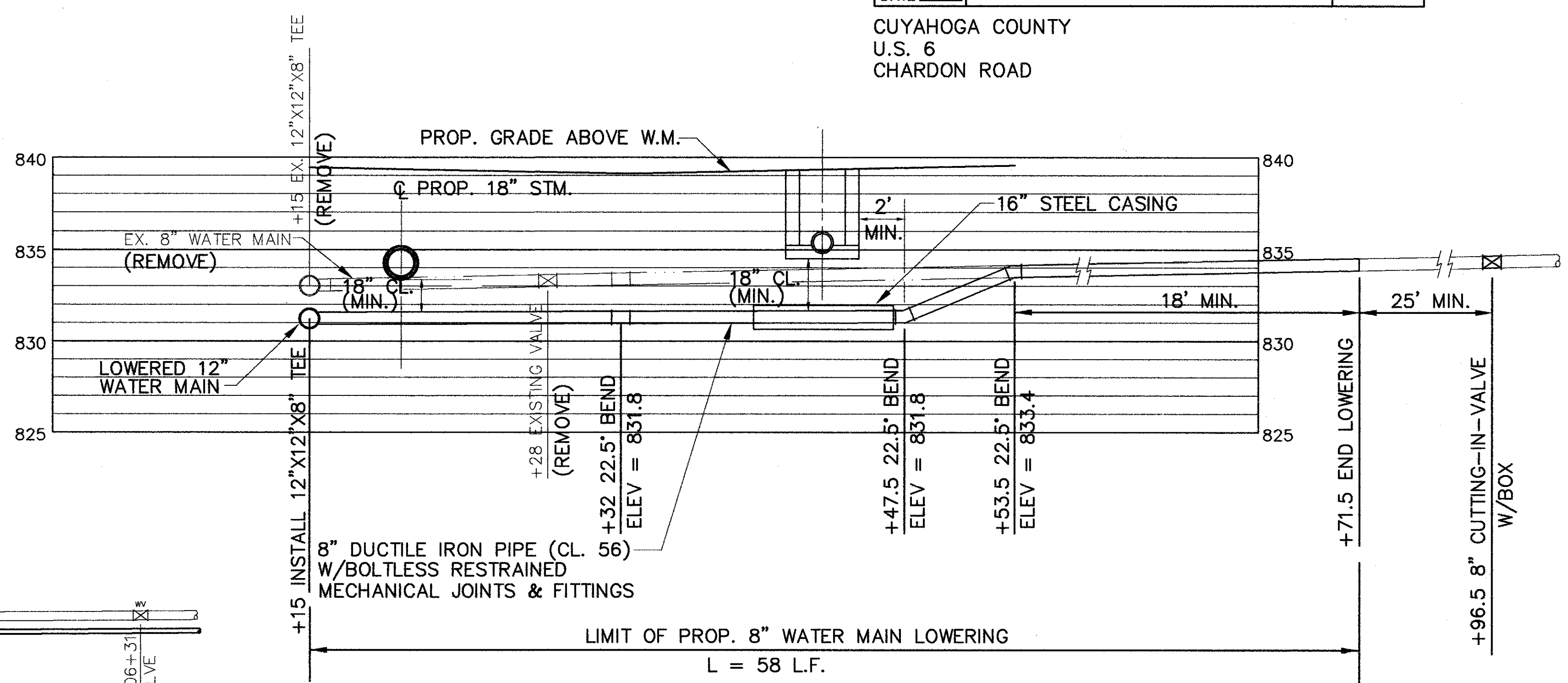
QUANTITIES CARRIED TO SHEET 39

CUYAHOGA COUNTY
 U.S. 6
 CHARDON ROAD



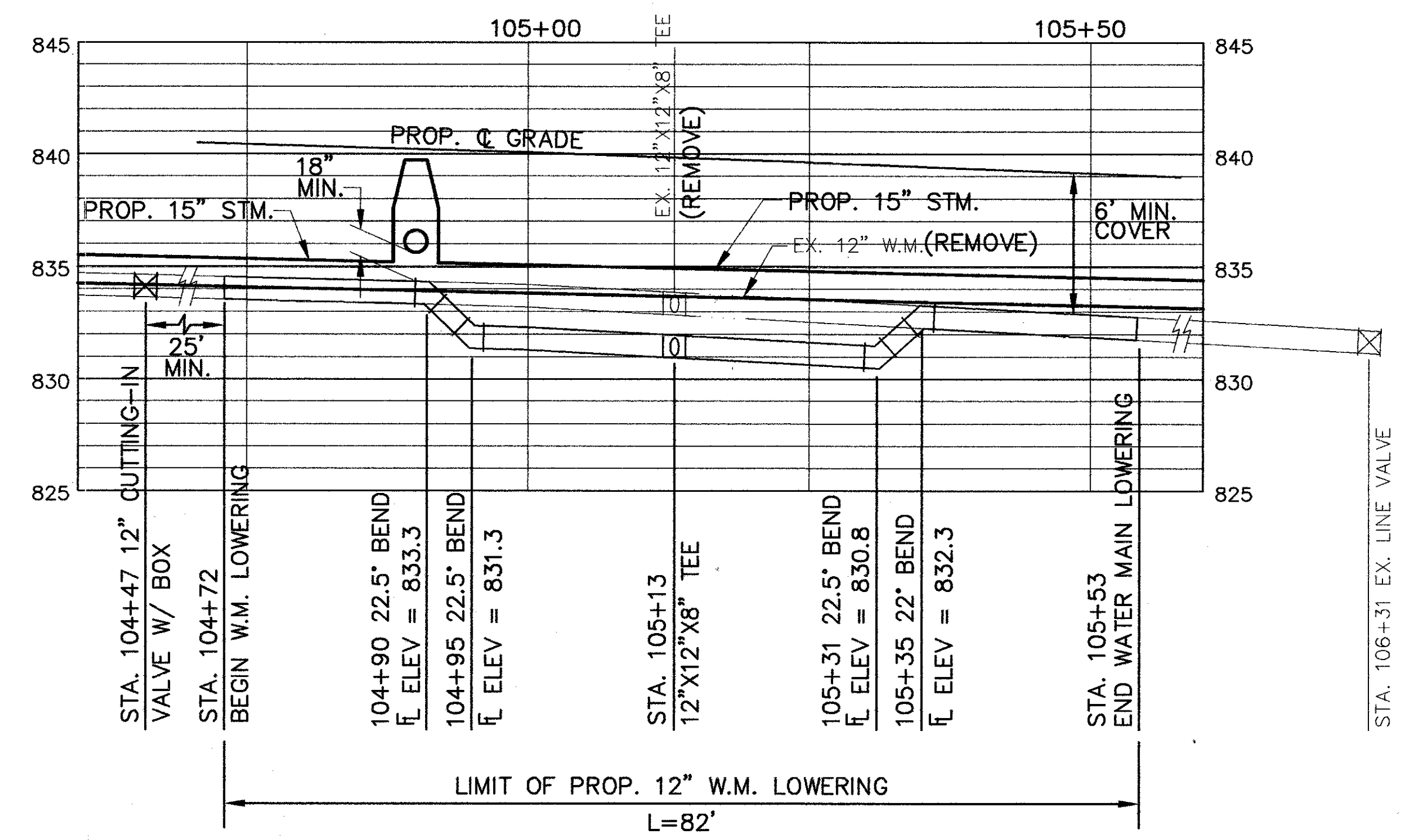
CURVE DATA TO BACK OF CURB
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 $T = 15.35'$
 $L = 27.80'$

CURVE DATA TO BACK OF CURB
 $\Delta = 116^{\circ}17'50''$
 $R = 35.0000'$
 $T = 56.34'$
 $L = 71.04'$



SECTION A-A
 SCALE: 1"=5' HORIZONTAL
 SCALE: 1"=5' VERTICAL

WATER MAIN LOWERING - SKYLINE DR.
 SCALE: 1"=10'



PROFILE
 SCALE: 1"=10' HORIZONTAL
 SCALE: 1"=5' VERTICAL

WATERWORK QUANTITIES			
ITEM	DESCRIPTION	QTY.	UNIT
638	8" DUCTILE IRON PIPE (CL. 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	58	L.F.
638	8" CUTTING-IN SLEEVE VALVE & BOX	1	EA.
638	12" DUCTILE IRON PIPE (CL. 56) W/BOLTLESS RESTRAINED MECHANICAL JOINTS & FITTINGS	82	L.F.
638	12" CUTTING-IN SLEEVE VALVE & BOX	1	EA.
638	16" STEEL CASING	9	L.F.

QUANTITIES CARRIED TO SHEET 39