Minn. Proj. No. .

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR RETROFIT DOWEL BARS, CONCRETE PLANING, CONCRETE PAVEMENT REHABILITATION AND BITUMINOUS SHOULDERS

LOCATED ON C.S.A.H. 5 BETWEEN 1.0 MILE NORTH OF JCT. OF T.H. 14 AND THE INTERSECTION OF C.S.A.H. 3 (GEOGRAPHIC DESCRIPTION)

FROM 47.98 FEET SOUTH AND 0.52 FEET EAST OF THE CENTER OF SEC. 29, T 107 N, R 15 W TO 485.80 FEET SOUTH AND 4.04 FEET EAST OF THE CENTER OF SEC. 5, T 108 N, R 15 W (LEGAL DESCRIPTION)

S.A.P. NO. 55-605-14

GROSS LENGTH	46442.54	FEET	8.796	MILES
BRIDGES LENGTH	267.00	FEET	0.051	MILES
EXCEPTIONS LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	46442.54	FEET	8.796	MILES

S.A.P. NO. 20-617-04

GROSS LENGTH	14677.00	FEET	2.780	MILES
BRIDGES LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	14677.00	FEET	2.780	MILES

GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES AND STANDARD PLATES
3-4	TYPICAL SECTIONS
5	MISCELLANEOUS DETAILS
6-8	STANDARD PLAN SHEETS
9-29	CONCRETE PAVEMENT REPAIR DETAILS
30-32	C.S.A.H. 5 PLAN AND PROFILE
33-43	C.S.A.H. 5 INFORMATIONAL SHEETS
44-45	TRAFFIC CONTROL PLAN

THIS PLAN CONTAINS 45 SHEETS

PLAN SYMBOLS

ROAD AND ROADWAY FEATURES

PROJECTED ROAD
PRIMITIVE ROAD
UNIMPROVED ROAD
GRADED AND DRAINED ROAD
SOIL SURFACE ROAD
GRAVEL OR STONE ROAD
BITUMINOUS ROAD
PAVED ROAD
PAVED ROAD
TRUNK HIGHWAY UNDER CONSTRUCTION
ROADS IN UNINCORPORATED COMMUNITIES, EXTENSIONS OF LOCAL ROADS (NOT F.A.S.) WITHIN MUNICIPALITIES AND FRONTAGE ROADS
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED ONLY 4 62 4

ROAD SYSTEM DESIGNATIONS

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

RAILROADS

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

AIRWAYS

RUNWAY
MILITARY FIELD
COMMERCIAL OR MUNICIPAL FIELD
LANDING AREA OR STRIP
ARMY LIGHT BEACON, GENERAL

STRUCTURES

General Symbols (over 20' span)
HIGHWAY BRIDGE
SMALL BRIDGES CLOSELY SPACED
DRAWBRIDGE
TRUSS
Other Structures
PEDESTRIAN BRIDGE
DAM WITH ROAD
DAM WITHOUT ROAD
LOCKS OR DIKE WITH ROAD
LOCKS OR DIKE WITHOUT ROAD
MINOR STRUCTURES (5' TO 20' SPAN)
CONCRETE FORD OR DIP
FORD - ROAD ESTABLISHED

BOUNDARIES

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

DRAINAGE

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

CONSERVATION

FOREST RANGER STATION
GUARD OR RANGER STATION (NOT PERMANENTLY OCCUPIED)
FISH HATCHERY
GAME PRESERVE
OBSERVATION OR LOOKOUT TOWER
SMALL PARK: SP = STATE, CP = COUNTY, MP = MUNICIPAL, WP = WAYSIDE
PUBLIC ACCESS POINT

RECREATION

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

FARM AND DWELLING UNITS

FARM UNIT
DWELLING OTHER THAN FARM
BARRACKS OR DORMITORIES FOR STUDENTS, WORKERS, INMATES ETC.
SEASONAL DWELLING
ROWS OR GROUPS OF DWELLINGS CLOSELY SPACED NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF EACH UNIT

INDUSTRIAL

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

COMMERCIAL

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

PUBLIC SERVICE FACILITIES

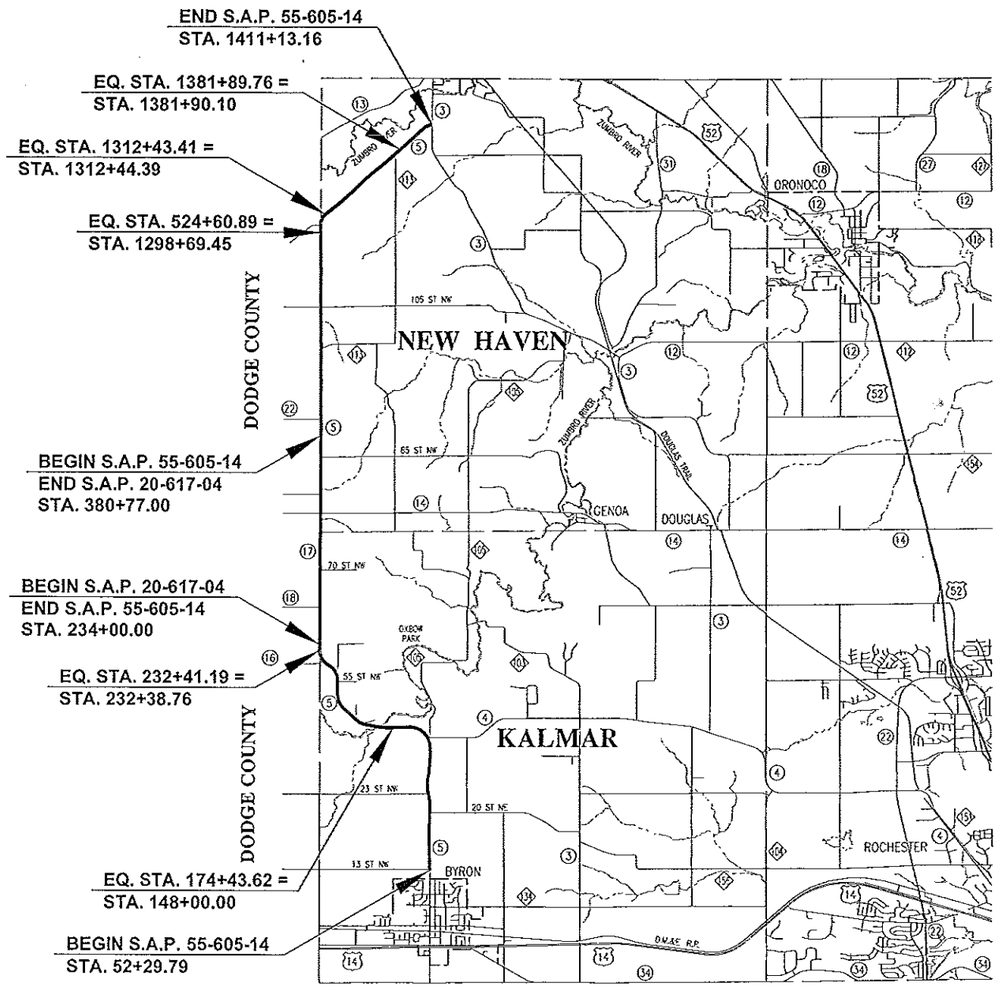
POST OFFICE
FIRE STATION
MUSEUM
PUBLIC LIBRARY
SCHOOL
RADIO STATION
SEWAGE DISPOSAL PLANT
HOSPITAL
TOWN HALL

CITY CENTERS

COUNTY SEAT
CITY CENTER
INCORPORATED CITY (GENERALIZED)
UNINCORPORATED COMMUNITY

MISCELLANEOUS MAP FEATURES

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



SCALES

PLAN: 100 FEET

PROFILE: 100 FEET HORIZ.

10 FEET VERT.

INDEX MAP: 2 MILES

DESIGN DESIGNATION: S.A.P. 55-605-14 & S.A.P. 20-617-04

STA. 52+29.79 TO STA. 234+00.00

ADT (Current Year)	= 2746 (2005)
ADT (Future Year)	= 4394 (2025)
HCADT (Heavy Commercial)	= 12%
Functional Classification	= Major Collector
No. of Traffic Lanes	= 2 at 12 Ft.
Shoulder Width	= 8 Ft.
Soil Factor	= 130%

Design Speed 50 MPH Based on Stopping Sight Distance
Stopping Sight Distance based on 3.75 Ft. Height of Eye and 0.5 Ft. Height of Object
Design Speed not achieved at:

STA. 234+00.00 TO STA. 1411+13.16

ADT (Current Year)	= 1670 (2005)
ADT (Future Year)	= 2672 (2025)
HCADT (Heavy Commercial)	= 12%
Functional Classification	= Major Collector
No. of Traffic Lanes	= 2 at 12 Ft.
Shoulder Width	= 8 Ft.
Soil Factor	= 130%

Design Speed 45 MPH Based on Stopping Sight Distance
Stopping Sight Distance based on 3.5 Ft. Height of Eye and 0.5 Ft. Height of Object
Design Speed not achieved at:

Sta. 342+60 to Sta. 349+15 -- 40 MPH
Sta. 399+00 to Sta. 402+00 -- 40 MPH
Sta. 419+50 to Sta. 423+50 -- 40 MPH
Sta. 455+71 to Sta. 465+81 -- 40 MPH
Sta. 480+90 to Sta. 487+10 -- 40 MPH
Sta. 507+00 to Sta. 514+00 -- 40 MPH
Sta. 1302+25 to Sta. 1308+75 -- 40 MPH

AS-BUILT

MAR 03 2011

ENGINEERING

STA. 148+00.00 TO STA. 177+00.00
GRADED IN 1977 UNDER S.A.P. 55-605-04

STA. 52+29.79 TO STA. 174+43.62 AND STA. 177+00.00 TO STA. 235+00.00
GRADED IN 1980 UNDER S.P. 55-605-05

STA. 0-31.00 TO STA. 9+00.00 (DODGE COUNTY) C.S.A.H. 16
GRADED IN 1980 UNDER S.A.P. 20-616-06

STA. 52+29.79 TO STA. 234+00.00 AND STA. 0-31.00 TO STA. 9+00.00
CONCRETE PAVING IN 1983 UNDER S.A.P. 55-605-08 & S.A.P. 20-616-07

STA. 234+00.00 TO STA. 1411+11.42
GRADED IN 1985 UNDER S.A.P. 55-605-09 & S.A.P. 20-617-01

STA. 234+00.00 TO STA. 1411+11.42
CONCRETE PAVING IN 1987 UNDER S.A.P. 55-605-10 & S.A.P. 20-617-02

STA. 52+79.29 TO STA. 1411+11.42
PAVEMENT EDGE DRAINS IN 1999 UNDER S.A.P. 55-605-12 & S.A.P. 20-617-03

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

DATE 6/6/05 REG. NUMBER 19917

PRINTED NAME: KAYE M. BIENIEK

SIGNED NAME: Kaye M Bieniek
COUNTY DESIGN ENGINEER

DESIGNED BY: J. GOODMAN

DATE 6/6/05 REG. NUMBER 19397

APPROVED: OLMSTED COUNTY ENGINEER

DATE 6/7/05 REG. NUMBER 23733

APPROVED: DODGE COUNTY ENGINEER

ASST DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY DATE July 8, 2005

for STATE AID ENGINEER: APPROVED FOR STATE-AID & FEDERAL-AID FUNDING DATE July 8, 2005

S.A.P. 20-617-04

S.A.P. 55-605-14 | Sheet No. 1 of 45 Sheets

FILE NAME: PHS-0101.DWG DATE: 05-27-05

STATEMENT OF ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	ITEM NOTES	UNITS	S.A.P. 55-605-14		S.A.P. 20-617-04		TOTAL ESTIMATED QUANTITIES
				PARTICIPATING	NON PARTICIPATING	PARTICIPATING	NON PARTICIPATING	
2021.501	MOBILIZATION		LUMP SUM	0.76		0.24		1
2104.505	REMOVE CONCRETE PAVEMENT		SQ. YD.	7200				7200
2104.505	REMOVE BITUMINOUS PAVEMENT	(1)	SQ. YD.	19680		5300		24980
2104.511	SAWING CONCRETE PAVEMENT	(2)	LIN. FT.	48				48
2104.513	SAWING BITUMINOUS PAVEMENT	(3)	LIN. FT.	2512		768		3280
2105.515	UNCLASSIFIED EXCAVATION	(4)	CU. YD.	7096		1932		(P) 9028
2105.525	TOPSOIL BORROW (LV)		CU. YD.	4902		1414		6316
2112.501	SUBGRADE PREPARATION	(5)	RD. STA.	27				(P) 27
2130.501	WATER	(6)	M-GALLONS	30				30
2211.501	AGGREGATE BASE, CLASS 5	(7)	TON	1942				1942
2301.501	CONCRETE PAVEMENT TYPE CX		SQ. YD.	3				3
2301.501	CONCRETE PAVEMENT TYPE D-1		SQ. YD.			35		35
2301.501	CONCRETE PAVEMENT TYPE D-2		SQ. YD.	412		481		893
2301.502	CONCRETE PAVEMENT STANDARD WIDTH 8"		SQ. YD.	9601				(P) 9601
2301.503	CONCRETE PAVEMENT IRREGULAR WIDTH 8"		SQ. YD.	759				(P) 759
2301.511	STRUCTURAL CONCRETE	(8)	CU. YD.	2302				(P) 2302
2301.529	REINFORCEMENT BARS (EPOXY COATED)	(9)	POUND	2571		1778		4349
2301.538	DOWEL BAR (EPOXY COATED)	(10)	EACH	6307		195		(P) 6502
2301.545	CONCRETE CORING		EACH	9				9
2301.602	DOWEL BAR RETROFIT	(10)	EACH	17130		5874		23004
2301.602	DRILL & GROUT DOWEL BAR (EPOXY COATED)	(10)	EACH	48				48
2301.603	JOINT REPAIR (TYPE A-2)		LIN. FT.	69962		24219		94181
2301.603	JOINT REPAIR (TYPE B-3)		LIN. FT.	134		32		166
2301.603	CRACK REPAIR (TYPE B-1)		LIN. FT.	30		20		50
2301.603	LONGITUDINAL JOINT REPAIR (TYPE A-5H)		LIN. FT.	43476		14677		58153
2301.603	CONTRACTION JOINT REPAIR (TYPE C-3D)		LIN. FT.	148		134		280
2301.603	EDGE REPAIR (TYPE B-2C)		LIN. FT.	32		8		40
2301.604	CONCRETE PLANING		SQ. YD.	115619		39140		154759
2301.608	DRILL & GROUT REINF. BARS (EPOXY COATED)	(9)	POUND			29		29
2301.608	SEAL CONCRETE PAVEMENT JOINT (3725)	(9)	POUND	16774		5763		22537
2301.618	SPOT SURFACE REPAIR (TYPE B-2A)		SQ. FT.	375		90		465
2350.501	TYPE MV4 WEARING COURSE MIXTURE (C)	(11)	TON	976		227		1203
2350.501	TYPE LV4 WEARING COURSE MIXTURE (B)	(12)	TON	6150		1971		8121
2350.502	TYPE MV4 NON WEARING COURSE MIXTURE (C)	(13)	TON	2980		692		3672
2350.502	TYPE LV4 NON WEARING COURSE MIXTURE (B)	(14)	TON	6269		2006		8275
2563.601	TRAFFIC CONTROL		LUMP SUM	0.76		0.24		1
2564.602	PAVEMENT MESSAGE (LEFT ARROW) EPOXY		EACH	8				8
2564.602	PAVEMENT MESSAGE (RIGHT ARROW) EPOXY		EACH	8				8
2564.603	4" SOLID LINE WHITE - EPOXY		LIN. FT.	95689		30185		125874
2564.603	4" SOLID LINE YELLOW - EPOXY		LIN. FT.	14053		7447		21500
2564.603	4" DOUBLE SOLID LINE YELLOW - EPOXY		LIN. FT.	19410		1275		20685
2564.603	24" SOLID LINE YELLOW - EPOXY		LIN. FT.	374				374
2564.603	4" BROKEN LINE YELLOW - EPOXY		LIN. FT.	5680		2680		8360
2575.501	SEEDING		ACRE	12.2		3.5		(P) 15.7
2575.502	SEED MIXTURE 50B		POUND	610		175		785
2575.502	SEED MIXTURE 110B		POUND	1220		350		1570
2575.511	MULCH MATERIAL TYPE 1		TON	24.4		7.0		31.4
2575.519	DISK ANCHORING		ACRE	12.2		3.5		(P) 15.7
2575.532	COMMERCIAL FERTILIZER ANALYSIS 12-12-12		POUND	2440		700		3140

Type C-1 Repair — S.Y. — 1011 used (1039)
1" Dowels w/skewed baskets — Each — 168

10/
230
409
3019
6158
22633
48
98368
-0-
50629
438
7
100
39100
991

(1) QUANTITY BASED ON REMOVAL OF INPLACE SHOULDER AREAS. BITUMINOUS SHALL BE REMOVED TO A DISTANCE OF 8 FT. FROM EDGE OF CONCRETE FOR DRIVEWAYS, AND 12 FT. FROM EDGE OF CONCRETE FOR TURN, BYPASS AND ACCELERATION LANES.

(2) STA. 74+00.00 AND STA. 101+00.00. SAWING SHALL BE FULL DEPTH.

(3) LOCATIONS SHALL BE 8 FT. FROM EDGE OF CONCRETE IN SHOULDER AREAS, AND 12 FT. FROM EDGE OF CONCRETE IN TURN LANE AREAS.

(4) QUANTITY BASED ON REMOVAL OF 2" OF AGGREGATE MATERIAL IN THE 8 FT. SHOULDER AREAS AND 5" OF AGGREGATE MATERIAL IN THE 12 FT. TURN, BYPASS AND ACCELERATION LANES. EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR IN ACCORDANCE WITH SPEC. 2105.3D.

(5) FROM STA. 74+00.00 TO STA. 101+00.00.

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

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

(8) INCLUDES FURNISHING AND PLACEMENT OF REINFORCEMENT BARS. ALL REINFORCEMENT BARS SHALL BE EPOXY COATED.

(9) QUANTITY SHOWN TO BE USED FOR CONCRETE PAVEMENT REHABILITATION.

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

(11) MIX DESIGNATION MVWE45035C.

(12) MIX DESIGNATION LVWE45030B.

(13) MIX DESIGNATION MVNW45035C.

(14) MIX DESIGNATION LVNW45030B.

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ENGINEERING

BASIS OF QUANTITY

AGGREGATE BASE, CLASS 5 - 140 LBS./CU. FT. COMPACTED
BITUMINOUS MIXTURE - 110 LBS./SQ. YD./1 INCH DEPTH
BIT. MATERIAL FOR TACK COAT - 0.05 GAL/SQ. YD.
SEED MIXTURE 50B - 50 LBS./ACRE
SEED MIXTURE 110B - 100 LBS./ACRE
MULCH MATERIAL, TYPE 1 - 2 TONS/ACRE EXCEPT EROSION BLANKET AND SOD AREAS
DISK ANCHORING - ALL SEEDING AREAS EXCEPT 1:2 SLOPES AND SOD AREAS
COMMERCIAL FERTILIZER - 200 LBS./ACRE

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

PLATE NO.	DESCRIPTION
1070L	REINFORCED PANEL OVER CULVERTS
1103J	TYPICAL DOWEL BAR ASSEMBLY
1141D	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION
1150Q	CONSTRUCTION OF HEADER JOINTS
8000I	STANDARD BARRICADES
9000D	APPROACHES AND ENTRANCES

CERTIFIED BY Kay M Brennick REG. NO. 19917 7/7 2005
LICENSED PROFESSIONAL ENGINEER

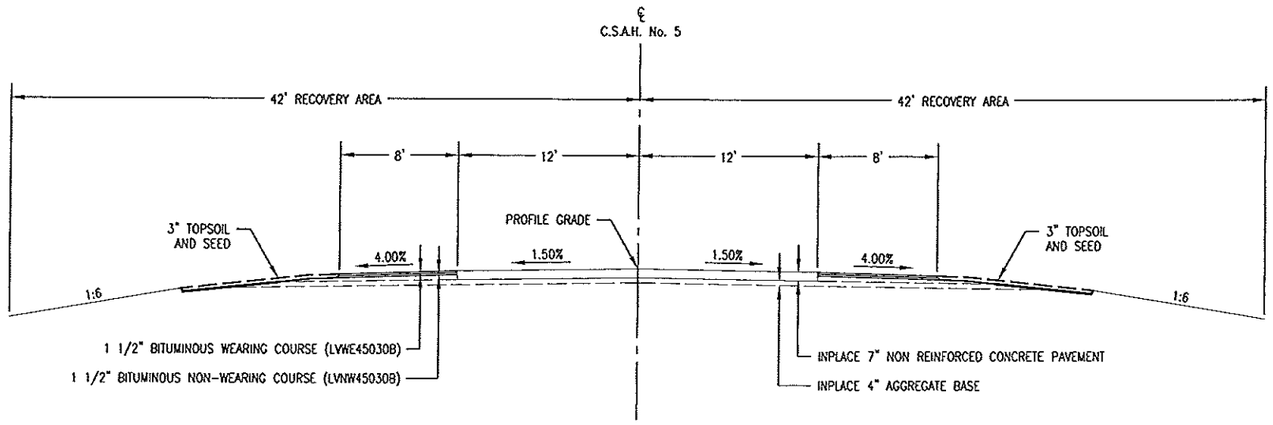
S.A.P. 20-617-04

S.A.P. 55-605-14

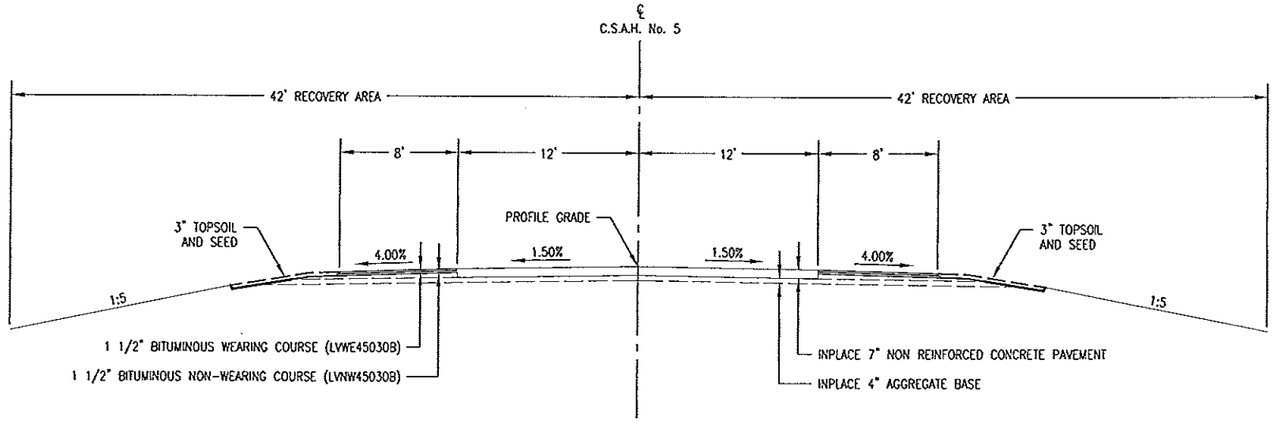
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Sheet No. 2 of 45 Sheets

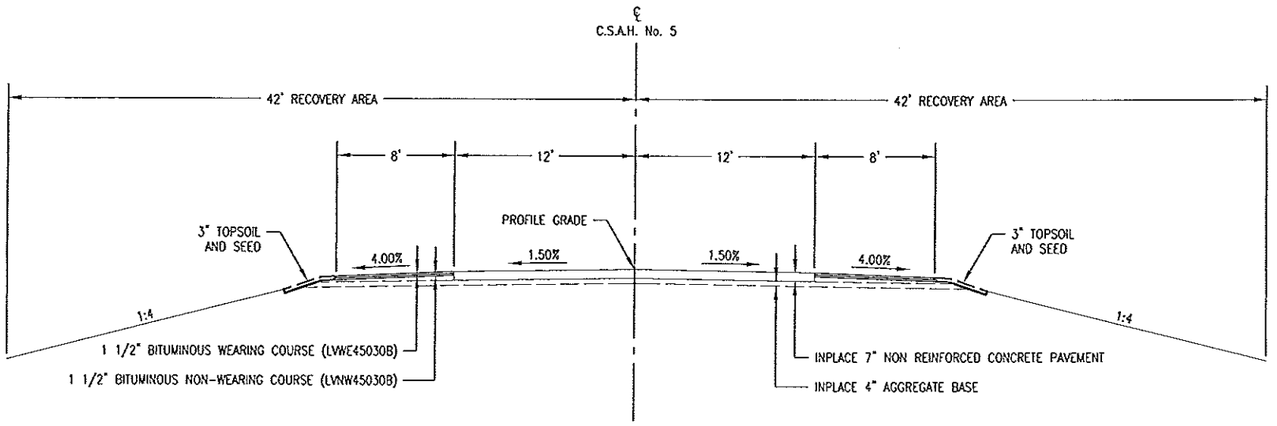
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TYPICAL SECTION
STA. 52+29.79 TO STA. 74+00.00
STA. 101+00.00 TO STA. 145+00.00



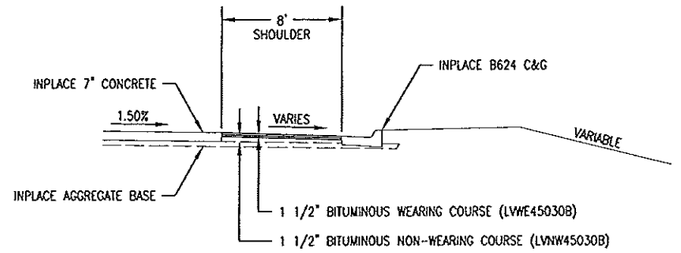
TYPICAL SECTION
STA. 145+00.00 TO STA. 234+00.00



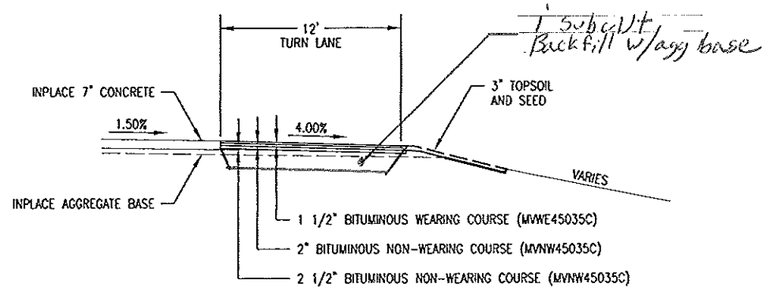
TYPICAL SECTION
STA. 234+00.00 TO STA. 1410+99.42

AS-BUILT
MAR 03 2011
ENGINEERING

DETAILS SHOWN ON THE RIGHT OR LEFT SIDE OF SECTIONS ARE NOT INTENDED TO APPLY EXCLUSIVELY TO THE SIDE OF THE ROADWAY SHOWN, BUT MAY BE APPLICABLE TO THE OTHER SIDE OF THE ROADWAY. SEE PLAN SHEETS.



TYPICAL CURB SECTION
SEE PLAN AND PROFILE SHEETS FOR LOCATIONS



TYPICAL TURN LANE/BYPASS LANE SECTION
SEE TABLE BELOW FOR LOCATIONS

6" BITUMINOUS SHOULDER SECTION		
STATION	LOCATION	REMARKS
52+51-57+70	LT.	RIGHT TURN LANE (TOWNSHIP RD.)
77+79-83+50	RT.	RIGHT TURN LANE (FUTURE ST.)
82+39-88+17	LT.	RIGHT TURN LANE (HIGH SCHOOL DR.)
87+09-92+82	RT.	RIGHT TURN LANE (20TH ST. N.E.)
91+73-97+47	LT.	RIGHT TURN LANE (20TH ST. N.E.)
105+44-110+63	LT.	RIGHT TURN LANE (TOWNSHIP RD.)
140+14-145+27	RT.	RIGHT TURN LANE (C.S.A.H. 4)
221+75-224+59	LT.	ACCELERATION LANE (C.S.A.H. 16) (DODGE)
224+83-229+62	LT.	RIGHT TURN LANE (C.S.A.H. 16) (DODGE)
262+19-267+38	LT.	RIGHT TURN LANE (C.S.A.H. 18) (DODGE)
323+32-328+51	RT.	RIGHT TURN LANE (C.S.A.H. 14)
327+97-333+16	LT.	RIGHT TURN LANE (TOWNSHIP RD.) (DODGE)
362+76-367+95	RT.	RIGHT TURN LANE (TOWNSHIP RD.)
393+62-398+81	LT.	RIGHT TURN LANE (C.S.A.H. 22) (DODGE)
439+05-444+24	RT.	RIGHT TURN LANE (CO. RD. 113)
467+41-472+59	RT.	RIGHT TURN LANE (TOWNSHIP RD.)
472+08-477+25	LT.	RIGHT TURN LANE (TOWNSHIP RD.) (DODGE)
1303+73-1308+92	LT.	RIGHT TURN LANE (TOWNSHIP RD.) (DODGE)
1370+28-1375+47	RT.	RIGHT TURN LANE (CO. RD. 113)
1406+09-1411+01	RT.	RIGHT TURN LANE (C.S.A.H. 3)
1410+53-1411+01	LT.	RIGHT TURN LANE (C.S.A.H. 3)

CERTIFIED BY Kaye M Polenek REG. NO. 19917 6/6 2005
LICENSED PROFESSIONAL ENGINEER

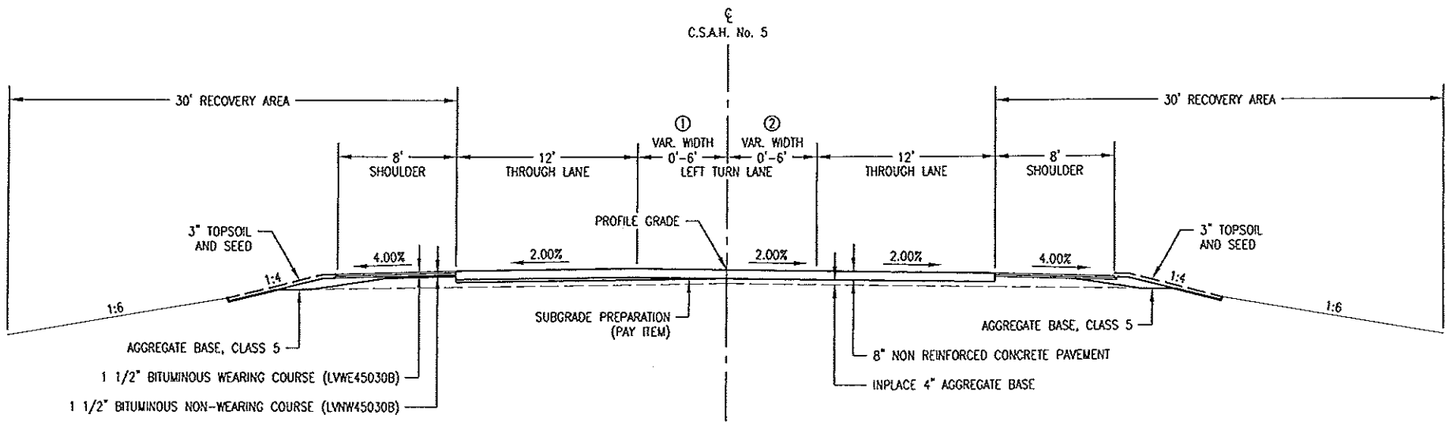
S.A.P. 20-617-04
S.A.P. 55-605-14

TITLE: TYPICAL SECTIONS

Sheet No. 3 of 45 Sheets

FILE NAME: BHS-TYP2.DWG DATE: 05-31-05

DETAILS SHOWN ON THE RIGHT OR LEFT SIDE OF SECTIONS ARE NOT INTENDED TO APPLY EXCLUSIVELY TO THE SIDE OF THE ROADWAY SHOWN, BUT MAY BE APPLICABLE TO THE OTHER SIDE OF THE ROADWAY. SEE PLAN SHEETS.



TYPICAL SECTION

STA. 74+00.00 TO STA. 101+00.00

Sta. 83+00 to 87+00
Subcut, replace with 1'-3" minus
and 6" agg. base. Repair edge Drains

NOTES:

① WIDTH VARIES FROM 0.00 FEET AT STA. 74+00.00 TO 6.00 FEET AT STA. 77+30.00 AND FROM 6.00 FEET AT STA. 97+70.00 TO 0.00 FEET AT STA. 101+00.00.

② PROFILE GRADE FOLLOWS C/L ALIGNMENT FROM STA. 74+00.00 TO STA. 101+00.00.

③ SALVAGE THE EXISTING TOPSOIL AND USE AS SLOPE DRESSING TO THE EXTENT AVAILABLE. TOPSOIL EXCAVATION SHALL BE INCLUDED IN UNCLASSIFIED EXCAVATION FOR PAYMENT AND NO ADDITIONAL COMPENSATION WILL BE MADE FOR STOCKPILING AND RESPREADING OF THE TOPSOIL.

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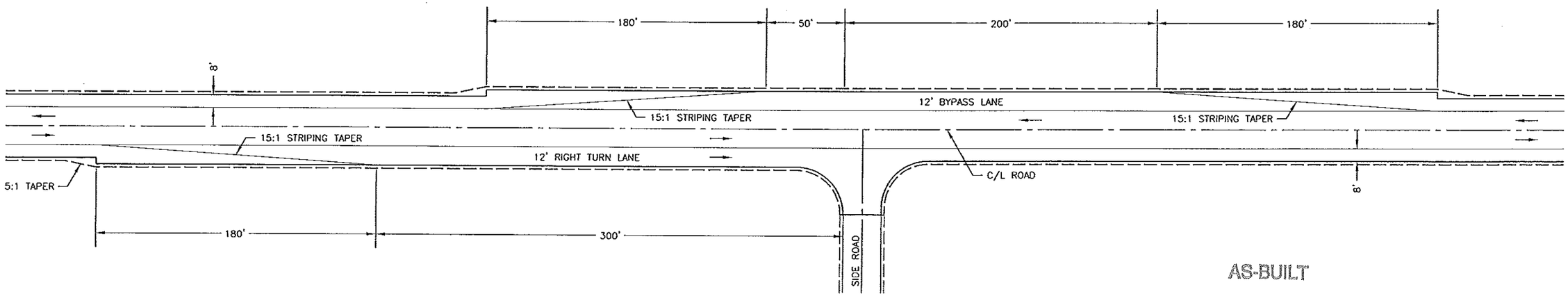
FILE NAME: BHS-TYP01.DWG DATE: 05-31-05

CERTIFIED BY Kayle M Poienick REG. NO. 19917 6/6 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 20-617-04
S.A.P. 55-605-14

TITLE: TYPICAL SECTIONS

Sheet No. 4 of 45 Sheets



TYPICAL BITUMINOUS TURN LANE & BYPASS LANE

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ENGINEERING

FILE NAME: BHS-MD01.DWG DATE: 05-31-05

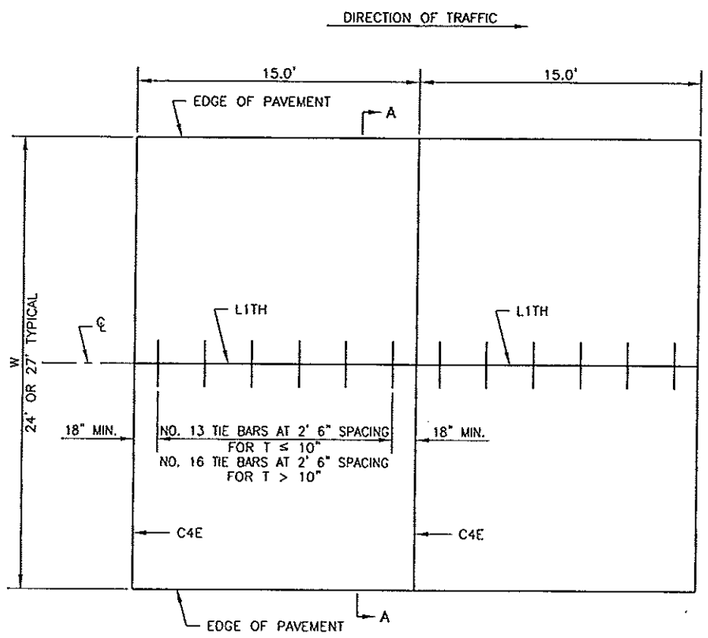
CERTIFIED BY Kyle M Barnick REG. NO. 19917 6/6 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 20-617-04

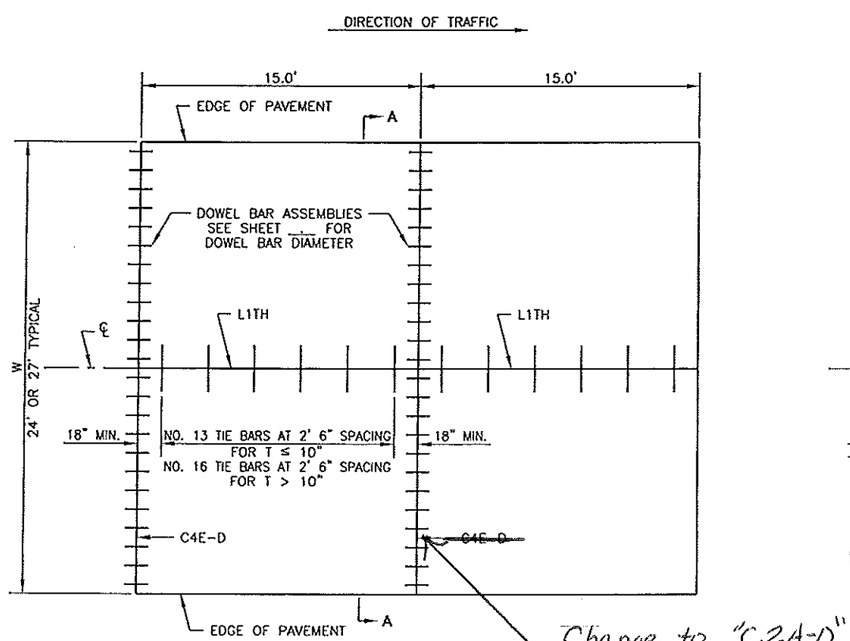
S.A.P. 55-605-14

TITLE: MISCELLANEOUS DETAILS

Sheet No. 5 of 45 Sheets

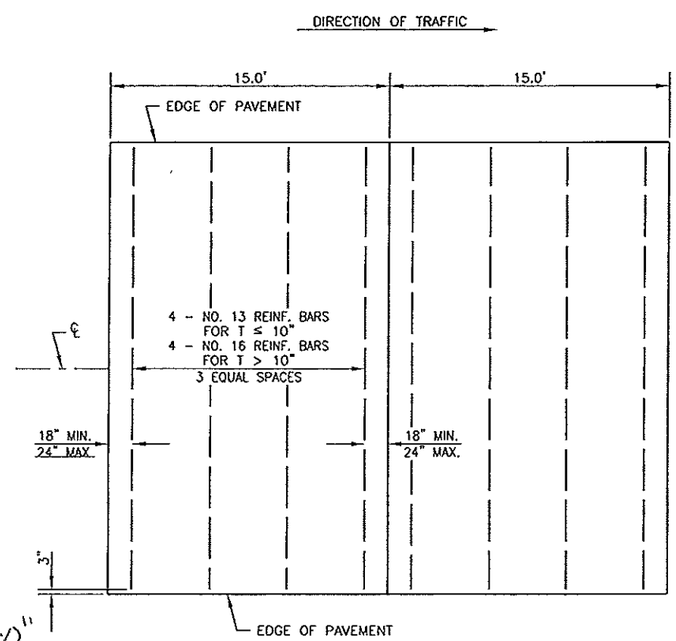


MAINLINE PAVEMENT
UNDOWELED

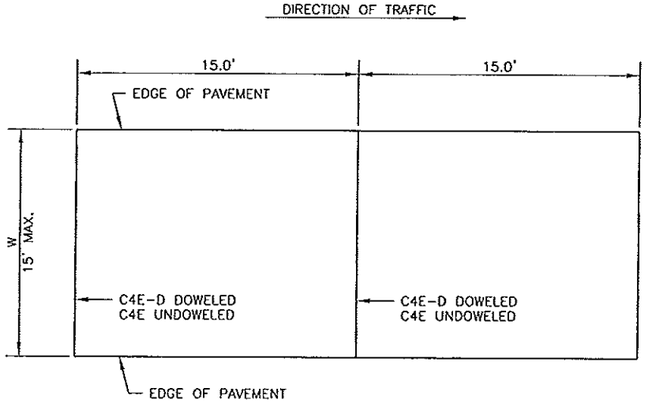


Change to "C2A-D"
"Single cut hot pour"

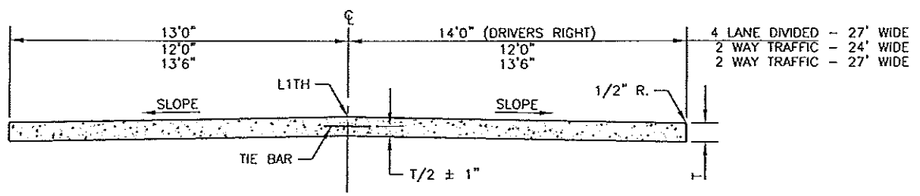
MAINLINE PAVEMENT
DOWELED



SUPPLEMENTAL PANEL REINFORCEMENT



PAVEMENT 2 FT. THRU 15 FT. WIDTH



SECTION A–A

AS-BUILT

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GENERAL NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

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

WHEN RIGID PAVEMENT ADJOINS FLEXIBLE PAVEMENT, BRIDGE APPROACHES, R.R. CROSSINGS OR OTHER TYPES OF FREE ENDS, THE FOLLOWING MODIFICATIONS SHALL BE MADE: THE FIRST OR LAST 10 JOINTS SHALL BE DOWELED CONTRACTION JOINTS, C4E-D.

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

ALL REINFORCING BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301 AND SHALL MEET THE REQUIREMENTS OF GRADE 60 FOR AASHTO M-31 OR M-53. FOR ADDITIONAL REINFORCEMENT OVER CULVERTS, SEE STANDARD PLATE 1070.

TIE BARS:
USE NO. 13 BARS 2'-6" LONG, AT 2'-6" SPACING, FOR T ≤ 10". USE NO. 16 BARS 3'-0" LONG, AT 2'-6" SPACING, FOR T > 10".

SUPPLEMENTAL PANEL REINFORCEMENT:
PLACE IN PANELS WHERE PAVEMENT WIDTH EXCEEDS 15.0' WITHOUT A LONGITUDINAL JOINT, AND IN THE MIDDLE LANE(S) WHERE TIED PAVEMENT WIDTH EXCEEDS 4 LANES. USE NO. 13 BARS FOR PAVEMENT THICKNESS 10" OR LESS. USE NO. 16 BARS FOR PAVEMENT THICKNESS GREATER THAN 10". PLACEMENT DEPTH SHALL BE PLANNED T/2 ± 1".

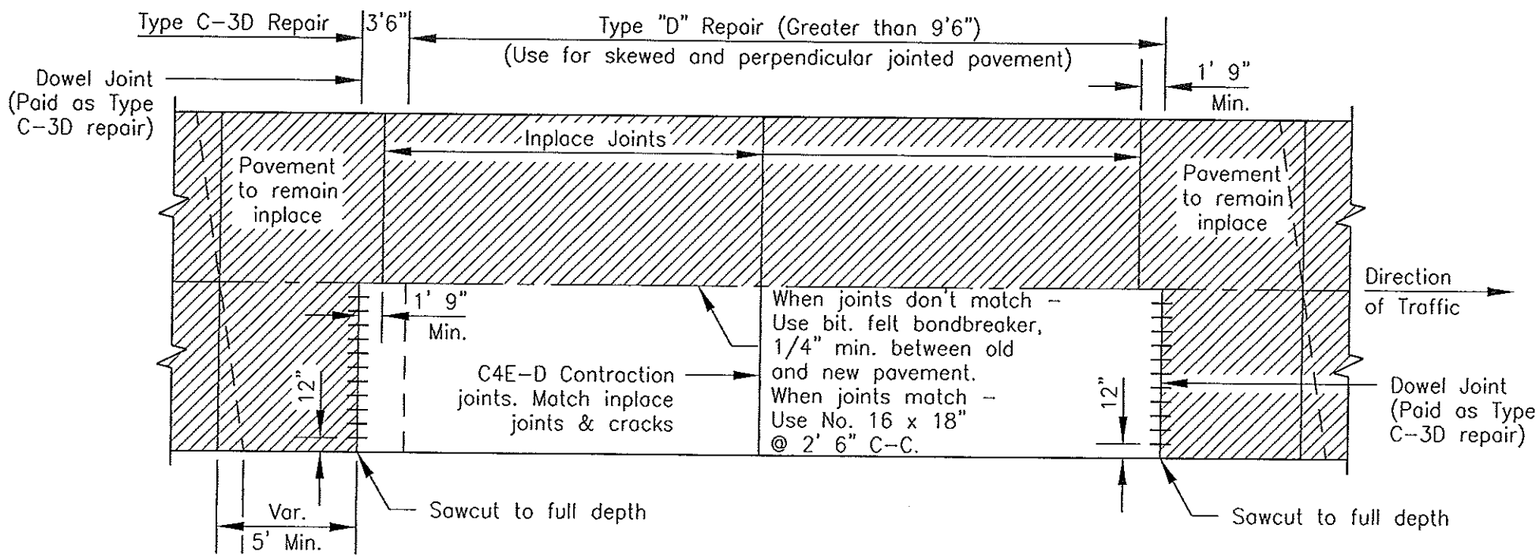
NO MORE THAN TWO LANES SHALL BE PAVED AT THE SAME TIME.

FILE NAME: SHS-SP01.DWG
DATE: 03-27-05

STANDARD SHEET NO. 5-297.217	TITLE: CONCRETE MAINLINE PAVEMENT 15.0 FT. PANEL LENGTH
STANDARD APPROVED: OCTOBER 1, 1998	
REVISION DATE 01-21-2000	~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 6 of 45 Sheets

PAVEMENT REPLACEMENT, SINGLE LANE (TYPE D-1)

DESCRIPTION: REMOVE CONCRETE. RESTORE BASE.PLACE DOWELS AND REINFORCEMENT.
FURNISH AND PLACE CONCRETE. SAW AND SEAL JOINTS.



WORK TO BE DONE

1. Saw full depth and remove concrete pavement.
2. Place gravel (Cl. 5) and restore base to grade by quality compaction.
3. Furnish and install 1" diameter smooth dowel bar parallel to centerline or No. 25 tie bar 18" long at 12" C-C, skewed 20° into inplace concrete pavement. Place with an approved non-shrink grout.
4. Furnish and install No. 16 reinforcing tie bars 18" long at 2'6" C-C. Place reinforcement with approved non-shrink grout.
5. Place dowel bars for C4E-D contraction joints.
6. Clean inplace vertical slab surface. Place structural concrete. Finish to required grade, slope and texture. Apply cure. For additional reinforcement over culverts, see Standard Plate 1070. Structural Concrete is incidental to Concrete Pavement Type D-1.
7. Restore joints by green sawing or by other methods approved by the Engineer.
8. Saw joints according to the appropriate Type "A" repair.
9. Seal joints and cracks with appropriate sealer.

BASIS OF PAYMENT

2301 (Appropriate Type "C" repair) lin. ft.
2301 Concrete Pavement (Type D-1) sq. yd.
2301 Reinforcement Bars (Epoxy Coated), lb.
2301 Dowel Bars, Each
2301 Drill & Grout Reinf. Bars (Epoxy Coated) lb.

2301 (Appropriate Type "A" repair) lin. ft.

2301 Seal Concrete Pavement Joints (Silicone) gallon
2301 Seal Concrete Pavement Joints (3723 or 3725) lb.

AS-BUILT
MAR 03 2011
ENGINEERING

DATE: MAR-16-2004

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/6/05 REG. NO. 19917 ENGINEER Kyle M Buerkle

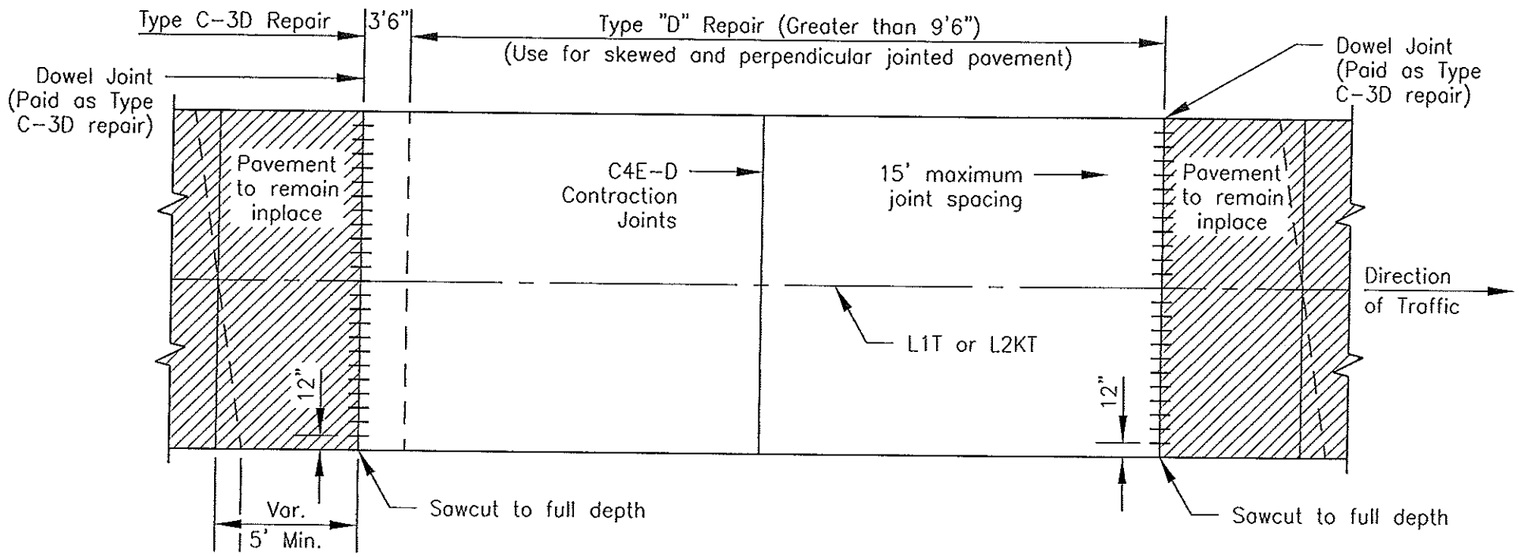
C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 21 of 45 Sheets

FILE NAME: CPR-D01.DWG DATE: 03-27-05

PAVEMENT REPLACEMENT, TWO LANE (TYPE D–2)

DESCRIPTION: REMOVE CONCRETE. RESTORE BASE.PLACE DOWELS AND REINFORCEMENT.
FURNISH AND PLACE CONCRETE. SAW AND SEAL JOINTS.



WORK TO BE DONE

1. Saw full depth and remove concrete pavement.
2. Place gravel (Cl. 5) and restore base to grade by quality compaction.
3. Furnish and install 1" diameter smooth dowel bar parallel to centerline. Place with an approved non–shrink grout.
4. Place dowel bars for C4E–D contraction joints.
5. Clean inplace vertical slab surface. Place structural concrete and reinforcement for L1T or L2KT. Finish to required grade, slope and texture. Apply cure. L1T and L2KT bars shall be No. 16 x 3' 0" spaced at 3' 0". For additional reinforcement over culverts, see Standard Plate 1070. Structural Concrete is included in Concrete Pavement Type D–2.
6. Restore joints by green sawing or by other methods approved by the Engineer.
7. Saw joints according to the appropriate Type "A" repair.
8. Seal joints and cracks with appropriate sealer.

BASIS OF PAYMENT

2301	(Appropriate Type "C" repair) lin. ft.
2301	Concrete Pavement (Type D–2) sq. yd.
2301	Reinforcement Bars (Epoxy Coated), lb.
2301	Dowel Bars, Each
2301	(Appropriate Type "A" repair) lin. ft.
2301	Seal Concrete Pavement Joints (Silicone) gallon
2301	Seal Concrete Pavement Joints (3723 or 3725) lb.

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DATE 6/6/05 REG. NO. 19917 ENGINEER Kyle M Brennick

C.P.R. CONSTRUCTION DETAILS

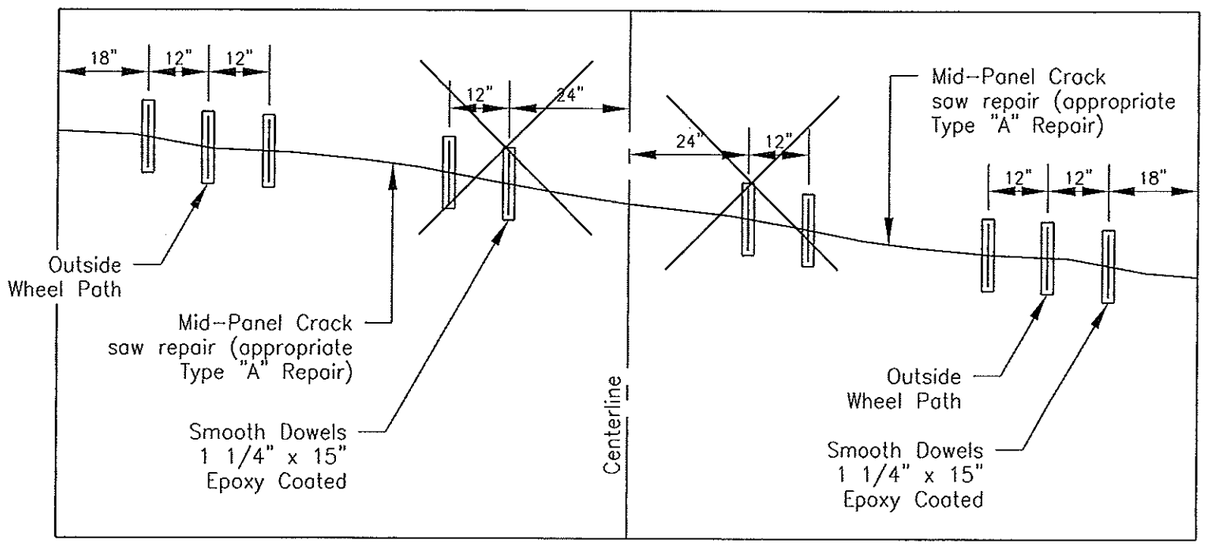
~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 22 of 45 Sheets

FILE NAME: CPR-D02.DWG DATE: 05-27-05

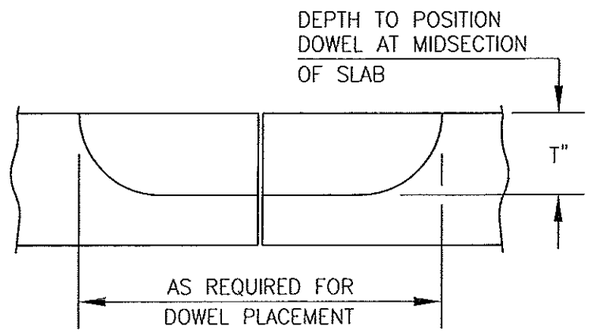
DOWEL BAR RETROFIT DETAILS ①

DESCRIPTION: THIS REPAIR IS INTENDED TO BE USED TO ESTABLISH/RESTORE LOAD TRANSFER AT JOINTS OR CRACKS.

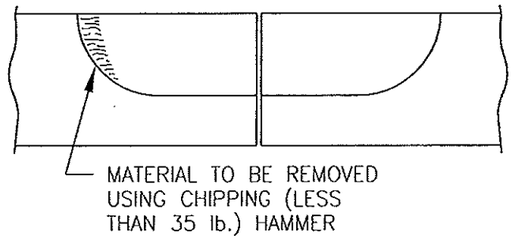
TYPICAL RETROFIT DOWEL LAYOUT



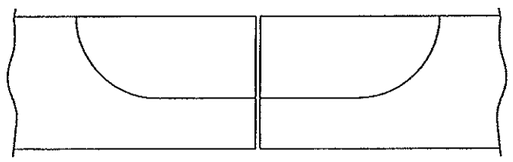
STEP 1 – SAW SLOT FOR EACH DOWEL BAR.



STEP 2 – REMOVE CONCRETE TO FORM KERF AND RINSE AND DRY.



STEP 3 – SANDBLAST AND VACUUM CLEAN SLOT.



AS-BUILT
MAR 03 2011
ENGINEERING

① SEE SPECIAL PROVISIONS FOR MATERIAL AND CONSTRUCTION DETAILS. PAID FOR AS 2301 DOWEL BAR RETROFIT, EACH.

MODIFIED

DATE: MAR–16–2004

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DATE 6/6/05 REG. NO. 19917 ENGINEER Kay M Boemich

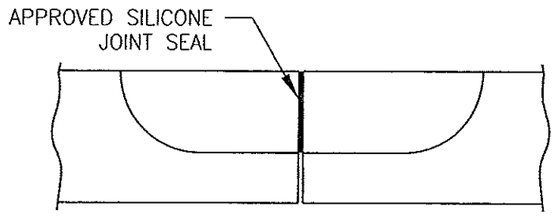
C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 23 of 45 Sheets

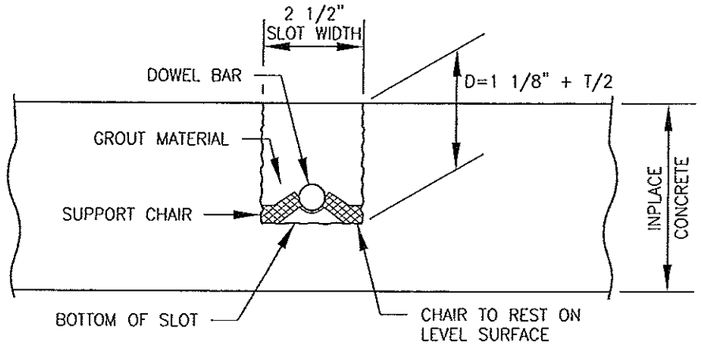
FILE NAME: CPR-DDR1.DWG DATE: 05-31-05

DOWEL BAR RETROFIT DETAILS

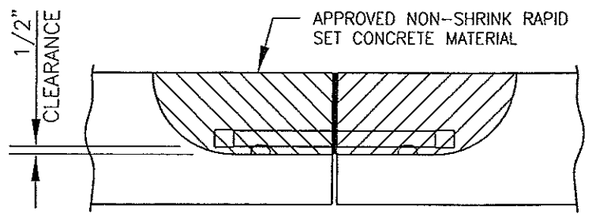
STEP 4 – SEAL BOTTOM AND SIDES OF SLOT. SEAL MID–PANEL CRACKS.



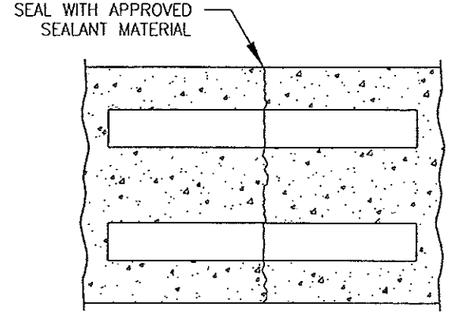
STEP 5 CONT. – DETAILED DRAWINGS



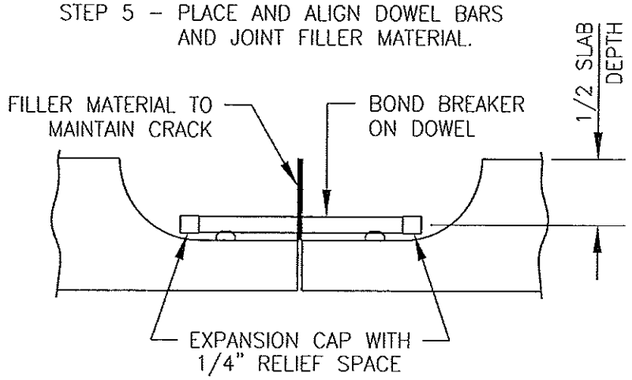
STEP 6 – PLACE REPAIR MATERIAL.

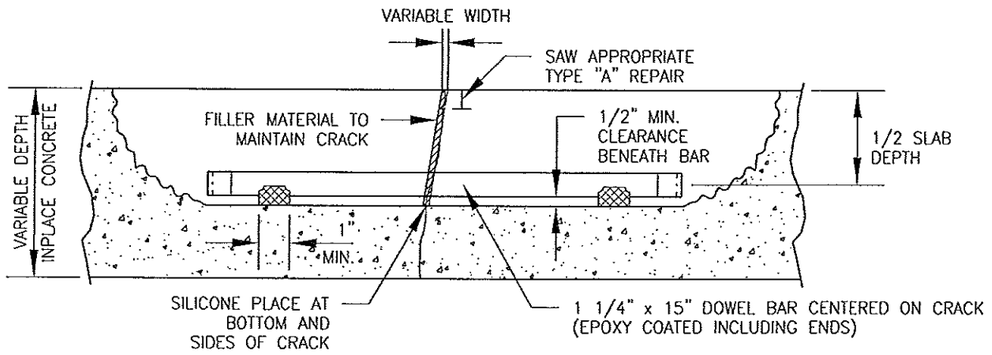


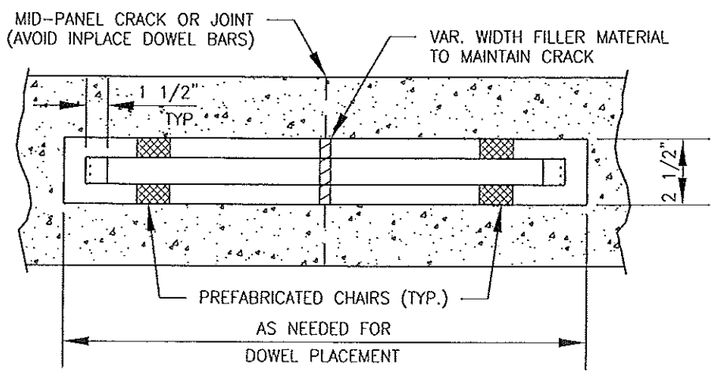
STEP 7 – SEAL CRACK OR JOINT BETWEEN REPAIRS.



STEP 5 – PLACE AND ALIGN DOWEL BARS AND JOINT FILLER MATERIAL.







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DATE: MAR–16–2004

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DATE 6/6/05 REG. NO. 19917 ENGINEER Kaye M Buenick

C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 24 of 45 Sheets

FILE NAME: CPR-DBR2.DWG DATE: 03-31-05

CONSTRUCTION NOTES

This work shall consist of performing concrete pavement repairs and joint/crack sealing in accordance with the applicable provisions of Mn/DOT 2301, the Plan, Concrete Pavement Rehabilitation (CPR) Standard Details and the following:

GENERAL REQUIREMENTS

The Contractor shall:

(A) establish traffic control a minimum of one (1) day in advance of the beginning of the rehab operation for rehab surveys and locations.

~~(B) replace bituminous shoulder pavement, as directed by the Engineer, as an incidental cost to performing adjacent concrete repairs.~~

(C) as directed by the Engineer, repair any damage to any inplace pavement, roadway structure, or appurtenance caused by the Contractor's operations prior to final acceptance at no cost to the Agency.

(D) saw full-depth relief cuts and remove a transverse section 4 inches wide by full-width of the slab as the Contractor determines necessary to protect the existing concrete pavement. If the Contractor chooses not to saw a relief cut and damage is caused to the existing concrete pavement, the Contractor shall make repairs as directed by the Engineer, at no cost to the Agency. Prior to opening to traffic, the Contractor shall backfill the void formed after concrete removal with Class 5 or other material as approved by the Engineer. The Contractor shall maintain the backfill material flush ± 1/2 inch with adjacent concrete.

(E) use concrete placing and finishing procedures that do not result in rounding of the surface at any joints or headers.

(F) not place any concrete mixture after October 15th.

(G) provide a repaired surface tolerance that does not vary by more than 1/8 inch from the existing pavement surface as measured with a straight edge placed over the joint. The Contractor shall replace or grind the repair as necessary to correct deficiencies.

(H) provide a power pick-up broom to sweep the portion of the closed traffic lane prior to opening.

(I) equip milling machines used for concrete removal with a device for stopping at preset depths to prevent damage to the dowel bars.

(J) re-establish longitudinal and transverse cracks and joints according to the appropriate repair detail for the situation encountered.

(K) restore contraction and longitudinal joints by green sawing Type C and D repairs to a depth of 1/3 of the pavement thickness.

(L) edge adjacent to all inserts in fresh concrete.

(M) fill overlaps in saw cuts from removal operations with an approved silicone or hot pour joint sealant.

(N) assure that concrete repairs do not protrude beyond the original cross-section of the pavement by more than 3/8 inch by forming or sawing the edges.

(O) provide surface texturing for all repairs consisting of brooming in the long dimensions of the repair in lieu of the requirements of Mn/DOT 2301.3L Surface Finishing, except the Contractor shall tine Type D repairs that abut concrete surfacing that were tined during the original construction.

(P) ~~for early opening times,~~ insulate repairs in cool weather (below 60° F), or when inplace pavement temperatures are below 50° F. When texture planing is required and the temperatures are below 60° F (night or day), the Contractor shall apply a blanket cure for a minimum of 48 hours after placement and prior to texture planing. The Contractor shall cast beams or cylinders (cured and tested by the Agency) if early opening times are required.

(Q) repair any areas of failure that appear within one (1) month of the original construction or subsequent repair at no cost to the Agency. Failures include (but are not limited to) the loss of bonding to the inplace concrete or crack apparent in the repair other than the desired crack in the newly constructed joint or re-established crack.

DATE: MAR-16-2004

TYPE A REPAIRS

This work shall consist of cleaning and sawing transverse joints, longitudinal joints or or cracks to the specified width, as detailed in the Plan, in preparation for resealing. The Contractor shall use the type of joint sealant and method of construction shown in the Mn/DOT Standard Detail. The Contractor shall use only approved silicone and hot pour sealants as listed on the Concrete Unit Website at:
www.mrr.state.dot.mn.us/pavement/concrete/products.asp

The Contractor shall:

(A) clean, saw and reseal joints and cracks in texture planed areas only after the concrete texture planing operations are completed.

(B) as approved by the Engineer, clean and remove waste material produced from cleaning, sawing, planing or other operations from the adjacent pavement and remove from the Agency Right-of-Way to avoid unsightly buildup of waste or future maintenance problems such as, but not limited to, waste impairing drainage systems.

(C) remove all of the existing joint seal material from the joints to the satisfaction of the Engineer, with ripping teeth, wire brush, sawing or other reasonable equipment to the satisfaction of the Engineer. However, the Contractor shall not use equipment that will cause spalling of the pavement surface beyond the limits of the proposed sawed section.

(D) widen the existing joint or crack by sawing to a width ± 1/16 inch of that shown in the Plan and to a depth of ± 1/8 inch of that shown in the Plan. The Engineer shall designate the widening dimensions.

(E) thoroughly clean all joints and cracks by water flushing immediately after sawing.

(F) not place joint sealant when the air temperature is below 40° F, nor when the joint faces show signs of frost.

(G) assure that the joints or cracks are clean, dry and free of all incompressible material before sealant is applied. The Contractor shall apply joint sealants in accordance with the Manufacturer's recommendations. The Contractor shall use talc as necessary. The Engineer may direct the Contractor to use a heat lance to dry joints and cracks prior to placing the joint sealant. The Contractor shall sandblast the joint faces after using the heat lance.

(H) shall place approved closed cell backer rod when necessary.

(I) use hot pour concrete joint and crack sealer for sealing longitudinal joints.

(J) fill joints and cracks to 1/8 inches below the pavement surface ± 1/16 inch. Any overfilling will require removal and replacement by the Contractor at no cost to the Agency.

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DATE: MAR-16-2004

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DATE 6/6/05 REG. NO. 19917 ENGINEER Kaye M Perenick

C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 25 of 45 Sheets

FILE NAME: CTR-CN01.DWG DATE: 03-27-05

SILICONE SEALANT CHART – ENGLISH

(Other Polymeric Sealers will have similar quantities)

Joint Width (Inches)	Sealant Bead Thickness (Inches)	Backer Rod Diameter* (Inches)	Minimum Joint Depth (Inches)	Backer Rod Placement Depth (Inches)	Estimated Quantity** (Ft/Gallon)	Estimated Quantity** (lb./Lin. Ft)
a	b	c	d	e		
1/4	1/4	3/8	1	1/2	246	0.050
3/8	1/4	1/2	1-1/4	1/2	149	0.083
1/2	1/4	5/8	1-1/4	1/2	103	0.120
5/8	5/16	3/4	1-1/2	9/16	66	0.188
3/4	3/8	1	1-1/2	5/8	46	0.270
7/8	7/16	1-1/8	1-3/4	11/16	33	0.376
1	1/2	1-1/4	2	3/4	26	0.477
>1	1/2	1-3/8	2+	3/4	--	--

* Minimum backer rod diameter.

** Volumes will vary depending on joint design and joint irregularities.

Sealing of joints wider than 1-1/4" is not recommended. The appropriate Type "B" or "C" repair should be performed.

HOT POUR SEAL CHART – ENGLISH

Joint Width (Inches)	Sealant Bead Thickness (Inches)	Backer Rod Diameter* (Inches)	Minimum Joint Depth (Inches)	Estimated Quantity** (Ft/Gallon)	Estimated Quantity** (lb./Lin. Ft)
a	b	c	d		
1/4	1/4	3/8	11/16	268	0.035
3/8	3/8	1/2	15/16	119	0.079
1/2	1/2	5/8	1-3/16	67	0.140
5/8	5/8	3/4	1-7/16	43	0.219
3/4	3/4	7/8	1-11/16	30	0.316
7/8	7/8	1	1-15/16	22	0.430
1	1	1-1/8	2-3/16	17	0.562
1-1/8	1-1/8	1-1/4	2-7/16	13	0.711
1-1/4	1-1/4	1-3/8	2-11/16	11	0.877
1-3/8	1-3/8	1-1/2	2-15/16	9	1.062
1-1/2	1-1/2	1-5/8	3-3/16	7	1.264
1-5/8	1-5/8	1-3/4	3-7/16	6	1.483
1-3/4	1-3/4	1-7/8	3-11/16	5	1.720
1-7/8	1-7/8	2	3-15/16	5	1.974

* Minimum backer rod diameter.

** Volumes will vary depending on joint design and joint irregularities.

Sealing of joints wider than 1-1/4" is not recommended. The appropriate Type "B" or "C" repair should be performed.

AS-BUILT
MAR 03 2011
ENGINEERING

DATE: MAR-16-2004

DATE: MAR-16-2004

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/6/05 REG. NO. 19917 ENGINEER Kay M Boeneck

C.P.R. CONSTRUCTION DETAILS

State Proj. No. S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 26 of 45 Sheets

FILE NAME: CPR-CH02.DWG DATE: 05-27-05

TYPE B REPAIRS

This work shall consist of removing deteriorated concrete at designated Type B repair areas, furnishing, placing, and curing 3U18 concrete to the original slope and grade and re-establishing joints or cracks.

The Contractor shall:

(A) not place concrete for Type B partial depth repairs at air temperatures below 40° F.

(B) not use "Jackhammers" for partial depth removals. Chipping hammers are limited to a maximum rated weight of 35 lbs.

(C) remove the concrete surface in the designated repair areas to a minimum depth of 2 inches and all deteriorated concrete removed to a maximum depth of one-half the pavement thickness.

(D) remove the concrete surface in the designated repair area by either transversely or longitudinally milling to establish a face that is 30° – 60° from vertical or by delineating the repair area by saw cuts and chipping back the saw cuts to a 30° – 60° angle from vertical. The Contractor shall chip-out secondary spalling resulting from milling at no cost to the Agency; otherwise, chipping of the milled edges is not required. The Contractor shall not damage the dowel bars during the removal process. Any damage is the responsibility of the Contractor.

(E) address corroded and misaligned dowel bars. If dowel bar cross-section loss due to corrosion is slight, the Contractor shall use MC-250 coating or a bridging material approved by the Engineer. If the dowel bars are misaligned or exhibit corrosion to a greater degree, the Contractor shall cut or burn-off the bar. If this involves more than three adjacent dowels, the Contractor shall remove and replace the dowels using the appropriate repair detail. The placement of compression relief material is required to re-establish the joint.

(F) provide a compression relief saw cut or install compression relief material at the time of placement of the concrete to re-establish joints and cracks at their original locations.

(G) provide and place a bonding grout to the prepared concrete repair surface consisting of 2 parts portland cement and 1 part sand, mixed with sufficient water to form a slurry with the consistency of thick cream. The Contractor shall mix the grout by mechanical means and apply by brushing or scrubbing (with a stiff bristle broom) onto the inplace concrete surface and then immediately placing concrete after grouting. If the grout whitens, the Contractor shall sandblast and regrout. The life of the grout shall not exceed 1 hour.

(H) furnish, place, finish and cure Grade 3U18 as replacement concrete for all Type B repairs in accordance with the provisions in this Plan and Proposal.

(I) All Type B-2 repair procedures must conform to the procedures for Type B-1 or Type B-3 repair procedures when appropriate.

(J) saw and seal joints and cracks involving Type B repairs in accordance with the appropriate Type A repair.

Note to Engineer: The practice of using sand to prevent locking the joints together due to concrete infiltration when placing repairs will likely result in a reduced repair life as compared to repairing a joint where the dowels are not exposed and a tight joint exists. Therefore, an early determination is necessary to quantify the extent of this fix to determine if it is a cost effective alternative as compared to a longer lasting full-depth repair. (Contact the Concrete Engineering Unit for advice)

DATE: MAR-16-2004

TYPE C REPAIRS

This work shall consist of full-depth concrete removal, installing reinforcing and/or load transfer, furnishing and placing, finishing and curing concrete.

The Contractor shall:

(A) drill smooth 18 inch x 1 inch diameter dowel bars or No. 25 reinforcement bars with an approved drill assembly and grouted 9 inches into the face of the inplace concrete slab as shown in the Plans. The Contractor shall install individual dowel bars parellel to the inplace grade and the inplace roadway centerline, within a tolerance of 1/8 inch, and to all other dowel bars in the assembly within a tolerance of 1/16 inch.

(B) use either non-shrink grout or epoxy anchorages for bonding reinforcing tie bars and dowel bars to inplace concrete (For an approved products list, see www.mrr.dot.state.mn.us/pavement/concrete/products.asp). The Contractor shall clean and dry the drilled holes and place bonding agent into the drilled hole in a manner that will completely fill the void, and then push the bar into the hole. The Contractor shall fill any voids with grout and finish smooth and check to assure that the bars are fully set prior to placement of concrete.

(C) not remove any inserts used in the re-establishment of joints in Type C repairs before 24 hours, except by sawing or as approved by the Engineer.

(D) saw and seal joints and cracks involving Type C repairs in accordance with the appropriate Type A repair.

TYPE D REPAIRS

This work shall consist of sawing and removing inplace concrete; restoration of subgrade; furnishing and installation of dowel bars and reinforcing tie bars; furnishing, placing, finishing and curing concrete; and restoration of joints.

The Contractor shall:

(A) construct L2KT longitudinal joints unless otherwise directed by the Engineer.

(B) when placing concrete adjacent to inplace concrete pavement joints, protect all ends of transverse joints to the satisfaction of the Engineer to prevent concrete mortar from infiltrating into the existing joints and causing compression spalls.

(C) saw and seal joints and cracks involving Type D repairs in accordance with the appropriate Type A repair.

AS-BUILT

MAR 03 2011

ENGINEERING

DATE: MAR-16-2004

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/6/05 REG. NO. 19917 ENGINEER Kaye M Brieniek

C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 27 of 45 Sheets

FILE NAME: CPR-CNST.DWG DATE: 03-27-05

CONCRETE MIXTURE REQUIREMENTS

Incorporate concrete into the work for concrete rehabilitation repair areas as indicated in the Plans and at other locations deemed necessary, all in accordance with the applicable provisions of Mn/DOT 2301, Mn/DOT 2461 and the following.

The Contractor shall:

(A) provide all grades of concrete with an air content of 6.5% plus or minus 1.5%. The Contractor shall not use accelerators when the ambient air temperature exceeds 80° F without the approval of the Engineer. (Use accelerators with caution, contact the Concrete Engineering Unit)

(B) proportion the Grade 3U18 concrete mix by weight and mix at the job site in a paddle type mixer; or proportion and mix at the job site by a continuous batching mixing machine designed for this purpose. The Contractor shall include the required admixtures in the concrete mixtures as noted in the Plan.

(C) incorporate concrete mix designs 3A32HE, 3U27 or 3U28 into the work as indicated in the Plans for all full-depth concrete pavement and at other locations deemed necessary by the Engineer.

(D) when required, provide concrete Mix Grades 3U27 and 3U28 using water reducing accelerator (Type E) as a slump increaser. The mix design shall include the water reducing accelerator solution as part of the total recommended mixing water.

(E) when no early opening time is required, the Contractor may use standard concrete mixes of 3U18 for Type B repairs, and 3A32 or 3A41 for all Type C repairs and Type D repairs.

(F) when early opening times are required, refer to Table 1. Incorporate concrete mix designs 3A32HE, 3U27 or 3U28 into the work for all full-depth concrete pavement and at other locations as indicated in the Plans as deemed necessary by the Engineer.

(G) note that concrete mixes are considered incidental to the work in which they are incorporated.

(H) note that the Concrete Engineer may approve substitute mixes to the above concrete mix types.

DATE: MAR-16-2004

TABLE 1
CONCRETE MIXES FOR EARLY OPENING TIMES

Repair Type	Concrete Mix Grade	Minimum Time To Opening (Hours) (1)	Admixture Dosage (2) & Type/ Curing Requirement
B	3U18	24	Maximum Type A
B	3U18	12	40% of Maximum Type E
C	3A32HE	24	Maximum Type A
C	3U27 3U28	12	40% of Maximum Type E (3)
C	3A32HE	12	40% of Maximum Type E (3) Use curing blankets and insulation (4)
D (Less than 50' long)	3U27 3U28	24	25% of Maximum Type E (3)
D (Less than 50' long)	3A32HE	72	Maximum Type A (5)
D (From 50' to 200' long)	3A32HE	72	Maximum Type A (5)
D (From 50' to 200' long)	3A32HE	(6)	(5) (6)
D (More than 200' long)	3A32	(6)	(5) (6)
D (More than 200' long)	3A41	(6)	(5) (6)
D (More than 200' long)	3A32HE	(6)	(5) (6)

(1) Providing that ambient and concrete temperatures exceed 60° F.

(2) Recommended dosage is from the manufacturer of the admixture.

(3) Shall be added as a slump increaser.

(4) Materials must meet Mn/DOT Specifications 3756 and 3760.

(5) Contact the Concrete Engineering Unit if an earlier opening time is required.

(6) Per Mn/DOT Specification 2301.

AS-BUILT
MAR 03 2011
ENGINEERING

DATE: MAR-16-2004

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DATE 6/6/05 REG. NO. 19917 ENGINEER Kay M Brenneck

C.P.R. CONSTRUCTION DETAILS

~~State Proj. No.~~ S.A.P. 55-605-14 & S.A.P. 20-617-04 Sheet No. 28 of 45 Sheets

FILE NAME: CPR-CNDA.DWG DATE: 05-27-05

MEMBRANE CURING COMPOUND

The following is hereby added to Mn/DOT 3754:

Immediately after final finishing, all concrete shall be cured in accordance with Spec. 2531.3G2. Either Membrane Curing Compound meeting Specification 3754 AMS or Extreme Service Membrane Curing Compound meeting Specification 3755 shall be used. Only one type of curing compound shall be used on the entire project. Hudson sprayers may be used if the coverage rate is doubled and the curing material is from an agitated source.

Curing Compound 3754 AMS:

Specification 3754 AMS shall meet the following requirements:

White pigmented curing compound conforming to the requirements of ASTM Designation: C309, Type 2, Class B. The resin shall be 100 percnt poly-alpha-methylstyrene. The curing compound shall conform to all requirements according to Table CC-1.

The shelf life of the product shall be 6 months from the date of manufacture. The product may be re-tested by the Mn/DOT Central Laboratory and re-approved, if the physical and chemical properties have not changed, for an additional six months. However, the maximum shelf life shall not exceed one year from manufacture date.

Table CC-1

Properties	Minimum	Maximum
Total Solids, % by weight of compound	42	
% Reflectance in 72 hours (ASTM E1347)	65	
Loss of Water, kg/m^2 in 24 hours (ASTM C156)		0.15
Loss of Water, kg/m^2 in 72 hours (ASTM C156)		0.40
Settling Test, ml/100 ml in 72 hours (1)		2
V.O.C. Content, g/L		350
Infrared Spectrum, Vehicle (2)	100% poly-alpha-methylstyrene	

(1) Test Method on file at the Mn/DOT Central Laboratory.

(2) The infrared scan for the dried vehicle from the curing compound shall match the infrared scan on file at the Mn/DOT Central Laboratory.

AS-BUILT
MAR 03 2011
ENGINEERING

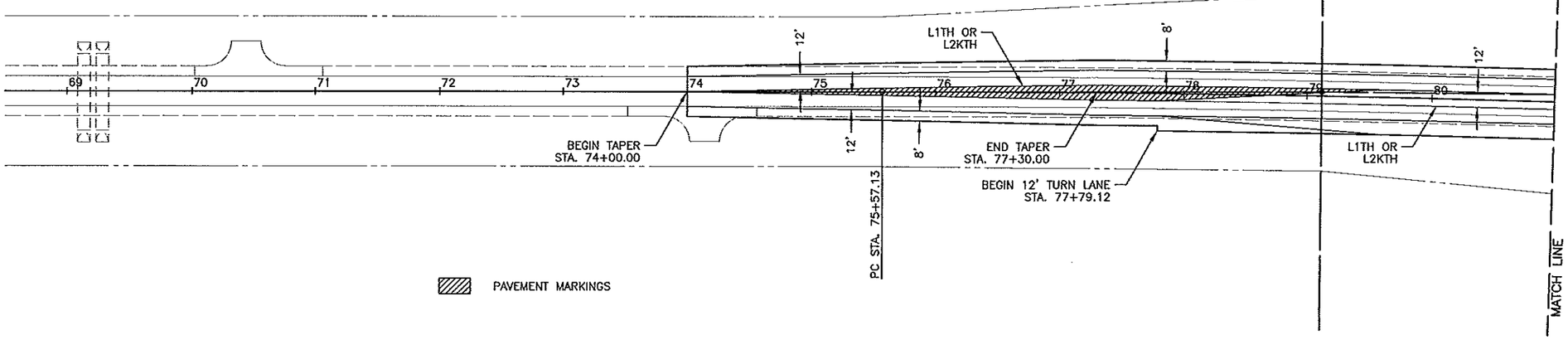
DATE: MAR-16-2004

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/6/05 REG. NO. 19917 ENGINEER Kyle M Brennick

C.P.R. CONSTRUCTION DETAILS

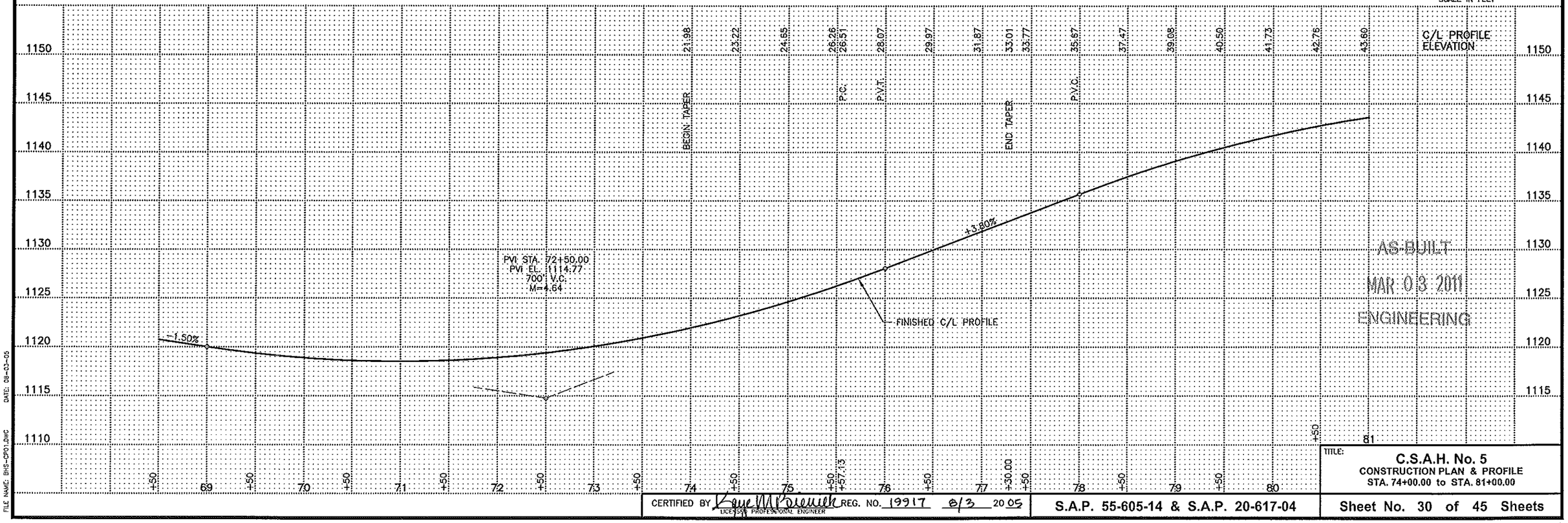
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R=19098.59
L=709.54
T=354.81
X=570508.8126
Y=179149.9191



PAVEMENT MARKINGS

0 25 50 100
SCALE IN FEET



AS-BUILT
MAR 03 2011
ENGINEERING

DATE: 09-03-05
FILE NAME: BHS-0501.DWG

CERTIFIED BY Kaye M Prevenas REG. NO. 19917 8/3 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-605-14 & S.A.P. 20-617-04

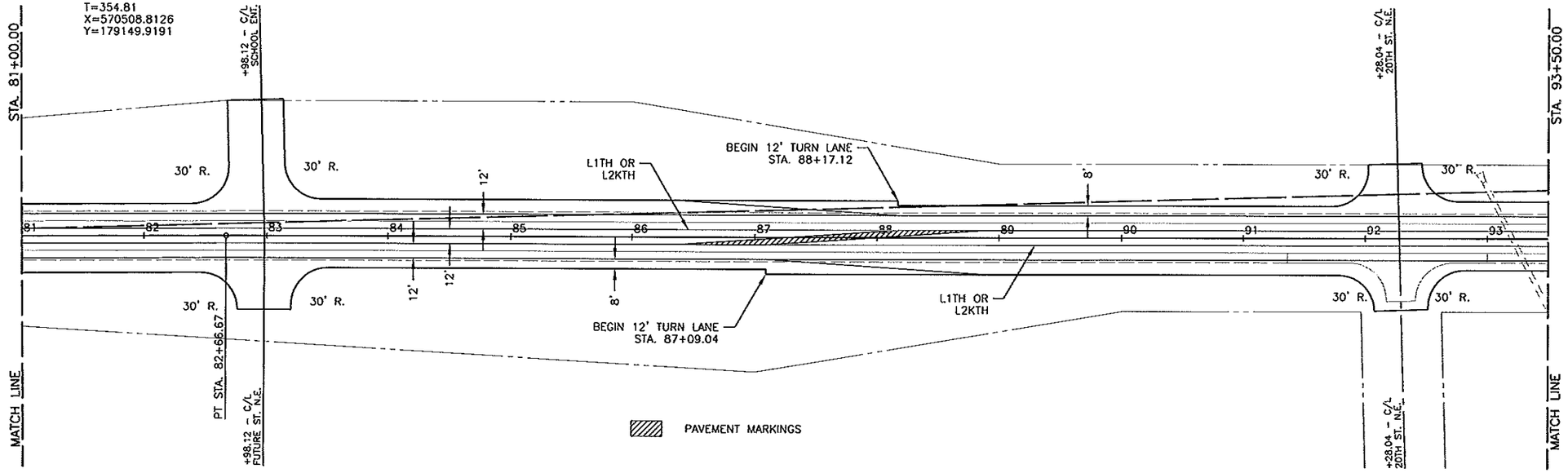
TITLE:
C.S.A.H. No. 5
CONSTRUCTION PLAN & PROFILE
STA. 74+00.00 to STA. 81+00.00

Sheet No. 30 of 45 Sheets

PI STA. 79+11.94
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D=00°18'00"
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L=709.54
T=354.81
X=570508.8126
Y=179149.9191

STA. 82+98.12 – DRIVEWAY LT.
NO INPLACE CULVERT
45.67' ENTRANCE

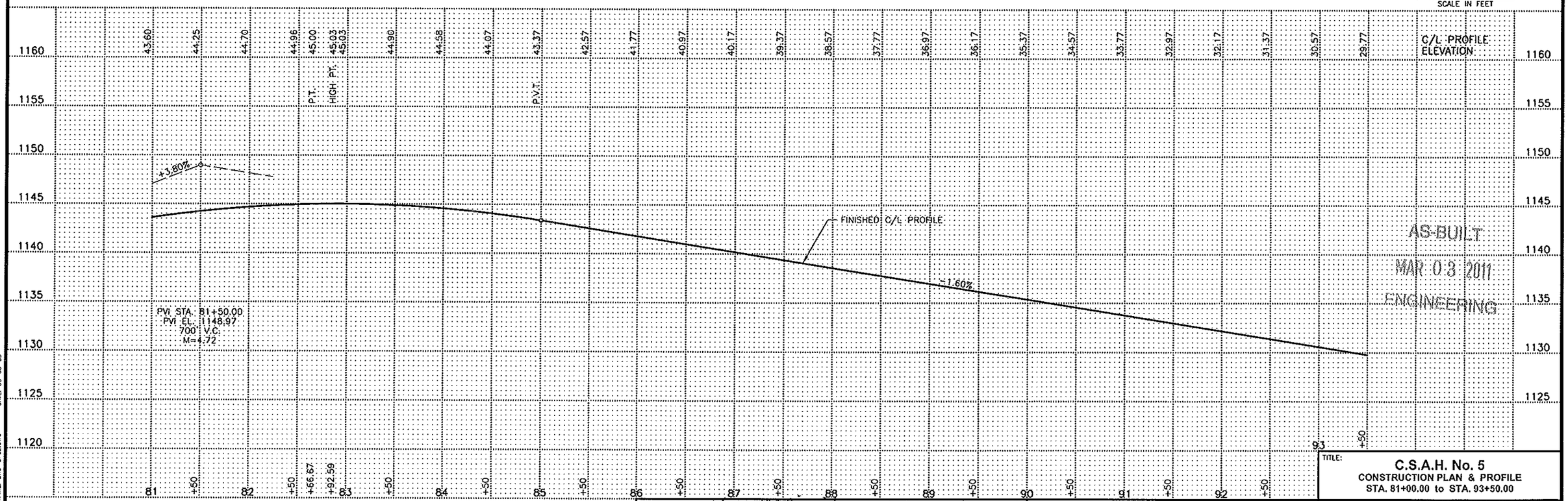
STA. 92+28.04 – 20TH ST. N.E.
NO INPLACE CULVERT
CONSTRUCT 44.00' APPROACH



STA. 82+98.12 – FUTURE ST.
NO INPLACE CULVERT
CONSTRUCT 44.00' APPROACH

STA. 92+28.04 – 20TH ST. N.E.
NO INPLACE CULVERT
CONSTRUCT 44.00' APPROACH

0 25 50 100
SCALE IN FEET



AS-BUILT
MAR 03 2011
ENGINEERING

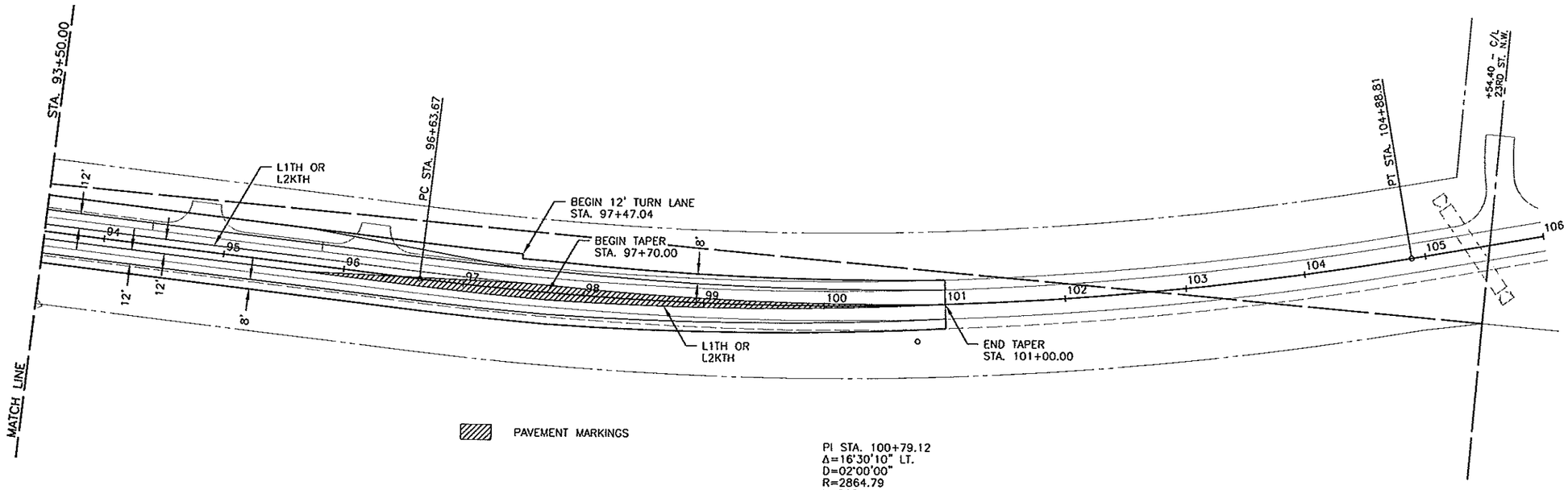
DATE: 08-03-05
FILE NAME: BHS-CP02.DWG

CERTIFIED BY Kaye M Bienieki REG. NO. 19917 8/3 2005
LICENSED PROFESSIONAL ENGINEER

TITLE:
C.S.A.H. No. 5
CONSTRUCTION PLAN & PROFILE
STA. 81+00.00 to STA. 93+50.00

S.A.P. 55-605-14 & S.A.P. 20-617-04

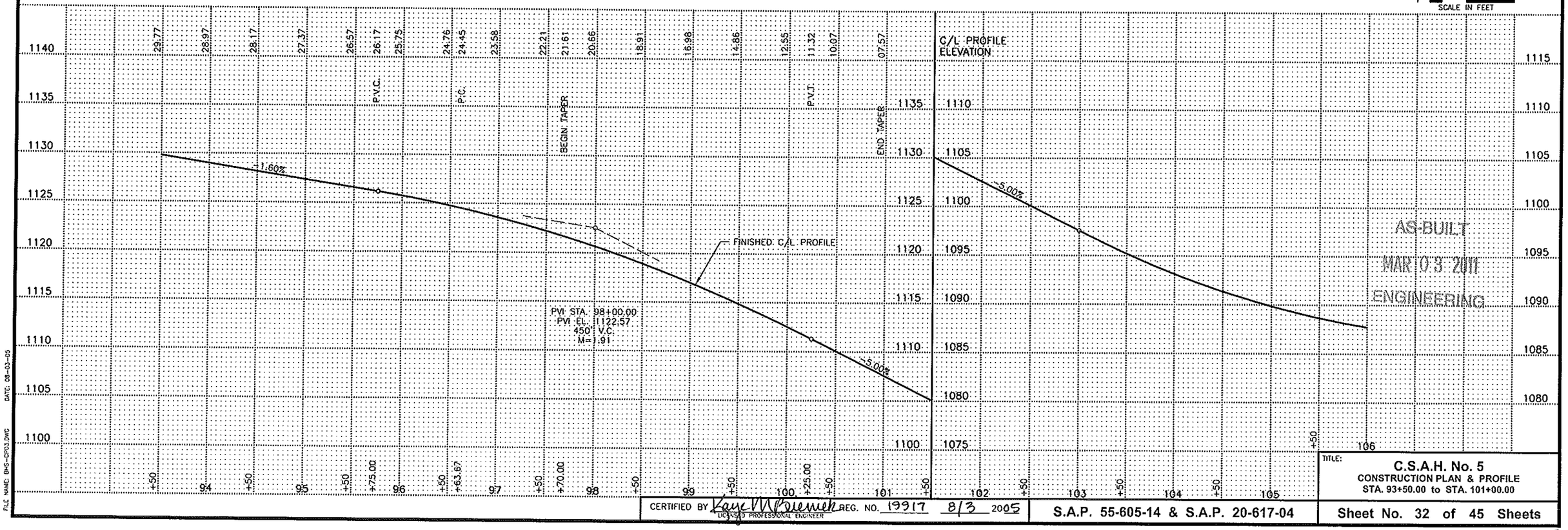
Sheet No. 31 of 45 Sheets



PAVEMENT MARKINGS

PI STA. 100+79.12
Δ=16°30'10" LT.
D=02°00'00"
R=2864.79
L=825.14
T=415.45
X=570563.8475
Y=181316.4795

0 25 50 100
SCALE IN FEET



AS-BUILT
MAR 03 2011
ENGINEERING

FILE NAME: BHS-GP03.DWG DATE: 08-03-05

CERTIFIED BY Kaye M Brenner REG. NO. 19917 8/3 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-605-14 & S.A.P. 20-617-04

TITLE:
C.S.A.H. No. 5
CONSTRUCTION PLAN & PROFILE
STA. 93+50.00 to STA. 101+00.00

Sheet No. 32 of 45 Sheets

Fed. Proj. No.

TWSP. RD. LT. 52 + 77
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

BEGIN S.A.P. 55-605-08
STA. 52 + 29.79

F.E. LT. 60 + 70
CONST. AGGREGATE SURFACE

F.E. LT. 67 + 34
CONST. AGGREGATE SURFACE

RES. DR. LT. 70 + 44
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

P.I. 52 + 77.77
INPL. 3/4" ROD

45.34' B.T.O.B.

CORPORATE LIMITS

B624 CONC. C.& G. INPL.

BITUMINOUS SURFACE INPLACE

B624 CONC. C.& G. INPL.

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

29' CONC. PAVEMENT NON-REINFORCED

BYRON

BEGIN CONC. PAVEMENT STA. 52 + 29.79

C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 19' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 19' UNLESS OTHERWISE SHOWN.

CONST. BIT. SHOULDER LT. STA. 52 + 29.8 TO STA. 53 + 80

F.E. RT. 52 + 86
CONST. AGGREGATE SURFACE

F.E. RT. 66 + 64
CONST. AGGREGATE SURFACE

℄ CULVS. STA. 69 + 13.6 & STA. 69 + 28.27
INPL. 2-122" SPAN x 80' R.C.P.-A CULV.
CONST. 18', 11', 15', AND 13' REINFORCED PANELS. STA. 68 + 88 TO STA. 69 + 45.

B.M. EL. 1182.92
SPK IN P.P. RT.
STA. 44 + 06

B.M. EL. 1143.29
SPK. IN P.P. RT.
STA. 53 + 05

P.I. + 00
ELEV. 45.46
260' V.C.
M = 0.9654

P.I. + 00
ELEV. 36.52

-1.588%

-1.5%

F.E. LT. 194 + 76
CONST. AGGREGATE SURFACE

RES. DR. RT. 74 + 04
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

24' CONC. PAVEMENT NON-REINFORCED

P.I. 79 + 11.72
Δ RT. 02° 07' 43"
D = 00° 18'
L = 709.54'
T = 354.81'
E = 3.29'

P.T. 82 + 66.45

TWP. RD. RT. 92 + 26
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

℄ CULV. STA. 92 + 87
INPL. 42" x 114' R.C. PIPE CULV.
CONST. 15', 13' AND 11' REINFORCED PANELS. STA. 92 + 66 TO STA. 93 + 12.

AS-BUILT

MAR 03 2011

B.M. EL. 1116.29
SPK. IN P.P. 3' LT.
STA. 70 + 86

B.M. EL. 1138.27
SPK. IN P.P. 53' LT. STA. 88 + 41

P.I. + 50
ELEV. 14.77
700' V.C.
M = +.8575

P.I. + 50
ELEV. 28.37
700' V.C.
M = -1.428

+1.8%

-1.6%

OLMSTED COUNTY Sheet No. of Sheets

FOR INFORMATION ONLY

CERTIFIED BY Dave M Brienen REG. NO. 19917 6/6 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-605-14 & S.A.P. 20-617-04

Sheet No. 33 of 45 Sheets

FILE NAME: BHS-CP04.DWG DATE: 04-26-05

Fed. Proj. No.

RES. DR. LT. 96+00.00
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

℄ CULV. STA. 105+40
INPL. 138" SPAN x 104' RCP-A CULV. SKEWED 25°
CONST. 13', 15', 11' AND 15' REINFORCED PANELS STA. 105+13 TO 105+67

PI. 100+78.90
ΔLT. 16° 30' 10"
D- 2° 00'
T- 415.45'
L- 825.14
E- 29.97

TWP. RD. LT. 105+71
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

P.C. 103+63.45
P.T. 104+88.59
P.C. 106+74.35
TWP. RD. 71
8' AGGREGATE SHOULDER
24' CONC. PAVEMENT NON-REINFORCED
8' AGGREGATE SHOULDER

F.E. LT. 110+22
CONST. AGGREGATE SURFACE.

℄ CULV. STA. 111+55
INPL. 42" x 150' RCP CULV.
CONST. 12', 15', 13' AND 18' REINFORCED PANELS STA. 111+25 TO 111+83.

RES. DR. LT. 114+74
CONST. 2" BIT. APPROACH & RT. TURN LANE.

P.T. 114+63.15
MATCH LINE 115+00

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 19' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13, 16, 14, AND 19' UNLESS OTHERWISE SHOWN.

RES. DR. RT. 112+75
CONST. 2" BITUMINOUS APPR. & RT. TURN LANE.

PI. 110+74.74
ΔRT. 23° 38' 46"
D- 3° 00'
T- 399.79'
L- 788.20'
E- 41.40'

RES. DR. RT. 116+00
CONST. 2" BITUMINOUS APPROACH.

CONST. B624 CONC. CURB & GUTTER RT. STA. 116+12 TO 120+00.
CONST. 2" BITUMINOUS SHOULDER RT. STA. 115+48 TO 120+00
BACK FILL CURB WITH TOPSOIL BORROW (LV) 180 CU. YDS.
PLACE, 534 SQ. YDS. SOD.
CONST. BITUMINOUS SPILLWAY RT. STA. 120+00
BITUMINOUS QUANTITIES INCLUDED IN SHOULDER MIXTURE.

P.C. 114+59.04
P.C. 121+59.04

B.M. EL. 1125.04
SPK. IN P.P. LT. 78' STA. 98+70

B.M. EL. 1118.37
SPK. IN P.P. LT. 16' STA. 115+45

RES. DR. LT. 123+00
CONST. 2" BITUMINOUS APPR. & RT. TURN LANE.

P.I. 126+01.64
ΔLT. 8°50' 04"
D- 1° 00'
T- 442.60'
L- 883.45'
E- 17.07'

F.E. RT. 130+30
CONST. AGGREGATE SURFACE

℄ CULV. 128+19
INPL. 30" x 108' RCP CULV.
CONST. 12' AND 13' REINF. PANELS STA. 128+07 TO 128+32

F.E. LT. 132+03
CONST. AGGREGATE SURFACE.

RES. DR. LT. 133+80
CONST. 2" BIT. APPROACH

CONST. B624 CONC. CURB & GUTTER LT. 132+12 TO 135+00.
CONST. 2" BITUMINOUS SHLD. LT. STA. 131+80 TO 135+00
BACKFILL CURB WITH TOPSOIL BORROW (LV) 134 CU. YDS., PLACE 400 SQ. YDS., SOD.
CONST. BIT. SPILLWAY LT. STA. 135+00
BITUMINOUS QUANT. INCLUDED IN SHLD. MIXTURE.

P.C. 132+32.04

F.E. RT. 137+11
CONT. AGGREGATE SURFACE

RES. DR. LT. 142+63
CONST. 2" BITUMINOUS APPR. & RT. TURN LANE

P.I. 152+90.55
ΔLT. 9° 02' 06"
D- 4° 00'
T- 1458.51'
L- 2275.86'
E- 611.87'

℄ CATTLE PASS CULV. 147+90
INPL. 72" x 72" R.C.
CONST. 13' AND 13' REINFORCED PANELS STA. 147+77 TO 148+03

C.S.A.H. 4 RT. 145+00
CONST. 4" BITUMINOUS APPROACH & 12' WIDE RT. TURN LANE WITH 2' WIDE AGGREGATE SHOULDERS.
2' AGG. SHOULDER

AS-BUILT
MAR 03 2011
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B.M. EL. 1067.01
SPK. IN P.P. 59' LT. 134+15

B.M. EL. 1049.92
X-S-E. COR. BOX CULV. C.S.A.H. 4

OLMSTED COUNTY Sheet No. of Sheets

FOR INFORMATION ONLY

CERTIFIED BY Gary M Brenick REG. NO. 19917 6/6 2005
LICENSED PROFESSIONAL ENGINEER

S.A.P. 55-605-14 & S.A.P. 20-617-04

Sheet No. 34 of 45 Sheets

FILE NAME: BHG-GPOD.DWG DATE: 04-25-05

Fed. Proj. No.

EE. LT. 162+88
CONST. AGGREGATE SURFACE

P.T. 161+07.92

8' AGGREGATE SHOULDERS

24' CONC. PAVEMENT NON-REINFORCED

8' AGGREGATE SHOULDERS

PI 153+38.20
ΔRT. 11° 00'
D- 1° 38'
T- 355.94'
L- 709.68'
E- 17.10

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 19' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 19' UNLESS OTHERWISE SHOWN.

F.E. RT. 160+37
CONST. AGGREGATE

F.E. RT. 165+62
CONST. AGGREGATE SURFACE.

RES. DR. RT. 167+57
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. RT. 168+83
CONST. AGGREGATE SURFACE.

174+43.62 = 146+00 EQUATION

P.C. 143+82.26

B.M. EL. 1045.62
SPK. IN P.P. SO.
STA. 157+50

P.I. +50
ELEV. 45.82
400' V.C.
M = 0.3

P.V.C. +50
ELEV. 46.47

P.V.T. +50
ELEV. 46.47

-0.3%

+0.3%

B.M. EL. 1048.58
SPK. IN P.P. LT.
STA. 178+80

P.R.C. +00
ELEV. 51.4

EQUATION

+0.8%

P.V.C. +00
ELEV. 50.53333

P.I. +00
ELEV. 50.6
200' V.C.
M = 0.125

P.V.T. +00
ELEV. 50.50

P.V.C. +43.62
ELEV. 50.50

E. FINISHED GRADE ELEV.

TWP. RD. LT. 154+50
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE

INCL. BR. NO. 55527 AND 20' BRIDGE APPROACH PANELS SKEWED 50°
STA. 157+26.50 TO 160+33.5
CONST. 2" BITUMINOUS SHOULDERS 150' EAST & WEST FROM BRIDGE APPROACH PANELS

TUMBO RIVER

TWP. RD.

BR. NO. 55527

E&S JOINT

E&S JOINT

MIDDLE FORK

P.C. 165+50.42

P.I. 169+69.40
RT. 32° 46' 30"
D 4° 00'
T 418.98
L 819.38
E 60.65

R.T. 173+69.80

TWP. RD. RT. 168+00
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

RES. DR. LT. 172+45
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

RES. DR. LT. 174+53
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

EOT. 177+45.10

RES. DR. RT. 174+53
CONST. 2" BITUMINOUS APPROACH & RT. TURN LANE.

24' CONC. PAVEMENT NON-REINFORCE

6' AGGREGATE SHOULDER

6' AGGREGATE SHOULDER

AS-BUILT
MAR 03 2011
ENGINEERING

P.I. +66.66667
ELEV. 56.33333
300' V.C.
M = 0.1125

END CONST. +26.15

BR. NO. 55527

-0.5 %

BEGIN CONST. +33.5

P.V.C. +20.47619
ELEV. 62.20238

P.V.T. +20.47619
ELEV. 63.03238

P.I. +20.47619
ELEV. 63.03238
400' V.C.
M = 1.05
C = .2625

P.R.C. +00
ELEV. 68.20257

+2.6%

P.V.C. +00
ELEV. 89.87

P.I. +00
ELEV. 94.07
400' V.C.
M = 1.68

+2.6%

E. FINISHED GRADE ELEV.

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S.A.P. 55-605-14 & S.A.P. 20-617-04

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FILE NAME: RHS-CP05.DWG DATE: 04-26-05

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℄ CULV. 185+19 SKEWED 20°
INPL. 30"x104' R.C.P. CULV.
INPL. 30"x104' R.C.P. CULV.
CONST. 13'12" AND 12' REINFORCED PANELS
STA. 184+98 TO 185+35.

CONST. B624 CONC. CURB & GUTTER LT. 192+00 TO 196+40.
CONST. 2" BIT. SHOULDER LT. STA. 192+00 TO 196+40.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 195 CU. YDS.
PLACE 584 SQ. YDS. SOD.
CONST. BIT. SPILLWAY LT. STA. 192+00.
BITUMINOUS QUANT. INCLUDED IN SHLD. MIXTURE.

RES. DR. LT. 194+82
CONST. 2" BITUMINOUS APPROACH.

℄ CULV. 199+11
INPL. 30"x126' RCP CULV.
CONST. 17' AND 19' REINF. PANELS.
STA. 198+93 TO 199+29.

F.E. LT. 203+60
CONST. AGG. SURFACE

℄ CULV. 204+91
INPL. 24"x88' RCP CULV.
CONST. 16' REINFORCED PANEL.
STA. 204+83 TO 204+99.

P.I. 212+87.82
ΔLT. 56°30'
D- 5° 00'
T- 615.72'
L- 1130.00'
E- 154.94'

F.E. LT. 214+15

℄ CULV. 214+84
INPL. 24'x76' RCP CULV.
CONST. 13' REINF. PANEL.
STA. 214+78 TO 214+91.

8' AGGREGATE SHOULDER

24' CONC. PAVEMENT NON-REINFORCED

P.C. 185+26.97

P.I. 191+48.48
ΔRT. 46°54'41"
D- 4° 00'
T- 621.51'
L- 1172.51'
E- 129.02'

℄ CULV. 190+10 SKEWED 16°
INPL. 42"x120' R.C.P. CULV.
CONST. 13', 16' AND 15' REINFORCED PANELS. STA. 189+88 TO 190+32.

P.T. 196+99.75

F.E. RT. 197+10
CONST. AGGREGATE SURFACE.

RES. DR. RT. 205+70
CONST 2" BITUMINOUS SURFACE & RT. TURN LANE

P.C. 206+72.10

F.E. RT. 185+07
CONST. AGGREGATE SURFACE

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 19' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 19' UNLESS OTHERWISE SHOWN.

F.E. RT. 208+75
CONST. AGGREGATE SURFACE

TWP. RD. RT. 213+00
CONST. 2" BIT. APPROACH & RT. TURN LANE.

TWP. RD.

B.M. EL. 1173.06
SPK. COR. EIP 34"
LT. STA. 196+37

-5.9%

+1.3%

℄ FINISHED GRADE ELEV.

F.E. LT. 219+87
CONST. AGGREGATE SURFACE.

CONST. ACCELERATION LANE LT. 221+75 TO 224+57
4" THICK BITUMINOUS SURFACE 12' WIDE.
2' WIDE AGGREGATE SHOULDER.

DODGE COUNTY

℄ CULV. 230+40
INPL. 24"x 80' R.C.P. CULV.
CONST. 14' REINFORCED PANEL
STA. 230+33 TO 230+47.

F.E. LT. 233+11
CONST. AGGREGATE SURFACE

END: SAP 55-605-08
STA. 235+50

BEGIN: SAP 20-616-07
STA. 0+31.00

℄ CULV. 0+25
INPL. 24"x78' R.C.P. CULV.
CONST. 18' REINF. PANEL
STA. 0+15 TO 0+33

F.E. LT. 2+93
CONST. AGG. SURFACE

END: SAP 20-616-07
STA. 9+00

AS-BUILT

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8' AGGREGATE SHOULDER

24' CONCRETE PAVEMENT NON-REINFORCED

P.C. 220+38.98

P.I. 227+22.90
ΔRT. 57°04'00"
D- 5°00'00"
T- 623.04'
L- 1141.33'
E- 158.43'

℄ CULV. 218+82 SKEWED 30°
INPL. 72" HIGH x 82" R.C. CATTLE PASS
CONST. 13', 16' AND 14' REINFORCED PANELS. STA. 218+58 TO 219+01.

RES. DR. RT. 216+88
CONST. 2" BITUMINOUS SURFACE & RT. TURN LANE.

CONST. RT. TURN LANE LT. STA. 224+81 TO 229+70. 4" THICK BIT. SURFACE 12' WIDE.
2' WIDE AGGREGATE SHLD.

CONST. BIT. TAPER 24' WIDE 7" DEEP AT STA. 234+00 TO NOTHING AT 235+50.

EQUATION RT. 232+38.76 = 232+41.19 N

EQUATION 232+41.19 N = 232+38.76

B.M. EL. 1219.55
SPK. IN P.P. LT.
26' STA. 233+28

P.I. 3+27.40
ΔRT. 37°44'30"
D- 10° 00'
T- 195.84'
L- 377.42'
E- 32.55'

P.T. 5+06.98

P.I. 1+00
ELEV. 13.87
400' V.C.
K = 0.25

P.I. 65+83333
ELEV. 14.1851

P.V.T. 66+83333
ELEV. 12.2565

P.I. 65+83333
ELEV. 13.5855
400' V.C.
K = 1.2

+0.85%

+0.6%

-1.6%

OLMSTED COUNTY

DODGE COUNTY C.S.A.H. 16 SAP 20-616-07

OLMSTED COUNTY Sheet No. of Sheets

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FILE NAME: BHS-CP07.DWG DATE: 04-26-05

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℄ CULV. 230+40 F.E. LT. 233+11

END: SAP 55-605-08 (1982) STA 235+50

DODGE COUNTY

24' CONC. PAVEMENT NON-REINFORCED IN PLACE

BEGIN CONC. PAVEMENT STA. 234+09.0

8' AGGREGATE SHOULDER

24' CONC. PAVEMENT NON-REINFORCED

8' AGGREGATE SHOULDER

OLMSTED COUNTY

EQUATION AT 232+41.19 = 232+38.76

BEGIN S.A.P. 20-617-02 STA. 234+00

NOTE: C5-1 CONTRACTION JOINT SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

F.E. RT. 235+03
CONST. AGG. SURFACE

F.E. LT. 242+81
CONST. AGG. SURFACE

F.E. RT. 242+45
CONST. AGG. SURFACE

RES. DR. LT. 247+88
CONST. 2" BITUMINOUS APPROACH

F.E. LT. 249+87
CONST. AGG. SURFACE

CONST. B624 CONC. C.&G. LT. STA. 247+78 TO STA. 249+60
CONST. 2" BIT. SHOULDER. LT. STA. 247+50 TO STA. 249+60
BACKFILL CURB WITH TOPSOIL BORROW (LV) 36 CU. YDS.
PLACE 162 SQ. YDS. SOD.
CONST. BIT. SPILLWAY LT. STA. 247+68
BIT. QUANT. INCLUDED IN SHOULDER MIXTURE

RES. DR. RT. 247+74
CONST. 2" BITUMINOUS APPROACH

CONST. B624 CONC. C.&G. RT. STA. 246+00 TO STA. 250+00
CONST. 2" BIT. SHLD. RT. STA. 245+90 TO STA. 250+10
BACKFILL CURB WITH TOPSOIL BORROW (LV) 80 CU. YDS.
PLACE 356 SQ. YDS. SOD
CONST. BIT. SPILLWAY RT. STA. 245+90 AND STA. 250+10
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

RES. DR. LT. 257+53
CONST. 2" BITUMINOUS APPROACH & RIGHT TURN LANE

F.E. LT. 259+90
CONST. AGG. SURFACE

F.E. RT. 252+50
CONST. AGG. SURFACE

F.E. RT. 255+64
CONST. AGG. SURFACE

F.E. RT. 259+68
CONST. AGG. SURFACE

BM. ELEV. 1222.28
SPK IN PP LT. 60'
STA. 236+70

PI +150
ELEV. 23.80
400' V.C.
M=1.0

+0.8%

+2.8%

-1.2%

+2.8%

PVC +45.0
ELEV. 22.20

PVT +150
ELEV. 29.40

PI +50.0
ELEV. 49.98
510' V.C.
M=2.48625

PVC +95.0
ELEV. 47.284

-1.1%

PVT +105.0
ELEV. 47.178

BM. EL. 240.89
SPK IN PP LT. 50'
STA. 253+60

-2.1%

PVC +00.63
ELEV. 40.63

PI +50.0
ELEV. 38.98
300' V.C.
M=0.375

PVT +00.0
ELEV. 38.85

232+41.19 = 232+38.76 EQUATION

℄ FINISHED GRADE ELEV.

F.M. ENT. LT. 261+47
CONST. AGG. SURFACE

DODGE CO. 18 LT. 262+45
CONST. 4" BIT. APPROCH & RT. TURN LANE

BARN ENT. 267+05 F.M. ENT. LT. 267+76
CONST. AGG. SURFACE. CONST. 2" BIT. APPR. AND RT. TURN LANE

F.E. LT. 271+60
CONST. AGG. SURFACE

F.E. LT. 275+50
CONST. AGG. SURFACE

RES. DR. LT. 280+44
CONST. 2" BIT. APPR. & RT. TURN LANE

RES. DR. 281+94
CONST. 2" BIT. APPR. & RT. TURN LANE

CONST. B624 CONC. C.&G. LT. STA. 266+80 TO STA. 270+00
CONST. 2" BIT. SHLD. LT STA. 266+80 TO STA. 270+10
BACKFILL CURB WITH TOPSOIL BORROW (LV.) 64 CU. YDS.
PLACE 284 SQ. YDS. SOD CONST. BIT. SPILLWAY LT. STA. 270+10
BIT. QUANT. INCLUDED IN SHLD. MIXTURE.

DODGE COUNTY

8' AGGREGATE SHOULDER

24' CONCRETE PAVEMENT NON-REINFORCED

8' AGGREGATE SHOULDER

OLMSTED COUNTY

STATION ENT & FE. RT. 262+05+262+51
CONST. 2" BIT. APPROACH

CONST. B624 CONC. C.&G. RT. STA. 259+56 TO STA. 262+70
CONST. 2" BIT. SHLD. RT. STA. 259+56 TO STA. 262+80
BACKFILL CURB WITH TOPSOIL BORROW (LV) 63 CU. YDS.
PLACE 280 SQ. YDS. SOD CONST. BIT. SPILLWAY RT. STA. 262+80
BIT. QUANT. INCLUDED IN SHLD. MIXTURE

℄ CULV. 265+47
CONST. 13' AND 14' REINF. PANELS STA. 265+34 TO 265+61.

RES. DR. 268+51
CONST. 2" BIT. APPR.

CONST. B624 CONC. C.&G. RT. STA. 267+00 TO STA. 271+70
CONST. 2" BIT. SHLD. RT. STA. 267+00 TO STA. 271+80
BACKFILL CURB WITH TOPSOIL BORROW (LV) 94 CU. YDS.
PLACE 418 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 271+80
BIT. QUANT. INCLUDED IN SHLD. MIXTURE

F.E. RT. 271+50
CONST. AGG. SURFACE

℄ CULV. 272+91
CONST. 15' 18' & 14' REINF. PANELS STA. 272+67 TO STA. 273+14

RES. DR. RT. 275+37
CONST. 2" BIT. APPR.

CONST. B624 CONC. C.&G. RT. STA. 275+20 TO STA. 277+50
CONST. 2" BIT. SHLD. RT. STA. 274+80 TO STA. 277+70
BACKFILL CURB WITH TOPSOIL BORROW (LV) 46 CU. YDS.
PLACE 204 SQ. YDS. SOD CONST. BIT. SPILLWAY RT. STA. 275+10
BIT. QUANT. INCLUDED IN SHLD. MIXTURE

DR. RT. 277+30
CONST. 2" BIT. APPR.

℄ CULV. 284+56 SKEWED 6°
CONST. 18' RENF. PANEL STA. 284+54 TO STA. 284+72

F.E. RT. 287+00
CONST. AGG. SURFACE

TWP. RD. RT. 288+79
CONST. 2" BIT. APPR. & RT. TURN LANE

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B.M. EL. 1228.19
SPK IN PP LT. 40'
STA. 262+95

-2.1%

PI +50
ELEV. 26.48
300' V.C.
M=0.6

-0.5%

PVC +00
ELEV. 25.73

PVT +00
ELEV. 27.73

PI +50
ELEV. 22.98
300' V.C.
M=0.6

PVC +00
ELEV. 23.63

PVT +00
ELEV. 24.63

+1.1%

B.M. EL. 1231.67
SPK IN PP LT. 60'
STA. 280+25

PI +00
ELEV. 31.23
400' V.C.
M=0.3

PVC +00
ELEV. 29.03

PVT +00
ELEV. 32.23

+0.5%

B.M. EL. 1235.04
SPK IN PP LT. 60'
STA. 288+75

PI +00
ELEV. 35.23
400' V.C.
M=1.25

PVC +00
ELEV. 33.23

PVT +00
ELEV. 36.48

℄ FINISHED GRADE ELEV.

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F.E. LT. 293+37
CONST. AGG. SURFACE

RES. DR. LT. 296+46
CONST. 2" BIT. APPROACH

RES. DR. LT. 298+76
CONST. 2" BIT. APPROACH

F.E. LT. 299+62
CONST. 2" BIT. APPROACH

INDUSTRIAL DR. LT. 301+20
CONST. AGGREGATE SURFACE

℄ CULV. 306+52
CONST. 16' AND 14' REINF. PANELS
STA. 306+36 TO STA. 306+66

F.E. LT. 310+20
CONST. AGG. SURFACE

CONST. B624 CONC. CURB & GUTTER LT. STA. 293+25 TO STA. 299+74
CONST. 2" BIT. SHLD. LT. STA. 293+15 TO STA. 300+80
BACKFILL CURB WITH TOPSOIL BORROW (LV) 130 CU. YDS.
PLACE 578 SQ. YDS. SOD. CONST. BIT. SPILLWAY LT. STA. 293+15 AND LT. STA. 299+84. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

DODGE COUNTY

OLMSTED COUNTY

24' CONCRETE PAVEMENT NON-REINFORCED

STA. 315+07.88

FM. ENT. RT 293+50
CONST. 2" BIT. APPROACH

YARD ENT. RT. 296+38
CONST. AGG. SURFACE

F.E. RT. 298+45
CONST. AGG. SURFACE

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14' AND 17' UNLESS OTHERWISE SHOWN.

F.E. RT. 307+81
CONST. AGG. SURFACE

CONST. B624 CONC. CURB & GUTTER RT. STA. 291+20 TO STA. 298+55.
CONST. 2" BIT. SHLD. RT. STA. 291+10 TO STA. 298+65.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 147 CU. YDS.
PLACE 653 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 291+10 AND STA. 298+65
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE

B.M. EL. 1240.92
SPK IN PP LT. 60'
STA. 300+90

B.M. EL. 1247.33
SPK IN PP LT. 60'
STA. 314+25

P.I. 1+00
ELEV. 21.08
800' V.C.
K = 7.50

P.I. 1+50
ELEV. 51.83
620' V.C.
K = 3.72

P.I. 13+56.25
ELEV. 57.26
830' V.C.
K = 6.64

-3.0%

-0.7%

℄ FINISHED GRADE ELEV.

F.E. LT. 319+90
CONST. AGG. SURFACE

FM. ENT. LT. 326+46
CONST. 2" BIT. APPROACH AND RT. TURN LANE

DODGE CO. TWP. RD. LT. 328+26
CONST. 2" BIT. APPROACH AND RT. TURN LANE

TWP RD. F.E. RT. 10+90
NO CHANGE

F.E. LT. 335+63
CONST. AGG. SURFACE

TWP RD. LT. 341+40
CONST. 2" BIT. APPROACH AND RT. TURN LANE

F.E. LT. 343+00
CONST. AGG. SURFACE

DODGE COUNTY

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

24' CONCRETE PAVEMENT NON-REINFORCED

OLMSTED COUNTY

STA. 341+00.08

F.E. RT. 319+90

℄ CULV. 323+51 CATTLE PASS 324+00
CONST. 17', 13', 16', 14', 17', AND 13' REINF. PANELS STA. 323+29 TO STA. 324+19

C.S.A.H. 14
F.E. RT. 2+00
CONST. AGG. SURFACE

C.S.A.H. 14
F.E. LT. 2+00
CONST. AGG. SURFACE

P.C.T. STA. 328+23.98

℄ CULV. 333+98
CONST. 16' REINF. PANEL
STA. 333+90 TO STA. 334+06

F.E. RT. 337+05
CONST. AGG. SURFACE

F.E. RT. 342+30
CONST. AGG. SURFACE

℄ CULV. 346+30 SKEWED 12°
CONST. 17', 13', 16', 14', AND 17' REINF. PANELS STA. 345+82 TO STA. 346+59

END CONST. STA. 5+00

B.M. EL. 1243.33
SPK IN P.P. LT. 60'
STA. 327+80

B.M. EL. 1224.59
SPK IN P.P. LT. 60'
STA. 341+10

P.I. +36.46.15
ELEV. 42.11
400' V.C.
K = 0.65

P.I. +00
ELEV. 32.86
300' V.C.
K = 0.45

P.I. = 50.0
ELEV. 26.86
420' V.C.
K = 1.66

P.I. +00
ELEV. 04.65
630' V.C.
K = 8.53625

-2.0%

-0.8%

-0.4%

+2.3%

AS-BUILT
MAR 0 8 2011
ENGINEERING

℄ FINISHED GRADE ELEV.

FILE NAME: BHG-CP09.DWG DATE: 04-26-05

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F.M. DR. LT. 354+03
CONST. 2" BIT. APPROACH

F.E. LT. 356+10
CONST. AGG. SURFACE

R.E. LT. 357+27
CONST. AGG. SURFACE

CONST. B624 CONC. CURB & GUTTER LT. STA. 351+50 TO 354+25.
CONST. 2" BIT. SHLD. LT. STA. 351+40 TO STA. 354+60.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 55 CU. YDS.
PLACE 244 SQ. YDS. SOD.
CONST. BIT. SPILLWAY LT. STA. 351+40. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

F.E. LT. 371+96
CONST. AGG. SURFACE

DODGE COUNTY

24' CONCRETE PAVEMENT NON-REINFORCED

8' AGGREGATE SHOULDER

OLMSTED COUNTY

F.M. DR. RT. 350+53
CONST. 2" BIT. APPROACH.

RES. DR. RT. 352+14
CONST. 2" BIT. APPROACH.

CONST. B624 CONC. CURB & GUTTER RT. STA. 350+20 TO 353+40.
CONST. 2" BIT. SHOULDER RT. STA. 350+00 TO STA. 353+40.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 64 CU. YDS.
PLACE 284 SQ. YDS. SOD.
CONST. BIT. SPILLWAY RT. STA. 350+10. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

℄ CULV. 356+45
CONST. 16' & 14' REINF. PANELS STA. 356+32 TO STA. 356+62.

F.E. RT. 359+60
CONST. AGG. SURFACE

RES. DR. RT. 362+11
CONST. 2" BIT. APPROACH AND RT. TURN LANE

℄ CULV. 367+30
CONST. 16' REINF. PANEL STA. 367+22 TO STA. 367+38

TWP. RD. RT. 367+82
CONST. 2" BIT. APPROACH AND RT. TURN LANE

F.E. RT. 371+50
CONST. AGG. SURFACE

℄ CULV. 376+05
CONST. 18' REINF. PANEL STA. 375+95 TO STA. 376+13

F.M. DR. RT. 379+87
CONST. 2" BIT. APPROACH AND RT. TURN LANE

B.M. EL. 1233.20
SPK. IN P.P. LT. 125'
STA. 354+

B.M. EL. 232.12
SPK. IN P.P. RT.
STA. 361+45

B.M. EL. 1221.97
SPK. IN P.P. LT. 60'
STA. 367+50

P.I. +00
ELEV. 34.98
660' V.C.
M = 4.2075

P.I. +30.0
ELEV. 32.31

-0.8%

P.I. +50.0
ELEV. 16.98
400' V.C.
M = 0.65

+0.5%

P.V.C. +50.0
ELEV. 18.58

P.V.T. +50.0
ELEV. 17.98

FINISHED GRADE ELEV.

F.E. LT. 380+69
CONST. AGG. SURFACE

℄ CULV. 385+24
CONST. 2-12' REINF. PANELS STA. 385+13 TO STA. 385+37

F.E. LT. 387+19
CONST. AGG. SURFACE

RES. DR. LT. 388+14
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE

DODGE CO. RD. 22 LT. 393+95
CONST. 2" BIT. APPROACH

F.M. DR. LT. 396+32
CONST. AGG. SURFACE

℄ CATTLE PASS 400+00

℄ CULV. 400+00
CONST. 16', 14', 17' AND 14' REINF. PANELS STA. 399+90 TO STA. 400+51

F.E. LT. 404+35
CONST. AGG. SURFACE

℄ CULV. 406+14
CONST. 15' AND 13' REINF. PANELS STA. 406+03 TO STA. 406+31.

F.M. DR. LT. 408+92
CONST. 2" BIT. APPROACH

CONST. B624 C. & G. LT. STA. 407+50 TO STA. 410+50.
CONST. 2" BIT. SHLD. LT. STA. 407+50 TO STA. 410+60.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 60 CU. YDS.
PLACE 267 SQ. YDS. SOD. CONST. BIT. SPILLWAY LT. STA. 410+60.
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

DODGE COUNTY

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

24' CONCRETE PAVEMENT - NON-REINFORCED

OLMSTED COUNTY

END DODGE CO. 17 STA. 380+77 S.A.P. 20-617-02
BEGIN OLMSTED CO. S.A.P. 55-605-10

F.E. RT. 383+10
CONST. AGG. SURFACE

F.E. RT. 387+13
CONST. AGG. SURFACE

F.E. RT. 391+00
CONST. AGG. SURFACE

CONST. B624 CONC. C. & G. LT. STA. 391+80 TO STA. 393+70.
CONST. 2" BIT. SHOULDER LT. STA. 391+80 TO STA. 395+00.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 38 CU. YDS.
PLACE 169 SQ. YDS. SOD. CONST. BIT. SPILLWAY LT. STA. 394+30.
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

F.M. DR. RT. 396+32
CONST. 2" BIT. APPROACH

CONST. B624 CONC. C. & G. RT. STA. 394+00 TO STA. 396+70.
CONST. 2" BIT. SHOULDER RT. STA. 394+00 TO STA. 396+80.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 54 CU. YDS.
PLACE 240 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 396+80
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

F.M. ENT. RT. 407+10
CONST. 2" BIT. APPROACH

CONST. B624 CONC. C. & G. RT. STA. 407+00 TO STA. 409+00.
CONST. 2" BIT. SHLD. RT. STA. 406+50 TO STA. 409+10.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 40 CU. YDS.
PLACE 178 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 409+10.
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

B.M. EL. 1222.27
SPK. IN P.P. RT. 100'
STA. 381+15

+0.5%

B.M. EL. 1223.89
SPK. IN P.P. LT. 60'
STA. 391+97

P.I. +50.0
ELEV. 26.46
600' V.C.
M = 3.75

-3.7%

P.I. +50.0
ELEV. 04.28
300' V.C.
M = 1.3875

0.0%

B.M. EL. 1212.76
SPK. IN P.P. LT. 50'
STA. 398+50

P.I. +22.5
ELEV. 04.28
520' V.C.
M = 2.6

MAR 06 2006
ENGINEERING

FINISHED GRADE ELEV.

DATE: 04-26-05
FILE NAME: BHS-CP10.DWG

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S.A.P. 55-605-14 & S.A.P. 20-617-04

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NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' AND 13' PANNELS. ROTATION OF JOINTS TO BE AT 13', 16', 14' AND 17' UNLESS OTHERWISE SHOWN.

F.E. LT. 414+67
CONST. AGG. SURFACE.

CONST. B624 CONC. CURB & GUTTER LT. STA. 420+00 TO STA. 421+70
CONST. 2" BIT. SHLD. LT. STA. 420+00 TO STA. 422+05
BACKFILL CURB WITH TOPSOIL BORROW (LV) 34 CU. YDS.
PLACE 151 SQ. YDS. SOD. CONST. BIT. SPILLWAY LT.
STA. 421+80. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

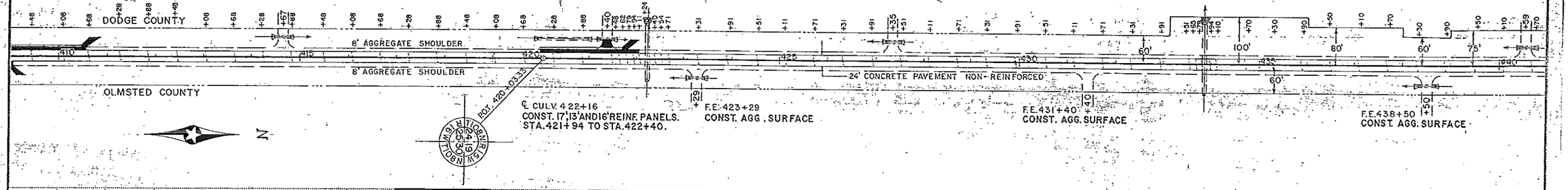
YARD DR. LT. 421+40
CONST. 2" BIT. APPR.

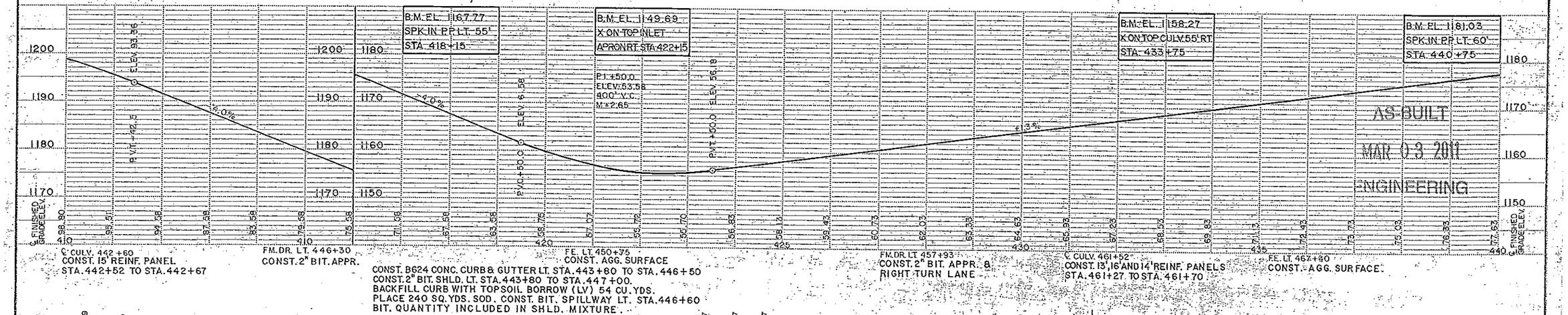
F.E. LT. 427+35
CONST. AGG. SURFACE

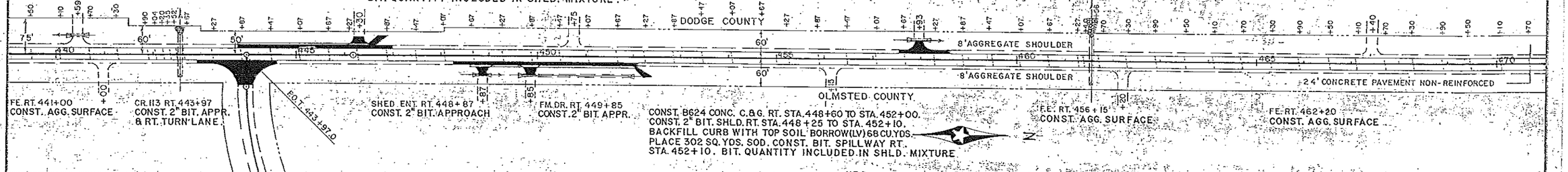
℄ CULV. 433+88
CONST. 14', 15' AND 16' REINF. PANELS
STA. 433+65 TO STA. 434+10

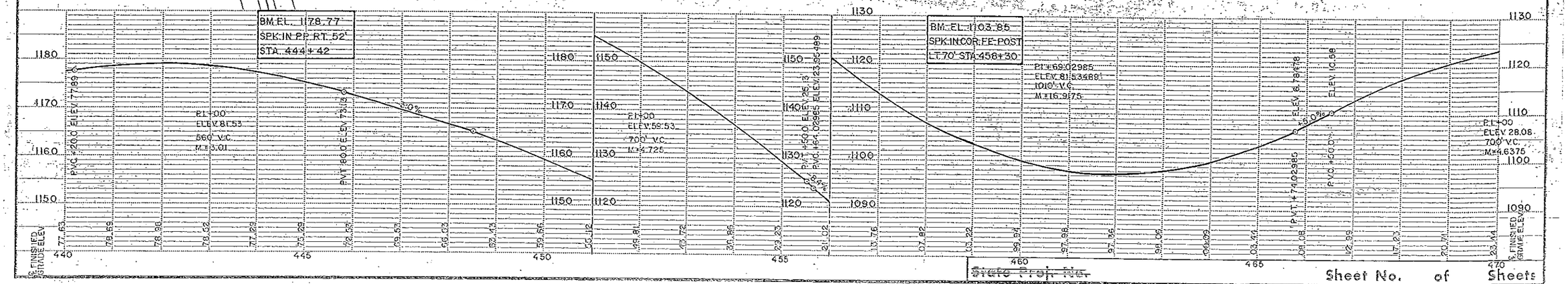
Fed. Proj. No.

F.E. LT. 440+69
CONST. AGG. SURFACE









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TWP RD. LT. 472+34
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

℄ CULV. 482+65
CONST. 14', 17' AND 15' REINF. PANELS STA. 482+67 TO 483+13.

F.E. LT. 483+30
CONST. AGG. SURFACE

F.E. LT. 477+00
CONST. AGG. SURFACE

F.E. LT. 490+25
CONST. AGG. SURFACE

F.E. LT. 494+00
CONST. AGG. SURFACE

CONST. B624 CONC. CURB & GUTTER RT. STA. 475+25 TO STA. 478+50
CONST. 2" BIT. SHLD. RT. STA. 475+25 TO STA. 478+60
BACKFILL CURB WITH TOPSOIL BORROW (LV) 65 CU. YDS.
PLACE 290 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 478+60. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

℄ CULV. 499+05
CONST. 17', 13', 16' AND 14' REINF. PANELS STA. 498+73 TO STA. 499+33.

P.I. 30+00= 472+34
Δ LT. 86°40'00"

P.O.T. 472+32.55
C.I.M.

P.O.T. 492+73.92

P.I. 498+47.16
Δ LT. 67°21'18"

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

24" CONCRETE PAVEMENT NON-REINFORCED

P.I. 40+00= 472+34
Δ RT. 90°57'00"

TWP. RD. RT. 472+34
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

℄ CULV. 474+75
CONST. 14' AND 17' REINF. PANELS STA. 474+59 TO STA. 474+90.

FM. DR. RT. 476+46
CONST. 2" BIT. APPROACH

NOTE: C5-1 CONTRACTION JOINTS ARE THE JOINTS LOCATED BETWEEN THE 17' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14' AND 17' UNLESS OTHERWISE SHOWN.

F.E. RT. 486+00
CONST. AGG. SURFACE

RES. DR. 487+72
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE

F.E. RT. 496+00
CONST. AGG. SURFACE

B.M. EL. 1136.62
SPK. IN P.P. RT. 40' STA. 471+14

B.M. EL. 1121.59
SPK. IN P.P. LT. 41' STA. 476+21

B.M. EL. 1103.17
□ ON SE. COR. HDW CULV. STA. 482+80

P.I. 1+00
EL. 27.03
700' V.C.
M= 0.37857

P.I. 1+00
EL. 25.68
500' V.C.
M= 2.3125

P.I. 1+00
EL. 01.68
620' V.C.
M= 6.355

P.I. 50.0
EL. 33.18
700' V.C.
M= 4.33125

0.3 %

4.0%

4.2%

0.75 %

F.E. LT. 504+10
CONST. AGG. SURFACE

℄ CULV. 511+09
CONST. 17' REINE PANEL STA. 511+01 TO STA. 511+18.

F.E. LT. 520+27
CONST. AGG. SURFACE

8' AGGREGATE SHOULDER

8' AGGREGATE SHOULDER

24" CONCRETE PAVEMENT NON-REINFORCED

P.T. 81+36.34

P.I. 58°10'04" LT.
Δ LT. 109°09'00"
FROM P.I. 1298+69.45+82

EQUA. 524+60.89 = 1298+69.45+82

P.C. 1304+51.49

RES. DR. RT. 502+34
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

RES. DR. RT. 507+41
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

F.E. RT. 509+11
CONST. AGG. SURFACE

RES. DR. RT. 514+16
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

F.E. RT. 1298+82
CONST. AGG. SURFACE

B.M. EL. 1120.30
SPK. IN F.E. POST RT. 49' 500+77

B.M. EL. 1118.34
SPK. IN F.E. POST LT. 45' 520+77

P.I. 1+50
EL. 25.68
500' V.C.
M= 2.40625

P.I. 1+50
EL. 84.28
700' V.C.
M= 7.7

P.I. 1+68.06
EL. 22.89
700' V.C.
M= 11.4125

6.5%

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℄ CULV. 1305+34
CONST. 15', 13' AND 16' REINF. PANELS
STA. 1305+16 TO STA. 1305+60.

P.I. 80+00
ΔRT. 46°20'
D 16°
T 153.24'
L 289.58'
E 31.41'

P.T. 81+36.34

TWP. RD. LT. 1304+00
CONST. 2" BIT. APPROACH AND
RIGHT TURN LANE STA. 1303+30
TO STA. 1306+60.

P.C. 1304+51.48

RES. DR. LT. 1307+17
CONST. 2" BIT. APPROACH AND RIGHT
TURN LANE.

P.I. 1308+77.56
ΔRT. 52°23'58"
D 6°37'00"
T 426.08'
L 791.93'
E 99.15'
RATE OF SUPER 0.06/FOOT
R 290' RUNOFF

EQUATION P.T. 1312+43.41"
P.O.T. 1312+44.39

RES. DR. LT. 1312+05
CONST. 2" BIT. APPROACH

F.E. LT. 1315+80
CONST. AGG. SURFACE

FM. DR. RT. 1317+00
CONST. 2" BIT. APPROACH

CONST. B624 CONC. CURB & GUTTER RT. STA. 1312+00 TO STA. 1317+25.
CONST. 2" BIT. SHLD. RT. STA. 1303+50 TO STA. 1319+10.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 105 CU. YDS.
PLACE 467 SQ. YDS. SOD. CONST. BIT. SPILLWAYS RT. STA.
1311+90 AND STA. 1317+35. BIT. QUANTITY INCLUDED IN
SHLD. MIXTURE.

RES. DR. RT. 1319+61
CONST. 2" BIT. APPROACH
AND RIGHT TURN LANE.

CONST. B624 CONC. CURB & GUTTER LT. STA. 1311+90 TO STA. 1316+00.
CONST. 2" BIT. SHLD. LT. STA. 1311+65 TO STA. 1316+10.
BACKFILL CURB WITH TOPSOIL BORROW (LV) CU. YDS.
PLACE 364 SQ. YDS. SOD. CONST. BIT. SPILLWAYS LT. STA. 1311+80
AND STA. 1316+10. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

8' AGGREGATE SHOULDER

24' CONCRETE PAVEMENT NON-REINFORCED

NOTE: CS-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14' AND 17' UNLESS OTHERWISE SHOWN.

B.M. EL. 1079.48
SPK. IN T. P. LT.
STA. 1307+02.

B.M. EL. 1085.51
SPK. IN P.P. RT.
STA. 1321+77.

℄ CULV. 1331+12
SKEWED 15°
CONST. 2-13' REINF. PANELS
STA. 1330+82 TO STA. 1331+08

REMOVE CROWN
165' RUNOFF
P.I. 1331+77.52
ΔLT. 6°27'
D 0°45'
T 430.45'
L 860.00'

P.C. 1327+47.07

F.E. RT. 1327+53
CONST. AGG. SURFACE

F.E. LT. 1338+25
CONST. AGG. SURFACE

℄ CATTLE PASS 1338+62
SKEWED 30°
SEE ℄ CULV. NOTE STA. 1338+95
FOR REQ'D. REINF. PANELS.

℄ CULV. 1338+95
SKEWED 30°
CONST. 13', 16', 17', 13', AND
16' REINF. PANELS STA.
1338+41 TO STA. 1339+30

FM. ENT. RT. 1339+39
CONST. 2" BIT. APPROACH
AND RIGHT TURN LANE.

F.E. LT. 1345+58
CONST. AGG. SURFACE

F.E. RT. 1343+67
CONST. AGG. SUPFACE

F.E. LT. 1343+55 (DOUBLE)
CONST. AGG. SURFACE

P.C. 1347+37.19

℄ CULV. 1353+75
SKEWED 25°
CONST. 16', 14' AND 17' REINF. PANELS
STA. 1353+55 TO STA. 1354+02.

F.E. LT. 1355+41
CONST. AGG. SURFACE

P.I. 1351+46.50
ΔRT. 65°08'
D 0°45'
T 409.31'
L 817.78'
REMOVE CROWN
165' RUNOFF

YARD ENT. RT. 1354+87
CONST. AGG. SURFACE

FM. ENT. RT.
1355+42
CONST. 2" BIT.
SURFACE AND
RIGHT TURN
LANE.

P.T. 1355+54.97

B.M. EL. 1036.29
SPK. IN P.P. LT.
STA. 1354+21

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FILE NAME: BIS-0713.DWG DATE: 04-26-05

Fed. Proj. No.

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' AND 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14' AND 17' UNLESS OTHERWISE SHOWN.

F.E. LT. 1360+31
CONST. AGG. SURFACE

F.E. LT. 1364+80
CONST. AGG. SURFACE

℄ CULV. 1365+28
SKEWED 15°
CONST. 14' AND 17' REINF. PANELS STA. 1365+11 TO STA. 1365+42

P.C. 1366+36.20

F.E. LT. 1369+02
CONST. AGG. SURFACE

P.I. 1369+15.66
△ LT. 4° 11' 24"
D 0° 45'
T 279.46'
L 558.67'
E 5.11'
REMOVE CROWN
165' RUNOFF

P.T. 1371+94.87

FM. ENT. LT. 1371+05
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

FM. ENT. LT. 1375+88
CONST. AGG. SURFACE

℄ CULV's. 1377+05.5 & +14.5
SKEWED 32°
CONST. 13', 16', 14', 17', 13', 16', 14', 17', 13' AND 16' REINF. PANELS STA. 1376+82 TO STA. 1378+31

℄ CULV's. 1377+97.5 & 1378+06.5
SKEWED 32°

F.E. LT. 1382+30
CONST. AGG. SURFACE

60' | 8' AGGREGATE SHOULDER | 60' | 24' CONCRETE PAVEMENT NON-REINFORCED | 8' AGGREGATE SHOULDER | 60'

P.O.T. 1375+20 = 159+86 RT. 90° 00'

P.C. 1376+07.45

P.C. 60+97.75

NORMAL CROWN
P.I. 1378+98.65
△RT. 1° 44' 49"
D 0° 18'
T 291.20'
L 582.31'
E 2.23'

P.T. 1381+89.76 = P.O.T. 1381+90.10

FM. DR. RT. 1358+01
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

F.E. RT. 1365+43
CONST. AGG. SURFACE

F.E. RT. 1368+91
CONST. AGG. SURFACE

F.E. RT. 1371+05
CONST. AGG. SURFACE

C.R. 113 RT. 1375+20
CONST. 2" BIT. SURFACE AND RIGHT TURN LANE.

F.E. RT. 1380+50
CONST. AGG. SURFACE

FM. DR. RT. 1382+30
CONST. 2" BIT. SURFACE AND RIGHT TURN LANE.

B.M. EL. 1021.49
SPK. IN P.P. 35'
RT. STA. 1365+70

P.I. + 50
EL. 26.98
400' V.C.
K = 0.7

-2.1%

P.V.T. + 50
EL. 25.38

P.V.C. + 50
EL. 31.18

P.I. + 50
EL. 25.58

-0.7%

P.I. + 00
EL. 16.13
400' V.C.
K = 0.175

-1.05%

P.V.C. + 00
EL. 10.89

P.V.T. + 00
EL. 14.03

P.I. + 00
EL. 06.76
400' V.C.
K = 0.375

-0.3%

P.V.T. + 00
EL. 08.18

℄ FINISH GRADE

F.E. LT. 1395+10
CONST. AGG. SURFACE

℄ CULV. 1398+15
CONST. 17' AND 15' REINF. PANELS STA. 1397+96 TO STA. 1398+28.

F.E. LT. 1404+63
CONST. AGG. SURFACE

FM. DR. LT. 1406+49
CONST. 2" BIT. APPROACH AND RIGHT TURN LANE.

℄ CULV. 1410+00
CONST. 16' REINF. PANEL STA. 1409+93 TO STA. 1410+09.

8' AGGREGATE SHOULDER | 60' | 24' CONCRETE PAVEMENT NON-REINFORCED | 8' AGGREGATE SHOULDER | 60'

F.E. RT. 1394+59
CONST. AGG. SURFACE

F.E. RT. 1404+24
CONST. AGG. SURFACE

P.C. 1406+04.64

VARIABLE SUPER
290' RUNOFF AT P.C.
P.I. 1408+00.0
RT. 42° 05' 08"
D 1° 17'
T 195.36'
E 36.28'
L 372.99'
R 507.79'

P.T. 1409+77.63

60' | 60' | 180' TAPER | 200' | 60' | 60' AT 4%

CONST. 4" BIT. RIGHT TURN LANE ON C.S.A.H. 3 AS SHOWN.

CONST. 4" BIT. SHLD. AND RADIUS FROM STA. 1409+30. BIT. QUANTITY INCLUDED IN SHOULDER MIXTURE.

END: SAP 55-605-10
STA. 1411+11.42

B.M. EL. 1009.75
SPK. IN P.P.S SW. INT. OF S83

P.I. + 00
EL. 04.28
400' V.C.
K = 0.825

-0.3%

+1.35%

P.I. + 48.45484
EL. 13.03455
500' V.C.
K = 1.03125

-0.3%

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S.A.P. 55-605-14 & S.A.P. 20-617-04

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DATE: 04-26-05

FILE NAME: PHS-0714.DWG