MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF LYON

CONSTRUCTION PLAN FOR BRIDGE REPLACEMENT (NO. 42513 OLD) (NEW NO. 42567)
APPROACH GRADING AND SURFACING

LOCATED ON C.S.A.H. 7 **BETWEEN** CO. RD. 63 **AND** CO. RD. 67 **(GEOGRAPHIC DESCRIPTION)**

FROM A PT. 662 FEET SOUTH OF THE NORTHWEST COR. SECT. 32, T 110 N, R 41 W **TO** A PT. 1037 FEET SOUTH OF THE NORTHWEST COR. SECT. 32, T 110 N, R 41 W **(LEGAL DESCRIPTION)**

STATE AID PROJ. NO. 042-607-026

GROSS LENGTH	375.00	FEET	0.071	MILES
BRIDGES-LENGTH	80.50	FEET	0.015	MILES
EXCEPTIONS-LENGTH		FEET		MILES
NET LENGTH	375.00	FEET	0.071	MILES

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

LEGEND

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
DIVIDED ROAD
TRUNK HIGHWAY UNDER CONSTRUCTION
ROADS IN UNINCORPORATED COMPACTS, EXTENSIONS OF LOCAL ROADS (NOT F.A.S.) WITHIN MUNICIPALITIES AND FRONTAGE ROADS
POINTS BETWEEN WHICH DISTANCES ARE MEASURED INDICATED THUS * 6.2 *
GRADE SEPARATION
FULL TRAFFIC INTERCHANGE
PARTIAL TRAFFIC INTERCHANGES INDICATING TRAFFIC MOVEMENT

ROAD SYSTEM DESIGNATIONS
INTERSTATE TRUNK HIGHWAY (35)
U.S. NUMBERED TRUNK HIGHWAY (65)
STATE NUMBERED TRUNK HIGHWAY (18)
COUNTY STATE AID HIGHWAY (5)
COUNTY ROAD (12)
COUNTY STATE AID IN ADJOINING COUNTY (24)
TERMINATION OF DESIGNATED ROUTE
INTERSTATE EXIT (207)
GREAT RIVER ROAD
FEDERAL AID INTERSTATE SYSTEM F.A.I.
NATIONAL FOREST HIGHWAY N.F.H.
NATIONAL FOREST DEVELOPMENT N.F.D.
INDIAN SERVICE ROAD I.S.
STATE FOREST ROAD S.F.R.
STATE PARK ROAD S.P.R.

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

AIRWAYS
RUNWAY
MILITARY FIELD
COMMERCIAL OR MUNICIPAL FIELD
COMPLETE FACILITIES
LIMITED FACILITIES
LANDING AREA OR STRIP
SEAPLANE BASE
AIRWAY LIGHT BEACON, GENERAL
RADIO RANGE STATION

STRUCTURES
General Symbols (over 20' span)
HIGHWAY BRIDGE
SMALL BRIDGES CLOSELY SPACED
DRAWBRIDGE
General Symbols (300' span and over)
GENERAL
DRAWBRIDGE
ARCH
TRUSS
THE WORD TOLL IS ADDED WHERE APPLICABLE
Other Structures
PEDESTRIAN BRIDGE
DAM WITH ROAD (LARGE SCALE)
DAM WITH ROAD (SMALL SCALE)
DAM WITHOUT ROAD (LARGE SCALE)
DAM WITHOUT ROAD (SMALL SCALE)
LEVEE OR DIKE
LEVEE OR DIKE (WITH 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
INDIAN RESERVATION
GAME REFUGE
AIRPORT
WILDLIFE MANAGEMENT AREA (STATE) OR WATERFOWL AREA (FEDERAL)
MATCH LINE BETWEEN ADJOINING SHEETS OF THE SAME COUNTY

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

NAVIGATION
BARGE LINES ON NATURAL STREAMS
SHIP LINES ON INLAND LAKES
DOCK, PIER OR LANDING
NAVIGABLE STREAM
DAM WITH LOCK
LANDMARK LIGHT BEACON
LIGHTHOUSE

CONSERVATION
FOREST RANGER STATION
GUARD OR RANGER STATION (NOT PERMANENTLY OCCUPIED)
FISH HATCHERY
GAME PRESERVE
OBSERVATION OR LOOKOUT TOWER
PROMINENT ELEVATION
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, MIGRANTS, ETC.
SEASONAL DWELLING
HOMES OR GROUPS OF DWELLINGS CLOSELY SPACED (8 = NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF EACH UNIT)
DOT AID ARROW ARE USED TO INDICATE LOCATION OF ANY CULTURAL FEATURE SHOWN OUT OF POSITION

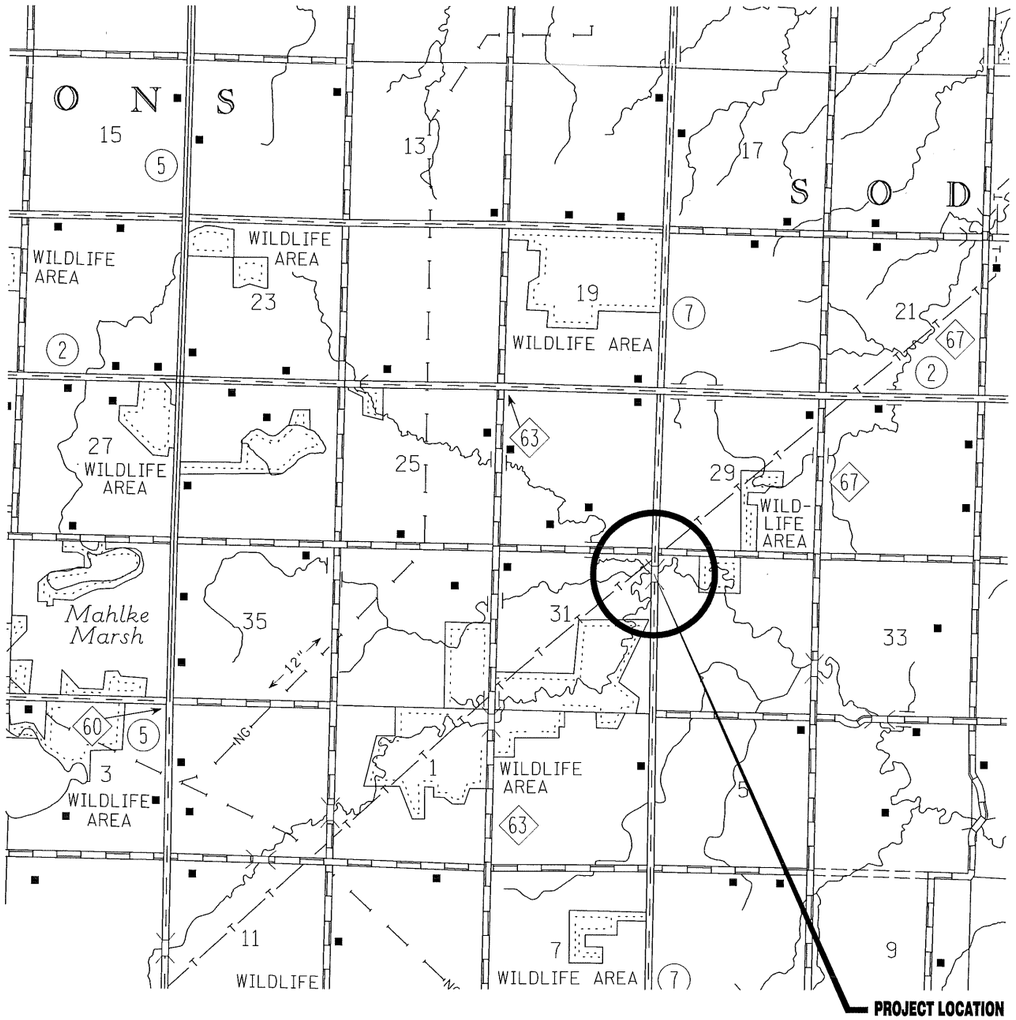
INDUSTRIAL
FACTORY OR INDUSTRIAL PLANT
SAWMILL
STORAGE TANKS, OIL OR GAS
GRAIN ELEVATOR
BEET DUMP
STOCKYARD, FEEDLOT
QUARRY
MILK DEPOT, CREAMERY OR CHEESE FACTORY
WAREHOUSE

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

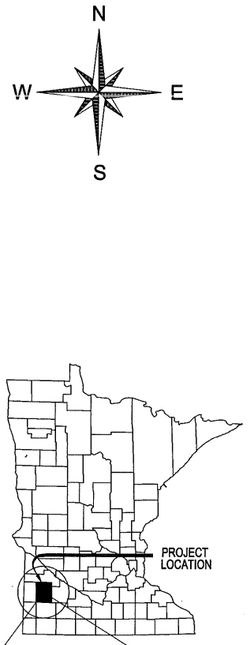
PUBLIC SERVICE FACILITIES
POST OFFICE
FIRE STATION
MUSEUM
PUBLIC LIBRARY
SCHOOL
U.S. BORDER PORT OF ENTRY
RADIO STATION
SEWAGE DISPOSAL PLANT
NURSING HOME
HOSPITAL
TOWN HALL
CORRECTIONAL INSTITUTION

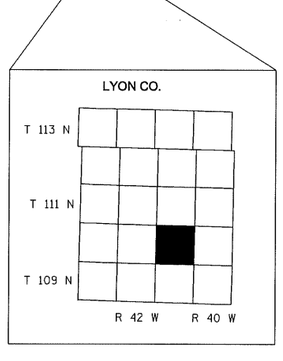
CITY CENTERS
STATE CAPITAL
COUNTY SEAT
CITY CENTER
INCORPORATED CITY (GENERALIZED)
UNINCORPORATED COMMUNITY

MISCELLANEOUS MAP FEATURES
CHURCH, OTHER RELIGIOUS INSTITUTIONS
CEMETERY
CHURCH WITH CEMETERY ADJACENT
FAIRGROUND, RACE COURSE, SPEEDWAY
MONUMENT (SMALL)
FORT, ARMY CAMP, OR MILITARY POST
GRAVEL PIT
SANITARY LANDFILL (SL)
AUTO JUNKYARD (A)
SCRAP METAL JUNKYARD (M)
HIGHWAY GARAGE (G)
STATE PATROL SUBSTATION
DEPARTMENT OF TRANSPORTATION DISTRICT OFFICE
TOLL HOUSE, STATE PORT OF ENTRY OR WEIGH STATION
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 (NG)
PIPELINE, PETROLEUM PRODUCTS (PP)
PIPELINE, CRUDE OIL (CO)
PIPELINE, WATER (W)
TRANSMISSION LINE (33kV OR OVER)
POWER PLANT
TRANSFORMER STATION
TRIANGULATION STATION
LOOKOUT TOWER AND TRIANGULATION STATION
LATITUDE AND LONGITUDE INTERSECTION
HISTORIC SITE; STATE OR NATIONAL (OPEN TO THE PUBLIC)



PARTIAL MAP LYON COUNTY





PROJECT LOCATION
BEGIN SAP 042-607-026
STA. 306+00.00

CONSTRUCT BR. 42567

END SAP 042-607-026
STA.309+75.00

SCALES

PLAN	AS SHOWN
PROFILE	AS SHOWN
INDEX MAP	2500

NOTE:
THIS CONSTRUCTION PLAN IS ALSO AN EROSION AND SEDIMENT CONTROL PLAN.

GOVERNING SPECIFICATIONS

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

MINN. PROJ. NO.
MINN. PROJ. NO.

INDEX

THIS PLAN CONTAINS 33 **SHEETS**

DESIGN DESIGNATION

{N18 (20) R Value
ADT (2012 **) =** 897
Proj. ADT (2032 **) =** 1076
Proj. HCADT ( ) =
Soil Factor 100%
9 **Ton Design**
Shoulder Width 6'-0"

OR

Functional Classification RURAL MAJOR COLLECTOR
No. of Traffic Lanes 2-12.0' **No. of Parking Lanes**
Design Speed 55 **MPH**
Based on Stopping Sight Distance
Height of eye 3.5 **Height of object** 2.0
Design Speed not achieved at:
STA. **TO STA.** **MPH**

SIGNATURE:

DESIGN ENGINEER: I HEREBY CERTIFY THAT SHEETS 1 THRU OF THIS PLAN WERE 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 2/22/13 LICENSE NUMBER 50428

SIGNATURE: KENT A. ROHR

BRIDGE DESIGN ENGINEER: I HEREBY CERTIFY THAT SHEETS B1 THRU B27 OF THIS PLAN WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 2-9-2012 LICENSE NUMBER 21179

APPROVED: LYON COUNTY ENGINEER, SUHAIL KANWAR DATE 2-21-13

RECOMMEND FOR APPROVAL: FOR STATE BRIDGE ENGINEER DATE 3/5/13

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY DATE 3/6/13

STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

0460A0898

STATE AID PROJ. NO. 042-607-026
STATE PROJ. NO. **SHEET NO.** 1 **OF** 7 **SHEETS**

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\APPROACH-SHEETS-COUNTYC-BR-898-TITLE.dwg, 2/9/2012 8:25:12 AM, Jacob.Ekola

SCHEDULE OF ESTIMATED QUANTITIES - APPROACH GRADING

	SPECIFICATIONS NUMBER	ITEM	UNIT	PARTICIPATING BRIDGE	NON PARTICIPATING	TOTAL ESTIMATED QUANTITIES
1	2104 . 505	REMOVE BITUMINOUS PAVEMENT	SQ YD		267	267
2	2104 . 513	SAWING BITUMINOUS SURFACE	LIN FT		48	48
3	2104 . 521	SALVAGE FENCE	LIN FT		1600	1600
4	2105 . 501	COMMON EXCAVATION (P)	CU YD		300	300
5	2105 . 523	COMMON BORROW (E.V.)	CU YD		900	900
	2123 . 507	1.5 C.Y. SHOVEL	HOUR		5	5
	2211 . 501	AGGREGATE BASE CL. 5M	TON		375	375
	2221 . 501	AGGREGATE SHOULDERING CL. 5M	TON		220	220
6	2360 . 501	TYPE SP 12.5 WEARING COURSE MIX (3C) (15% RAP)	TON		140	140
3	2557 . 603	INSTALL SALVAGED FENCE	LIN FT		1600	1600
	2563 . 601	DETOUR SIGNING	LUMP SUM	0.8	0.2	1.0
	2573 . 523	SILT FENCE – MACHINE SLICED	LIN FT		300	300
	2575 . 501	SEEDING	ACRE		0.6	0.6
	2575 . 502	SEED MIXTURE 250	POUND		42	42
	2575 . 511	MULCH MATERIAL TYPE 1	TON		1.2	1.2
	2575 . 519	DISC ANCHORING	ACRE		0.6	0.6
	2575 . 523	EROSION CONTROL BLANKET 2S (CAT. 3)	SQ YD		2850	2850
	2575 . 532	FERTILIZER TYPE 3	POUND		210	210
	2582 . 502	6" SOLID LINE WHITE – LATEX	LIN FT		1000	1000
	2582 . 502	4" BROKEN LINE YELLOW – LATEX	LIN FT		125	125

SEE SHEET B2 FOR BRIDGE NO. 42567 ITEMS AND QUANTITIES (PARTICIPATING).
(P) DENOTES PLAN QUANTITY

ITEM SPECIFIC NOTES:

1. REMOVAL ITEMS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH SPECIFICATION 2104.3(C). SEE SHEETS 3–4 FOR DETAILS.
2. SAW CUT BITUMINOUS SURFACE AS DIRECTED BY THE ENGINEER. ANY ADDITIONAL MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.
3. THE CONTRACTOR SHALL SALVAGE AND INSTALL EXISTING FENCE TO A TEMPORARY LOCATION BEFORE REMOVING THE EXISTING TOPSOIL. SALVAGING AND INSTALLING THE FENCE IN A TEMPORARY LOCATION SHALL BE INCLUDED IN THE TOTAL PRICE FOR "SALVAGE FENCE" (2104). MOVING THE FENCE FROM A TEMPORARY LOCATION AND PERMINANTLY INSTALLING AT THE RIGHT OF WAY LINE SHALL BE INCLUDED IN THE TOTAL BID PRICE FOR "INSTALL SALVAGED FENCE" (2557).
4. TOTAL COMMON EXCAVATION QUANTITY IS FOR REMOVAL AND PLACEMENT OF EXISTING TOPSOIL ON THE FINISHED SLOPES. ALL OTHER EXCAVATION INCLUDING EXCAVATION FOR THE BRIDGE ABUTMENT APPROACH TREATMENT SHALL BE INCLUDED WITH THE BID ITEM 2401.601 STRUCTURE EXCAVATION.
5. TOTAL COMMON BORROW QUANTITY HAS BEEN REDUCED BY 430 C.Y. ASSUMING THE EXCAVATED MATERIAL FROM THE BRIDGE ABUTMENT APPROACH TREATMENT WILL BE SUITABLE MATERIAL FOR EMBANKMENT. PLACE SUITABLE MATERIAL AS DIRECTED BY THE ENGINEER.
6. PLACE 6.0" TYPE SP 12.5 WEARING COURSE IN THREE LIFTS. SEE SHEETS 3–4 FOR DETAILS.

BASIS FOR ESTIMATED QUANTITIES

EMBANKMENT

(APPROXIMATELY) 380 C.Y. TOPSOIL AND 2420 C.Y. EMBANKMENT (TOTAL 2800 C.Y.)

SUITABLE BRIDGE EXCAVATED MATERIAL MAY BE USED AS SLOPE EMBANKMENT MATERIAL AS DIRECTED BY THE ENGINEER. THE BRIDGE CONTRACTOR IS REQUIRED TO FURNISH ENOUGH EMBANKMENT MATERIAL TO BUILD SLOPES AND DITCHES AS SHOWN ON THE GUARDRAIL AND END TREATMENT SHEET. ANY ADDITIONAL MATERIAL NEEDED SHALL BE INCLUDED IN THE BID PRICE OF COMMON BORROW AND NO FURTHER COMPENSATION WILL BE GRANTED.

DENSITY OF EMBANKMENT CONTRUCTION SHALL BE OBTAINED BY THE "QUALITY COMPACTION METHOD". DENSITY OF AGGREGATE BASE AND AGGREGATE SHOULDERING CONSTRUCTION SHALL BE OBTAINED BY THE "QUALITY COMPACTION METHOD".

REMOVED AGGREGATE BASE AND AGGREGATE SHOULDERING MAY BE USED AS SELECT GRANULAR BORROW AS DIRECTED BY THE ENGINEER.

WEARING COURSE MIXTURE
BITUMINOUS MATERIAL FOR MIXTURE (MAXIMUM DENSITY)
110LBS./SQ.YD./INCH OF DEPTH (140 TONS)

TACK COAT
BITUMINOUS MATERIAL FOR TACK COAT .05 GALS. PER SQ.YD. (20 GALS.)

AGGREGATE SHOULDERING
AGGREGATE SHOULDERING CLASS 5M 140 LBS./CU.FT.

AGGREGATE BASE
AGGREGATE BASE CLASS 5M 140 LBS./CU.FT.

SEEDING MIXTURE 250
SEED MIXTURE 250: 70 LBS./ACRE (45 LBS.)

MULCH MATERIAL TYPE 1
2 TONS PER ACRE

FERTILIZER TYPE 3
350 POUNDS PER ACRE

EARTHWORKS
EMBANKMENT: 1.35 COMPACTION FACTOR
EXCAVATION: 1.0 EXPANSION FACTOR

CERTIFIED BY _____ LIC. NO. 50428 DATE 2/22/13
LICENSED PROFESSIONAL ENGINEER

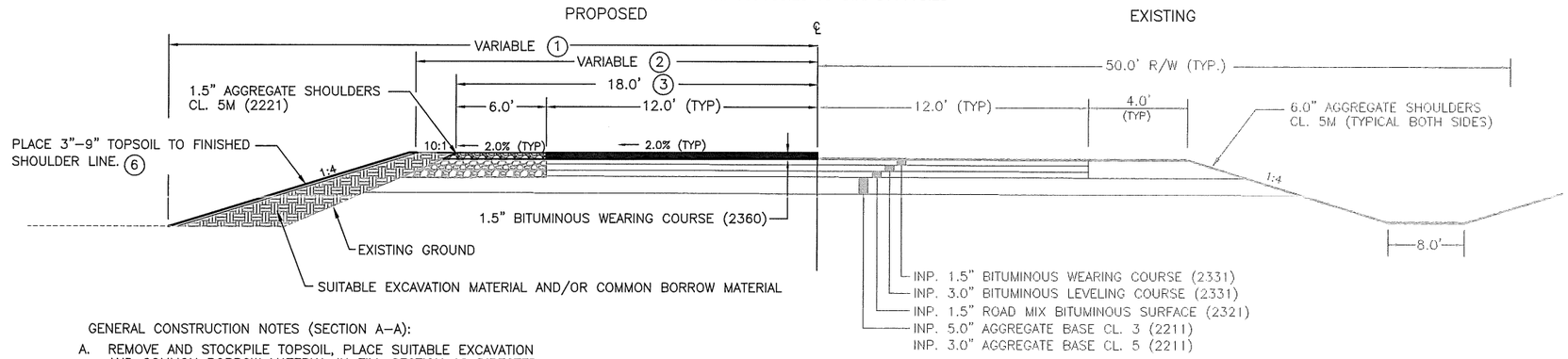
GRADING DETAIL - SECTION VIEWS

SECTION A-A

OVERLAY SECTION

STA. 306+24.75 TO STA. 308+09.75
STA. 309+90.25 TO STA. 311+75.25

GRANULAR EQUIVALENT
9 TONS LESS THAN 150 HCADT
REQUIRED 17.5
ON PLANS 18.0



GENERAL CONSTRUCTION NOTES (SECTION A-A):

A. REMOVE AND STOCKPILE TOPSOIL, PLACE SUITABLE EXCAVATION AND COMMON BORROW MATERIAL IN FILL SECTION AS DIRECTED BY THE ENGINEER. PLACE TOPSOIL TO THE FINISHED AGGREGATE SHOULDER LINE (PI).

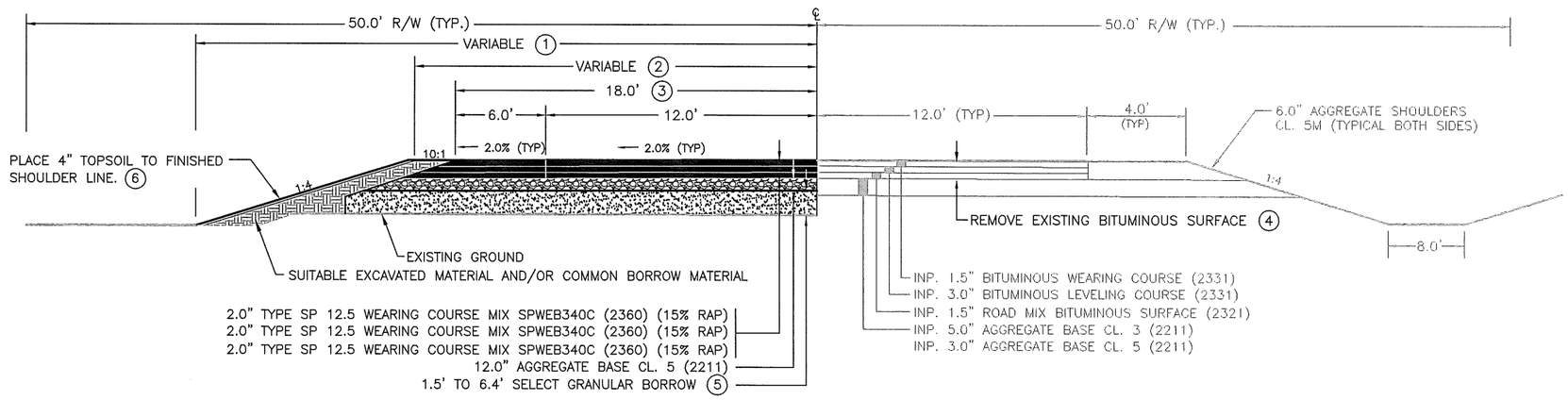
B. THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS EXCAVTED MATERIAL OFF SITE AS DIRECTED BY THE ENGINEER IF NOT SUITABLE FOR ROADWAY EMBANKMENT.

SECTION B -B

REMOVE AND REPLACE SECTION

STA. 308+09.75 TO STA. 308+59.75
STA. 309+40.25 TO STA. 309+90.25

GRANULAR EQUIVALENT
9 TONS LESS THAN 150 HCADT
REQUIRED 17.5
ON PLANS 25.5



GENERAL CONSTRUCTION NOTES (SECTION B-B):

A. PLACE SUITABLE EXCAVATION AND COMMON BORROW MATERIAL IN FLL SECTION AS DIRECTED BY THE ENGINEER. PLACE 6.0" AGGREGATE BASE AND PLACE TOPSOIL TO FINISHED AGGREGATE SHOULDER LINE (PI).

B. THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS EXCAVTED MATERIAL OFF THE SITE AS DIRECTED BY THE ENGINEER IF NOT SUITABLE FOR ROADWAY EMBANKMENT.

TABLE A	
STATION	DISTANCE FROM ℄
306+24.75	18.0'
307+22.25	25.75'
307+32.25	25.75
307+72.25	21.75
308+59.75	21.75
309+40.25	21.75
310+27.75	21.75
310+67.75	25.75
310+77.75	25.75
311+75.25	18.0'

SEE GUARDRAIL SHEETS B17-B21 FOR DETAILS

SECTION NOTES (SECTION A-A & SECTION B-B):

1. DIMENSION VARIES. CONSTRUCT A 1:4 SLOPE AS DIRECTED BY THE ENGINEER.
2. DIMENSION VARIES. SEE TABLE A FOR FINISHED SHOULDER DIMENSIONS.
3. SECTION A-A PLACE AGGREGATE SHOULDERS AS DIRECTED BY THE ENGINEER. SECTION B-B PAVE SHOULDERS AS DIRECTED BY THE ENGINEER
4. REMOVE BITUMINOUS SURFACE. REMOVAL ITEM SHALL BECOME PROPERTY OF OF THE CONTRACTOR.
5. SEE SHEETS B15 & B16 FOR DETAILS.
6. SALVAGE THE TOPSOIL FROM THE CONSTRUCTION LIMITS. PAYMENT FOR TOPSOIL SALVAGE IS TO BE INCLUDED IN THE TOTAL BID PRICE FOR ITEM NO. 2105.501-COMMON EXCAVATION. SPREAD TOPSOIL TO A MINIMUM DEPTH OF 3" OVER THE AREAS WITHIN THE R.O.W. LIMITS AND 9" (MIN.) OVER THE AREAS OUTSIDE THE R.O.W. LIMITS.
7. ALL CONSTRUCTION COVERED BY RIGHT OF WAY OR EASEMENT.
8. SEE SHEET B18 FOR ADDITIONAL DETAILS.

CERTIFIED BY _____ LIC. NO. 50428 DATE 2/22/13
LICENSED PROFESSIONAL ENGINEER

TYPICAL FINISHED SECTIONS

STATE PROJECT NO. 42-607-26 (C.S.A.H. 7) SHEET 3 OF 7 SHEETS

GRADING DETAIL - PLAN VIEW

STA. 306+24.75 TO STA. 311++75.25

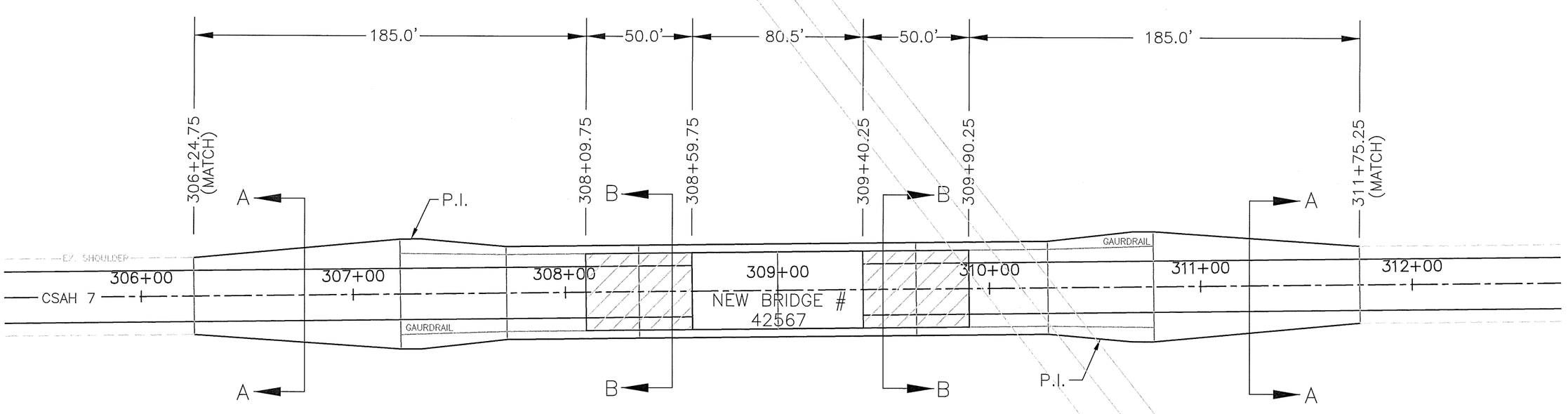


TABLE A	
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308+59.75	21.75
309+40.25	21.75
310+27.75	21.75
310+67.75	25.75
310+77.75	25.75
311+75.25	18.0'

SEE GUARDRAIL SHEETS B17–B21 FOR DETAILS

SCALE 1"=50'

0 50' 100'

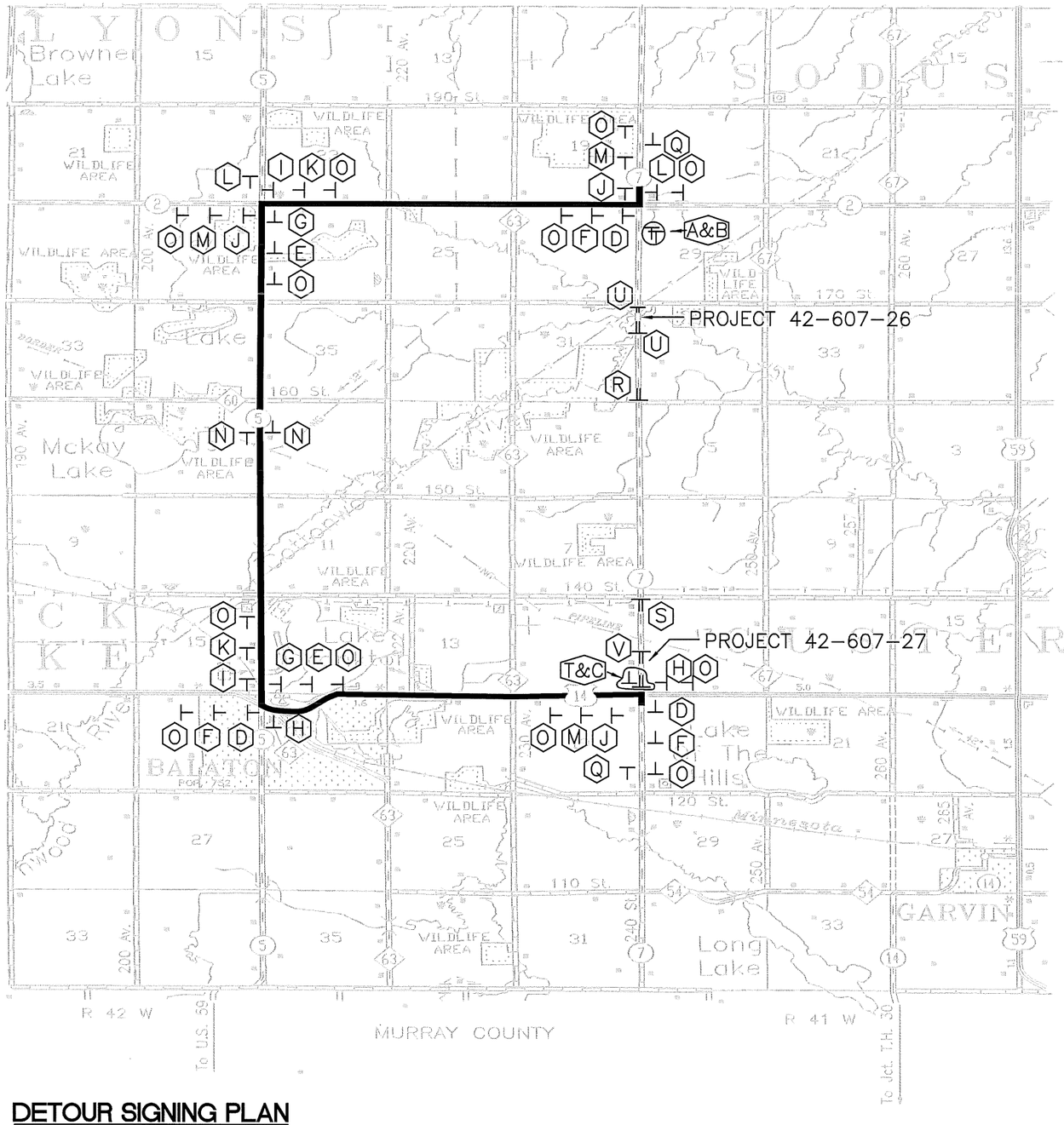
NOTES:

1. SEE SHEET 3 FOR TYPICAL SECTIONS A–A & B–B.
2. SEE SHEET B18 FOR DETAILS (PROPRIETARY TANGENT TERMINAL EXAMPLE).

CERTIFIED BY _____ LIC. NO. 50428 DATE 2/22/13
LICENSED PROFESSIONAL ENGINEER

GRADING DETAIL

STATE PROJECT NO. 42–607–26 (C.S.A.H. 7) SHEET 4 OF 7 SHEETS



DETOUR SIGNING PLAN

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MnMUTCD, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

ALL NECESSARY TRAFFIC CONTROL DEVICES ON THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

SIGN TABLE

SIGN	SIGN NO.	QUANTITY	SIZE	COLOR	FLASHERS
	TYPE III BARRICADE	21	60"x48"	ORANGE ON WHITE	9
DETOUR AHEAD	W20-2	12	36"x36"	BLACK ON ORANGE	
1500 FEET	W20-100P	12	30"x24"	BLACK ON ORANGE	
ROAD CONSTRUCTION AHEAD	W20-1	0	36"x36"	BLACK ON ORANGE	
ROAD CLOSED	R11-2	2	48"x30"	BLACK ON WHITE	
BRIDGE CLOSED	R11-2A	2	48"x30"	BLACK ON WHITE	
ROAD CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3A	1	60"x30"	BLACK ON WHITE	
ROAD CLOSED 4.5 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3A	1	60"x30"	BLACK ON WHITE	
BRIDGE CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3C	2	60"x30"	BLACK ON WHITE	
BRIDGE CLOSED 4.0 MILES AHEAD LOCAL TRAFFIC ONLY	R11-3C	1	60"x30"	BLACK ON WHITE	
DETOUR	M4-8	26	24"x12"	BLACK ON ORANGE	
END DETOUR	M4-8A	2	24"x18"	BLACK ON ORANGE	
NORTH	M3-1	12	24"x12"	BLACK ON WHITE	
SOUTH	M3-3	12	24"x12"	BLACK ON WHITE	
LYON 7 COUNTY	M1-X4	38	24"x24"	BLACK ON WHITE	
DETOUR	M4-9m(L)	2	30"x24"	BLACK ON ORANGE	
DETOUR	M4-9m(R)	2	30"x24"	BLACK ON ORANGE	
	M6-3	6	21"x15"	BLACK ON WHITE	
	M6-1 RT.	5	21"x15"	BLACK ON WHITE	
	M6-1 LT.	5	21"x15"	BLACK ON WHITE	
	M5-1 RT.	5	21"x15"	BLACK ON WHITE	
	M5-1 LT.	5	21"x15"	BLACK ON WHITE	
END ROAD WORK	G20-2A	3	60"X24"	BLACK ON ORANGE	

SIGN ASSEMBLY

A
BRIDGE CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY / DETOUR
R11-3C (FRONT)
M4-9m(R) (FRONT)
G20-2A (BACK)
1-TYPE 3 BARRICADE

B
ROAD CLOSED 4.5 MILES AHEAD LOCAL TRAFFIC ONLY / DETOUR
R11-3A (FRONT)
M4-9m(R) (FRONT)
G20-2A (BACK)
1-TYPE 3 BARRICADE

C
BRIDGE CLOSED 4.0 MILES AHEAD LOCAL TRAFFIC ONLY / DETOUR
R11-3C (FRONT)
M4-9m(L) (FRONT)
G20-2A (BACK)
1-TYPE 3 BARRICADE

D
DETOUR / NORTH / LYON 7 COUNTY
M4-8
M3-1
M1-X4 (LYON COUNTY 7)
M6-1 (LEFT)
*200' FROM INT.

E
DETOUR / NORTH / LYON 7 COUNTY
M4-8
M3-1
M1-X4 (LYON COUNTY 7)
M5-1 (RIGHT)
*1000' FROM INT.

F
DETOUR / NORTH / LYON 7 COUNTY
M4-8
M3-1
M1-X4 (LYON COUNTY 7)
M5-1 (LEFT)
*1000' FROM INT.

G
DETOUR / NORTH / LYON 7 COUNTY
M4-8
M3-1
M1-X4 (LYON COUNTY 7)
M6-1 (RIGHT)
*200' FROM INT.

H
DETOUR / NORTH / LYON 7 COUNTY
M4-8
M3-1
M1-X4 (LYON COUNTY 7
M6-3
*200' FROM INT.

I
DETOUR / SOUTH / LYON 7 COUNTY
M4-8
M3-3
M1-X4 (LYON COUNTY 7)
M6-1 (LEFT)
*200' FROM INT.

J
DETOUR / SOUTH / LYON 7 COUNTY
M4-8
M3-3
M1-X4 (LYON COUNTY 7)
M6-1 (RIGHT)
*200' FROM INT.

K
DETOUR / SOUTH / LYON 7 COUNTY
M4-8
M3-3
M1-X4 (LYON COUNTY 7)
M5-1 (LEFT)
*1000' FROM INT.

L
DETOUR / SOUTH / LYON 7 COUNTY
M4-8
M3-3
M1-X4 (LYON COUNTY 7)
M6-3
*200' FROM INT.

M
DETOUR / SOUTH / LYON 7 COUNTY
M4-8
M3-3
M1-X4 (LYON COUNTY 7)
M5-1 (RIGHT)
*1000' FROM INT.

N
DETOUR / LYON 7 COUNTY
M4-8
M1-X4 (LYON COUNTY 7)
M6-3
*200' FROM INT.

O
DETOUR AHEAD / LYON 7 COUNTY 1500 FEET
W20-2
M1-X4 (LYON COUNTY 7)
W20-100P (1500 FEET)
*1500' FROM INT.

P
ROAD CONSTRUCTION AHEAD
W20-1
*500' FROM INT.

Q
END DETOUR
M4-8a
*500' FROM INT.

R
BRIDGE CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY
R11-3C
1-TYPE 3 BARRICADE

S
ROAD CLOSED 1.0 MILES AHEAD LOCAL TRAFFIC ONLY
R11-3C
1-TYPE 3 BARRICADE

T
SAFETY FENCE ① → ROAD CLOSED / DETOUR
R11-2A
M4-9m(L) (FRONT)
4-TYPE 3 BARRICADE

U
SAFETY FENCE ① → BRIDGE CLOSED
R11-2A
4-TYPE 3 BARRICADE

V
SAFETY FENCE ① → ROAD CLOSED
R11-2A
4-TYPE 3 BARRICADE

NOTES: ① SIGN ASSEMBLY IS FOR A COMPLETE LANE CLOSURE. A MINIMUM OF 4 BARRICADES AND SAFETY FENCE IS REQUIRED. ALL POSTS AND HARDWARE TO INSTALL SAFETY FENCE SHALL BE INCLUDED WITH SIGN ASSEMBLY.

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER LIC. NO. 50428 DATE 5/10/13

DETOUR SIGNING
STATE AID PROJECT NO. 42-607-26 (C.S.A.H. 7)
STATE AID PROJECT NO. 42-607-27 (C.S.A.H. 7)

SHEET 5 OF 7 SHEETS

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Project Description

S.A.P. 42–607–26 (C.S.A.H. 7) Proposed project involves construction of new bridge, shoulder widening, aggregate base, aggregate shouldering and bituminous surfacing from Sta. 306+19.75 to Sta. 311+80.25.
The receiving water for storm water from this project will be the Cottonwood River and the straw blanket lined highway ditch system. BMP'S will be placed prior to construction to protect these resources.

Agency Contacts

The Lyon County Project Engineer and the Contractor are responsible for implementation of the SWPPP and the installation, inspection, and the maintenance of the erosion prevention and sediment control BMP's before and during construction. The Contractor will have an Erosion Control Supervisor who is responsible for coordinating the erosion prevention and sediment control BMP's. Lyon County Maintenance is responsible for long term operation and maintenance of any permanent storm water management system. No permanent storm water management systems are proposed with this project.

The Lyon County Project Engineer is;
Aaron VanMoer
504 Fairgrounds Road
Marshall, Mn. 56258
(507) 532–8202

Timing of BMP Installation

The erosion prevention and sediment control BMP's shall be installed prior to start of construction, as necessary to minimize erosion from disturbed surfaces and capture sediment on site.

1. Ponds (if applicable) will be excavated prior to any soil disturbance.
2. Temporary perimeter control BMP's will be installed before any up gradient soil disturbance occurs.
3. Permanent and temporary sediment traps and basins (if applicable) will be constructed before any hydraulic conveyance or dewatering procedures occur.
4. Topsoil and temporary erosion control BMP's shall be placed within 7 days of completion of embankment and ponds.
5. Placement of riprap shall be started within 24 hours of placement of the culvert and done in one continuous operation.
6. Once construction activity ceases for 14 days or more, in an area, that area will be stabilized with temporary or permanent BMP's.

S.A.P. 42-607-26 LAND FEATURE CHANGES (ACRES)

Pre Const. Total Impervious Surface Area of C.S.A.H. 7 Sta. 306+19.75 To Sta. 311+80.25 Mainline & Shoulders = .39 ACRES

PRE CONSTRUCTION TOTAL IMPERVIOUS SURFACE AREA = .39 ACRES

S.A.P. 42-607-26 LAND FEATURE CHANGES (ACRES)

Post Const. Total Impervious Surface Area of C.S.A.H. 7 Sta. 306+19.75 To Sta. 311+80.25 Mainline & Shoulders = .47 ACRES

POST CONSTRUCTION TOTAL IMPERVIOUS SURFACE AREA = .47 ACRES

Construction Notes

Construction shall be governed by MN/DOT Spec Book and the special provisions.
The Contractor shall maintain a 10% stockpile of erosion control devices at all times for immediate usage.
The Contractor shall keep the inspection maintenance log, and submit to the county on a weekly basis.

TMDL Implementation Plans Containing Storm Water Requirements

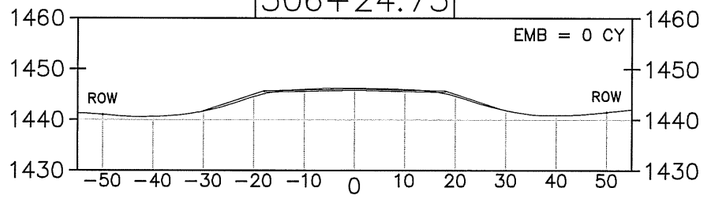
No TMDL Implementation Plans currently contain construction storm water requirements.

Location of SWPPP Requirements in Project Plan

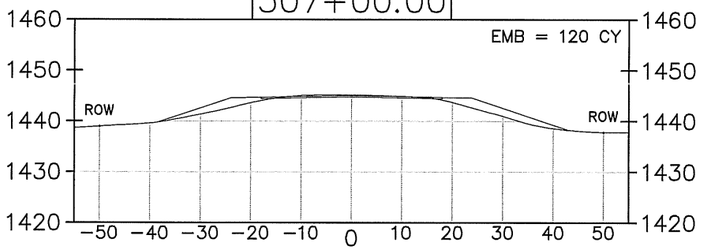
DESCRIPTION	TITLE	LOCATION
Summary of Pervious and Impervious	SWPPP	Sheet No. 6
Direction of Flow	Construction Plan Sheets	Sheet No. B26
Receiving Surface Waters	Construction Plan Sheets	Sheet No. B26
Final Stabilization	Turf Establishment Tab	Sheet No. 2
Drainage Structures	Construction Plan Sheets	Sheet No. B1
Drainage Tabulation	Drainage Tab	Sheet No. B1
Erosion Control Tabulation	Turf Establishment Tab	Sheet No. 2
Erosion Control Sheets	Construction Plan Sheets	N/A
Erosion Control Details	Details Sheet	N/A
Storm Sewer Tabulation	N/A	N/A
Storm Sewer Plan Sheets	N/A	N/A
Storm Sewer Details	N/A	N/A
Pond Tabulations	N/A	N/A
Pond Sheets	N/A	N/A
Location Of Ponds	N/A	N/A

CERTIFIED BY _____ LIC. NO. 50428 DATE 2/22/13
LICENSED PROFESSIONAL ENGINEER

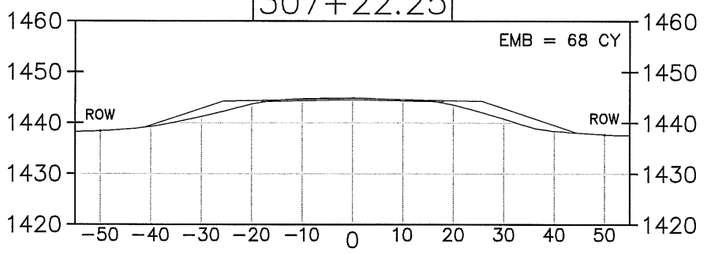
306+24.75



307+00.00



307+22.25



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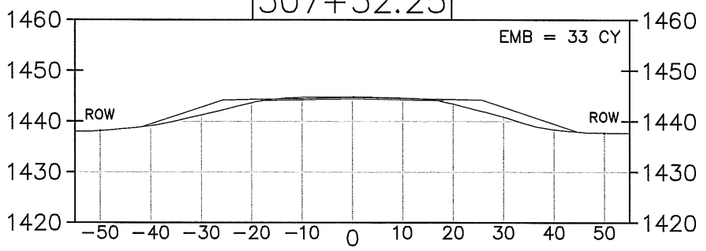
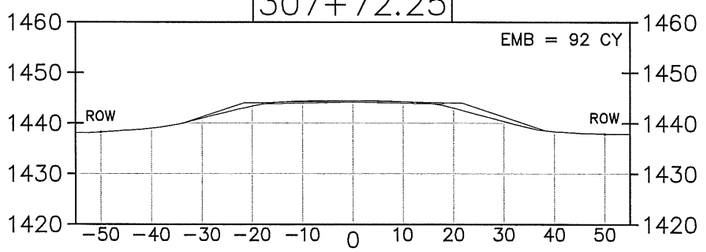
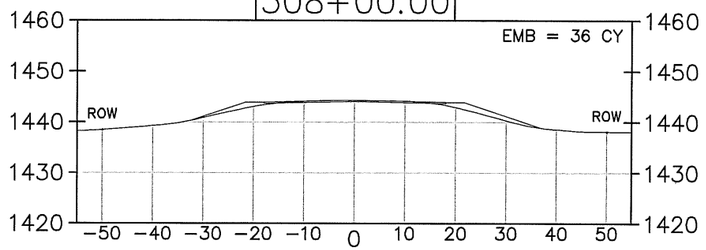


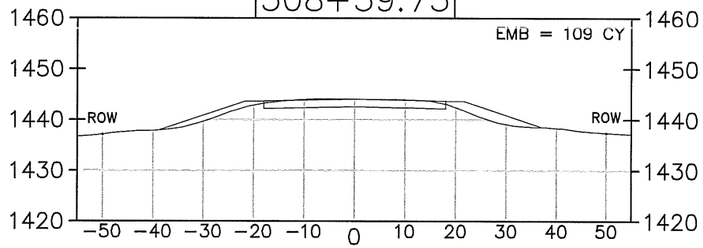
307+72.25



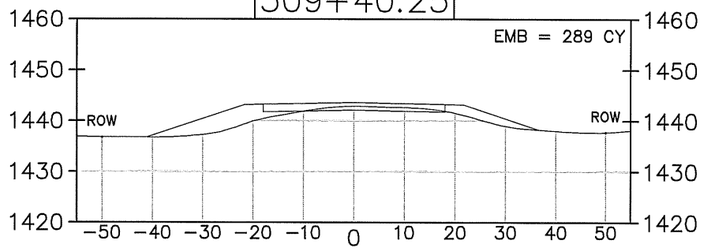
308+00.00



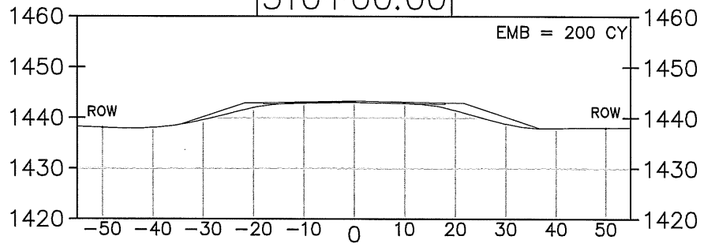
308+59.75



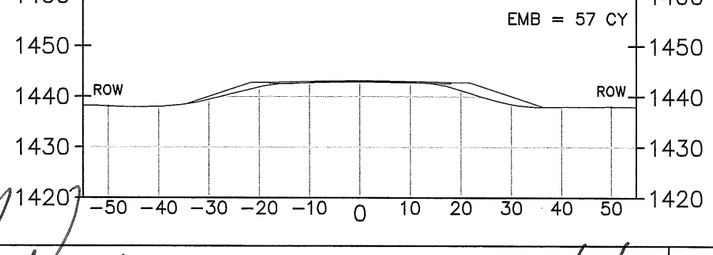
309+40.25



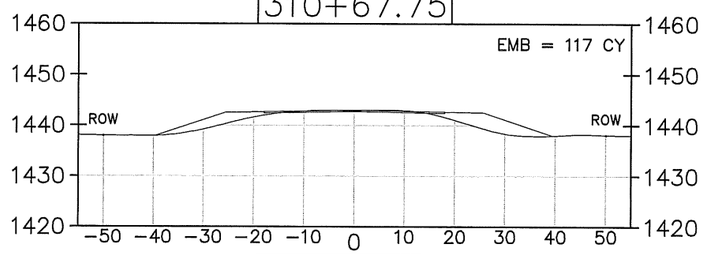
310+00.00



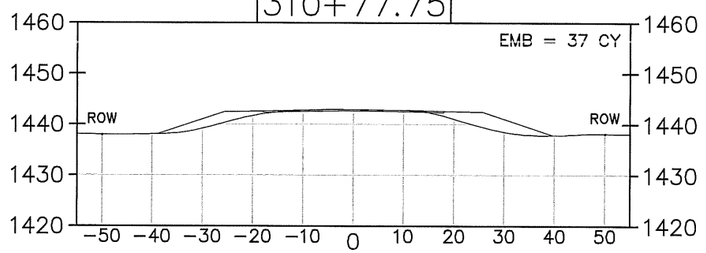
310+27.75



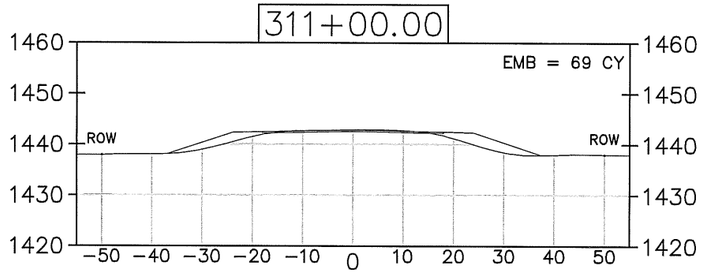
310+67.75



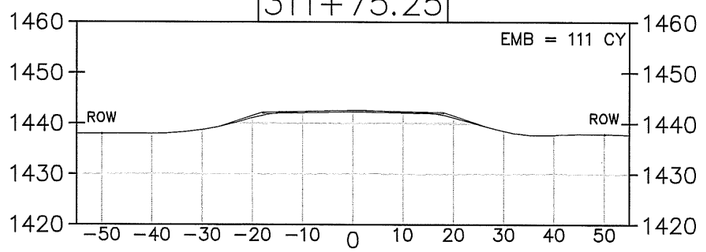
310+77.75



311+00.00



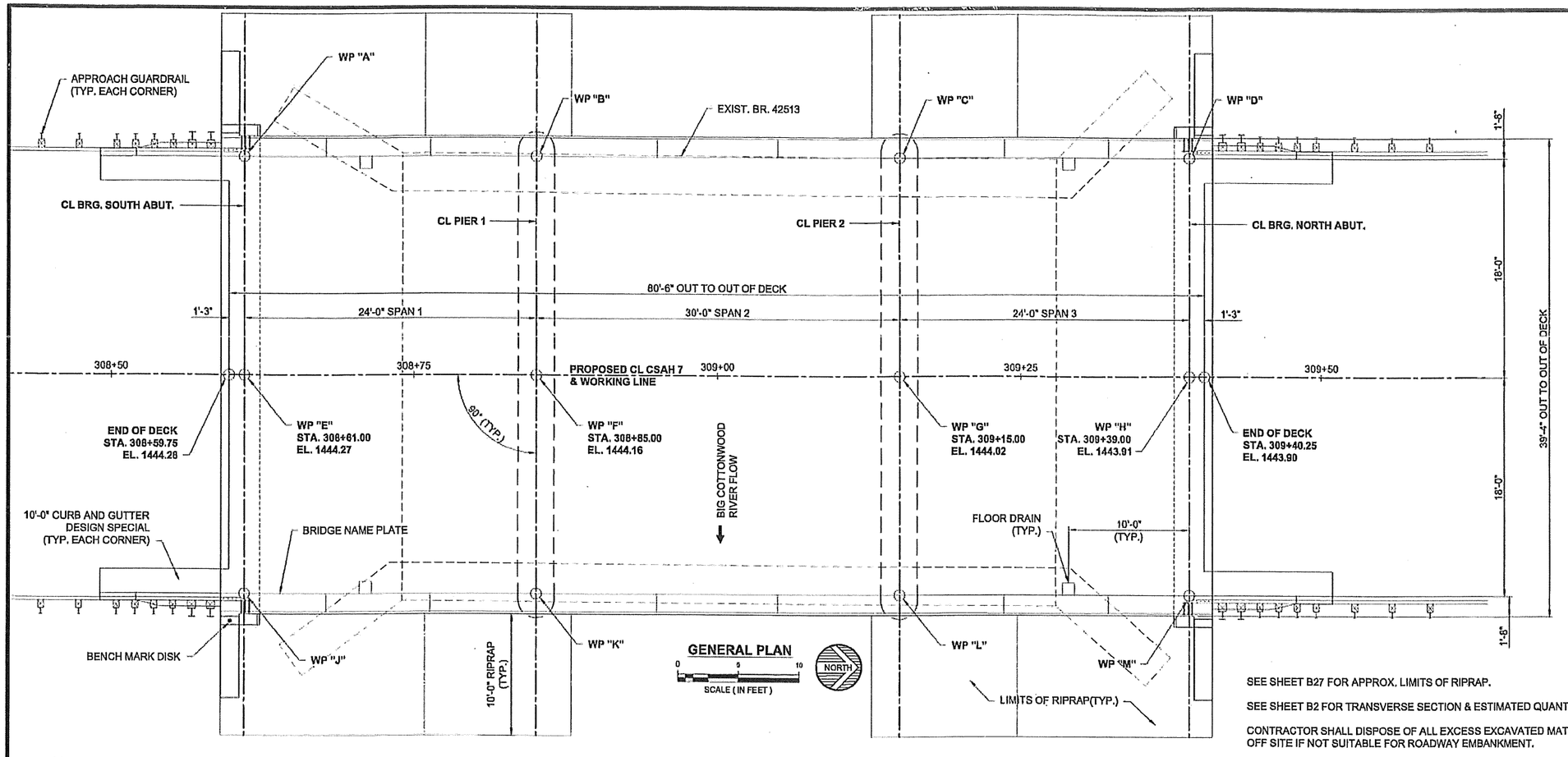
311+75.25



CERTIFIED BY: _____ LIC. NO.: 50428 DATE: 2/22/13
LICENSED PROFESSIONAL ENGINEER

CROSS SECTIONS

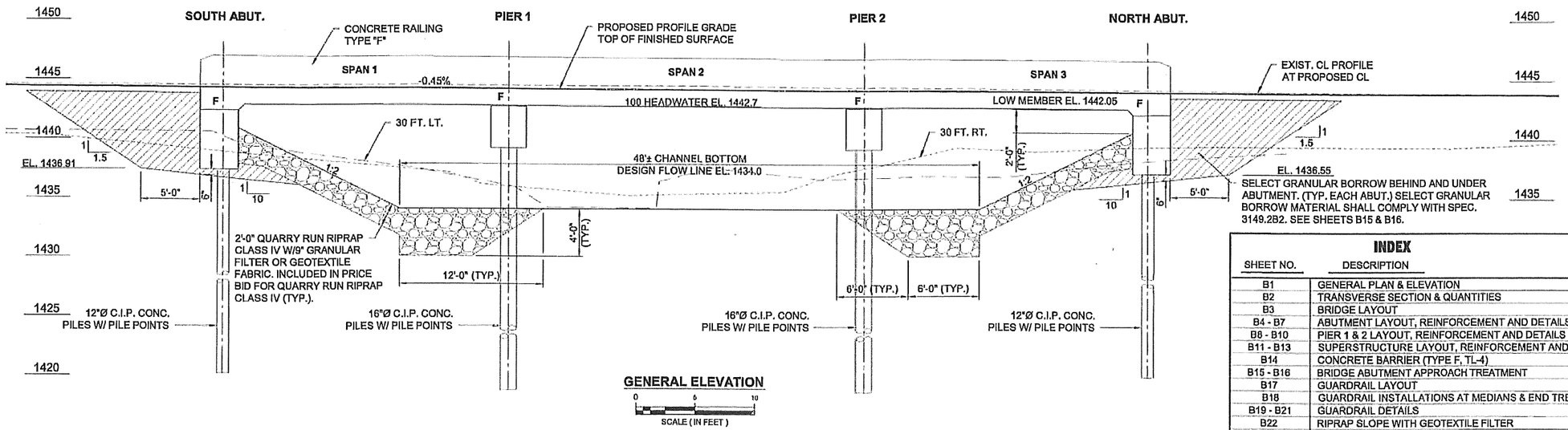
STATE PROJECT NO. 42-607-26 SHEET 7 OF 7 SHEETS



SEE SHEET B27 FOR APPROX. LIMITS OF RIPRAP.

SEE SHEET B2 FOR TRANSVERSE SECTION & ESTIMATED QUANTITIES.

CONTRACTOR SHALL DISPOSE OF ALL EXCESS EXCAVATED MATERIAL OFF SITE IF NOT SUITABLE FOR ROADWAY EMBANKMENT.



DESIGN DATA

2012 A.A.S.H.T.O. BRIDGE DESIGN SPECIFICATIONS LOAD AND RESISTANCE FACTOR DESIGN METHOD.
HL 93 LIVE LOAD

DEAD LOAD INCLUDES:
20 PSF ALLOWABLE FOR FUTURE WEARING COURSE MODIFICATIONS

MATERIAL DESIGN PROPERTIES:
REINFORCED CONCRETE:
f'c = 4000 p.s.i. n = 8 fy = 60,000 p.s.i. Reinf.
STRUCTURAL STEEL:
fy = 36,000 p.s.i. Spec. 3306

DESIGN SPEED 55 MILES PER HOUR DECK AREA: 3,166 SQ.FT.
CURRENT ADT 897 (2012) PROJECTED ADT 1076 (2032)
BRIDGE OPERATING RATING HS 49.1

CONSTRUCTION NOTES

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

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE IN MILLIMETERS. BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH SPEC. 3301.

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

THE PILE LOADS SHOWN IN THE PLANS AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R_n) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

B.M. ELEV. 1444.913 (M.S.L. 1929 Adj)
SOUTHEAST CORNER WEST CURB.
EXIST. BR. 42513

INDEX

COUNTY APPROVAL
3-5-13 Suhail Kanwal
DATE COUNTY ENGINEER, LYON CO.

WIDSETH SMITH NOLTING
ENGINEERS
ARCHITECTS
LAND SURVEYORS
PROJECT MANAGERS
ALEXANDRIA, MN.
PHONE 320-762-8149
FAX 320-762-0263
www.wsn.us.com

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

PROFESSIONAL ENGINEER / KENT A. ROHR
DATE 12-23-2013 LICENSE NO. 21179

C.S.A.H. 7 LYON COUNTY
MINNESOTA DEPARTMENT OF TRANS.

Bridge No. 42567

LOCATION ON CSAH 7 OVER THE BIG COTTONWOOD RIVER, 1.2 MILES SOUTH OF JCT CSAH 2

24.0'-30.0'-24.0' SPAN CONTINUOUS CONC. SLAB, 36.0' CLEAR ROADWAY W/CONC. RAILING TYPE "F" NO SKEW.

SPAN IDENT. NO. 209

GENERAL PLAN AND ELEVATION

SEC. 32 T 110 N R 41 W
SODUS TOWNSHIP LYON COUNTY

APPROVED for STATE BRIDGE ENGINEER 3/5/13 DATE

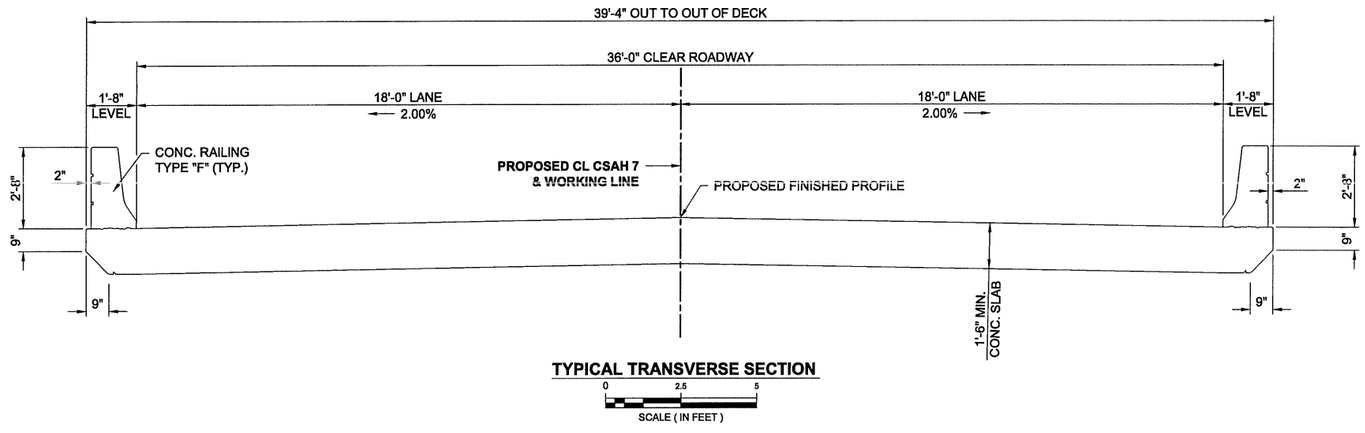
STATE AID PROJ. NO. 042-607-026

DES. BY	J.R.R.	DR. BY	J.J.E.
CHK. BY	K.A.R.	CHK. BY	T.J.M.

SHEET NO. B1 OF B27 SHEETS

0460A0898

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\CSAH 7\C-BR-898-PE.dwg, 2/28/2013 2:57:37 PM, jacob.ekola



TYPICAL TRANSVERSE SECTION

(P) DENOTES PLAN QUANTITY

(1) BRIDGE NO. 42513 STA. 309+00± (NON-PARTICIPATING)

(2) INCLUDES ANCHORAGE ASSEMBLY (25 FT. EACH CORNER LAYOUT).

(3) STD. PLATE 8338 (62.5 FT. EACH CORNER LAYOUT).

(4) SELECT GRANULAR BORROW BEHIND ABUTMENTS.SELECT GRANULAR MATERIAL SHALL COMPLY WITH SPEC. 3149.2B2.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	2021.501	2104.601	2105.522	2401.501	2401.512	2401.513	2401.541	2401.601	2401.601	2402.521	2402.546	2442.501	2452.507	2452.507	2452.508	2452.508	2452.519	2452.519
ITEM	MOBILIZATION	REMOVE REGULATED WASTE MATERIAL (BRIDGE)	SELECT GRANULAR BORROW MOD. 10% (CV) (4)	STRUCTURAL CONCRETE (3Y43)	BRIDGE SLAB CONCRETE (3Y33A)	TYPE F RAILING CONCRETE (3Y46A)	REINFORCEMENT BARS (EPOXY COATED)	STRUCTURE EXCAVATION	SLOPE PREPARATION	STRUCTURAL STEEL (3306)	FLOOR DRAIN TYPE (B702) MODIFIED	REMOVE EXISTING BRIDGE (1)	C.I.P. CONC. PILING DELIVERED 12"	C.I.P. CONC. PILING DELIVERED 16"	C.I.P. CONC. PILING DRIVEN 12"	C.I.P. CONC. PILING DRIVEN 16"	C.I.P. CONC. TEST PILES 95 FT. LONG 12"	C.I.P. CONC. TEST PILES 90 FT. LONG 16"
UNIT	LUMP SUM	LUMP SUM	CU. YD.	CU. YD.	SQ. FT.	LIN. FT.	POUND	LUMP SUM	LUMP SUM	POUND	EACH	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH
QUANTITY	1	1	370 (P)	91 (P)	3,166 (P)	164 (P)	47,710 (P)	1	1	540	4	1	510	640	510	640	2	2

ITEM NO.	2452.602	2452.602	2511.503	2531.501	2554.501	2554.501	2554.523
ITEM	PILE POINTS 12"	PILE POINTS 16"	QUARRY RUN RIPRAP CLASS IV	CONCRETE CURB AND GUTTER DESIGN SPECIAL	TRAFFIC BARRIER DESIGN SPECIAL (2)	TRAFFIC BARRIER DESIGN B8338 (3)	END TREATMENT ENERGY ABSORBING TERMINAL
UNIT	EACH	EACH	CU. YD.	LIN. FT.	LIN. FT.	LIN. FT.	EACH
QUANTITY	8	320	40		100	250	4

MN D.O.T. STANDARD PLATES

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

7100H	CONCRETE CURB & GUTTER
8000I	STANDARD BARRICADES
8318C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S
8338D	W-BEAM GUARDRAIL & END ANCHORAGE
9303B	GEODETIC SURVEY DISKS

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 5-6- 2013

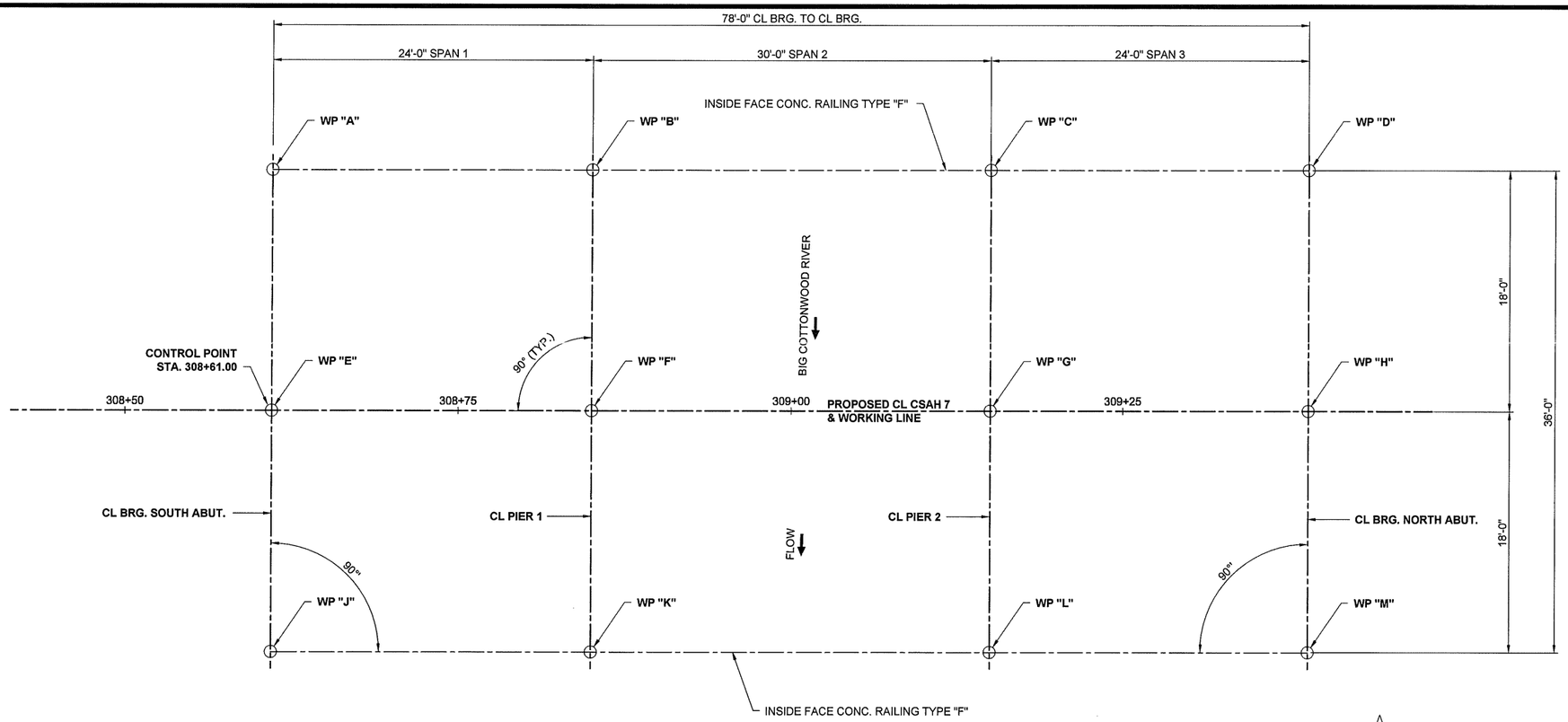
WWW.WSN.US.COM
WIDSETH SMITH NOLTING
ARCHITECTS ENGINEERS ENVIRONMENTAL SERVICES LAND SURVEYORS WATER RESOURCES
ALEXANDRIA, MN BAXTER, MN BEMIDJI, MN CROOKSTON, MN GRAND FORKS, ND RED WING, MN ROCHESTER, MN

TRANSVERSE SECTION & QUANTITIES

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

JOB NUMBER: 0460A0898 S.A.P. 042-607-026 SHEET NO. B2 OF B27 SHEETS

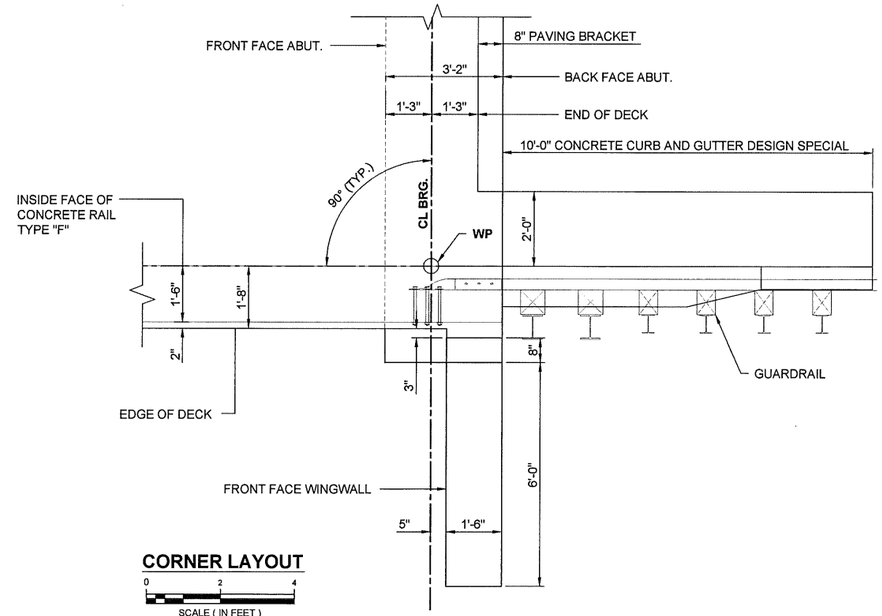


BRIDGE LAYOUT

0 5 10

SCALE (IN FEET)

NORTH



CORNER LAYOUT

0 2 4

SCALE (IN FEET)

DIMENSIONS BETWEEN WORKING POINTS															ELEVATIONS			
POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M		TOP OF DECK	TOP OF SLAB TO BR. SEAT	BRIDGE SEAT	POINT
A	308+61.00		24.00			18.00	30.00				43.27	64.90			1443.91	2.00	1441.91	A
B	308+85.00			30.00			18.00	34.99		43.27		46.86	64.90		1443.80	1.58	1442.22	B
C	309+15.00				24.00			18.00	30.00	64.90	46.86		43.27		1443.66	1.58	1442.08	C
D	309+39.00								18.00		64.90	43.27			1443.55	2.00	1441.55	D
E	308+61.00						24.00			18.00	30.00				1444.27	2.00	1442.27	E
F	308+85.00							30.00			18.00	34.99			1444.16	1.58	1442.58	F
G	309+15.00								24.00			18.00	30.00		1444.02	1.58	1442.44	G
H	309+39.00												18.00		1443.91	2.00	1441.91	H
J	308+61.00										24.00				1443.91	2.00	1441.91	J
K	308+85.00											30.00			1443.80	1.58	1442.22	K
L	309+15.00												24.00		1443.66	1.58	1442.08	L
M	309+39.00														1443.55	2.00	1441.55	M

CERTIFIED BY: Kent A. Rohr PROFESSIONAL ENGINEER KENT A. ROHR LICENSE NO. 21179 DATE: 2-9- 2012

JOB NUMBER: 0460A0898 S.A.P. 042-607-026 SHEET NO. B3 OF B27 SHEETS

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WIDSETH SMITH NOLTING
ARCHITECTS ALEXANDRIA, MN
ENGINEERS BAXTER, MN
BEMIDJI, MN
ENVIRONMENTAL SERVICES CROOKSTON, MN
LAND SURVEYORS GRAND FORKS, ND
WATER RESOURCES RED WING, MN
ROCHESTER, MN

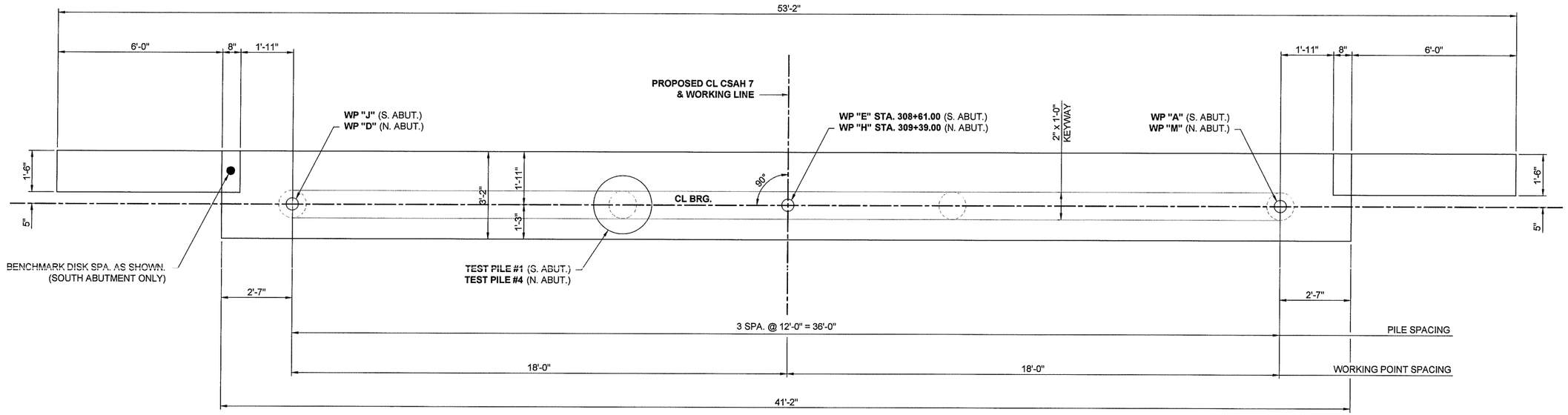
BRIDGE LAYOUT

APPROVED

DES. BY J.R.R. DR. BY J.J.E.

CHK. BY K.A.R. CHK. BY T.J.M.

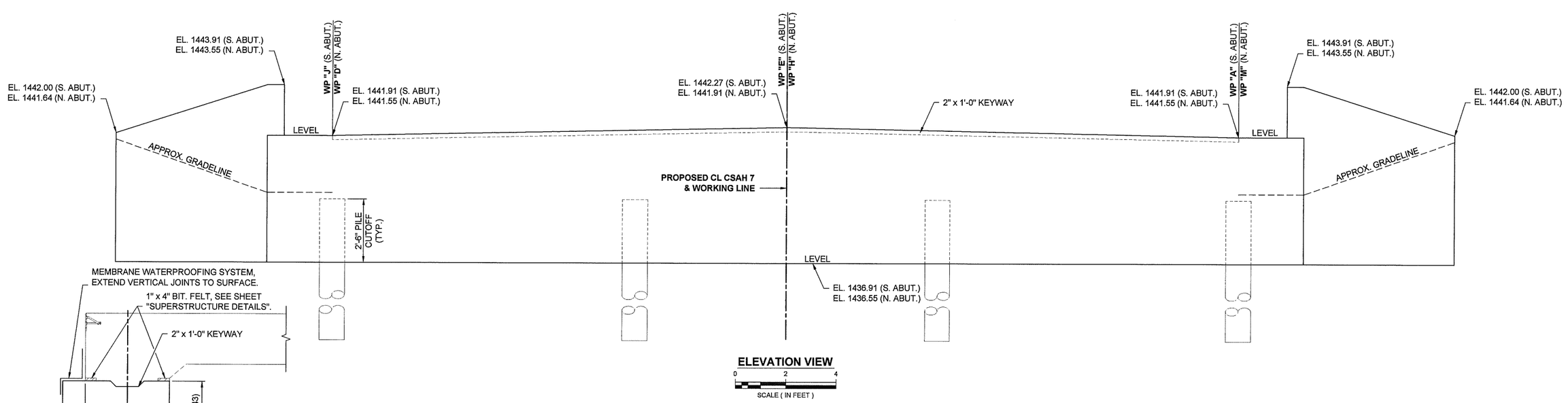
BRIDGE NO. 42567



PLAN VIEW

0 2 4

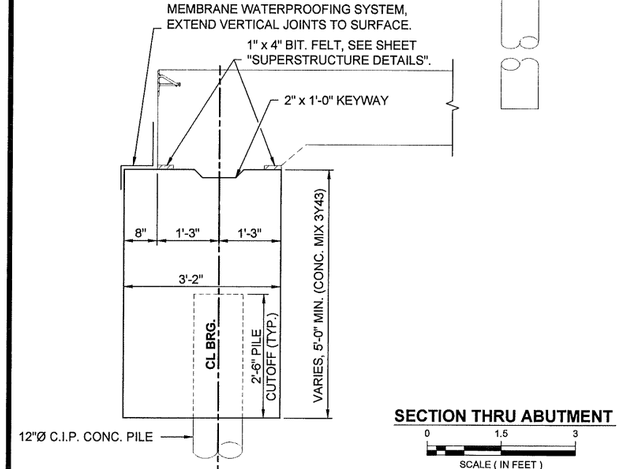
SCALE (IN FEET)



ELEVATION VIEW

0 2 4

SCALE (IN FEET)



SECTION THRU ABUTMENT

0 1.5 3

SCALE (IN FEET)

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9- 2012

JOB NUMBER: 0460A0898 S.A.P. 042-607-026 SHEET NO. B4 OF B27 SHEETS

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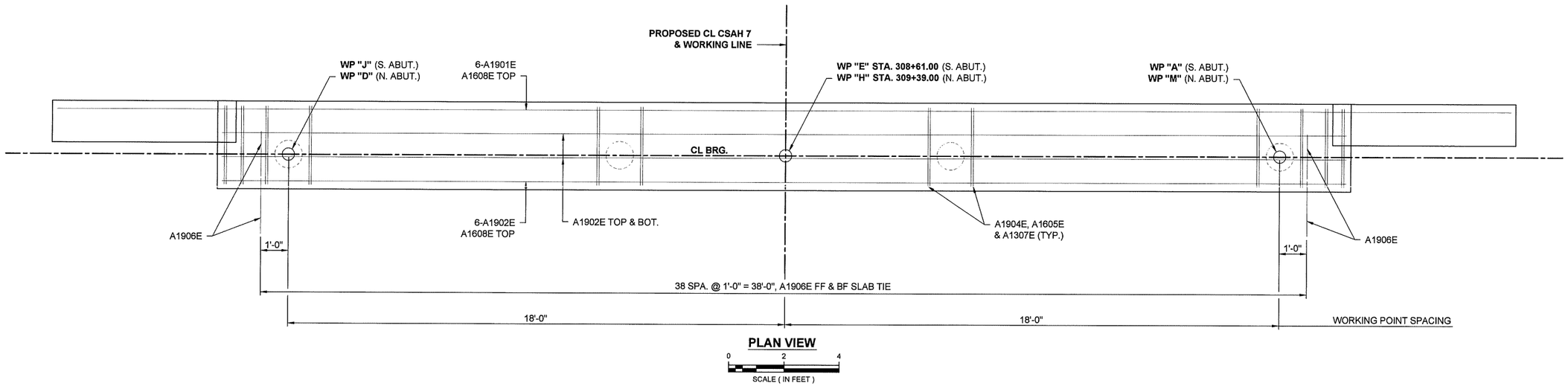
ROCHESTER, MN

ABUTMENT LAYOUT

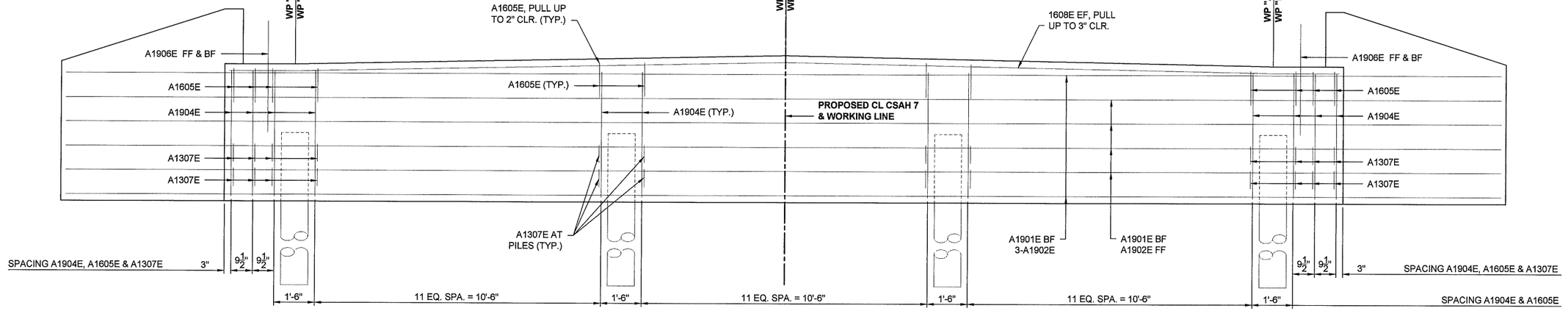
APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	



PLAN VIEW

0 2 4
SCALE (IN FEET)



ELEVATION VIEW

0 2 4
SCALE (IN FEET)

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9-2012

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

SHEET NO. B5 OF B27 SHEETS

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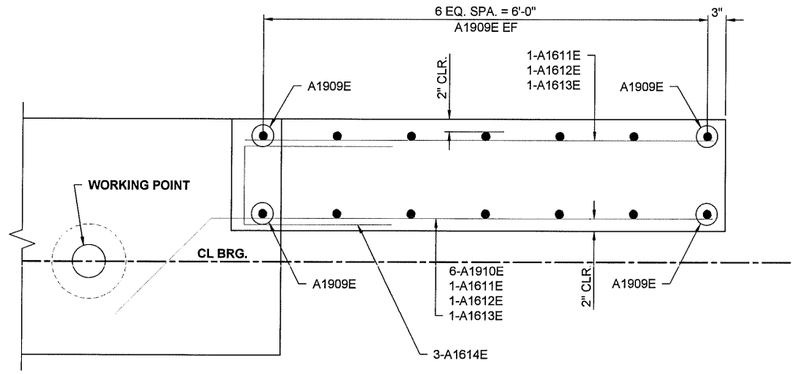
ABUTMENT REINFORCEMENT

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO.
CHK. BY K.A.R.	CHK. BY T.J.M.	42567

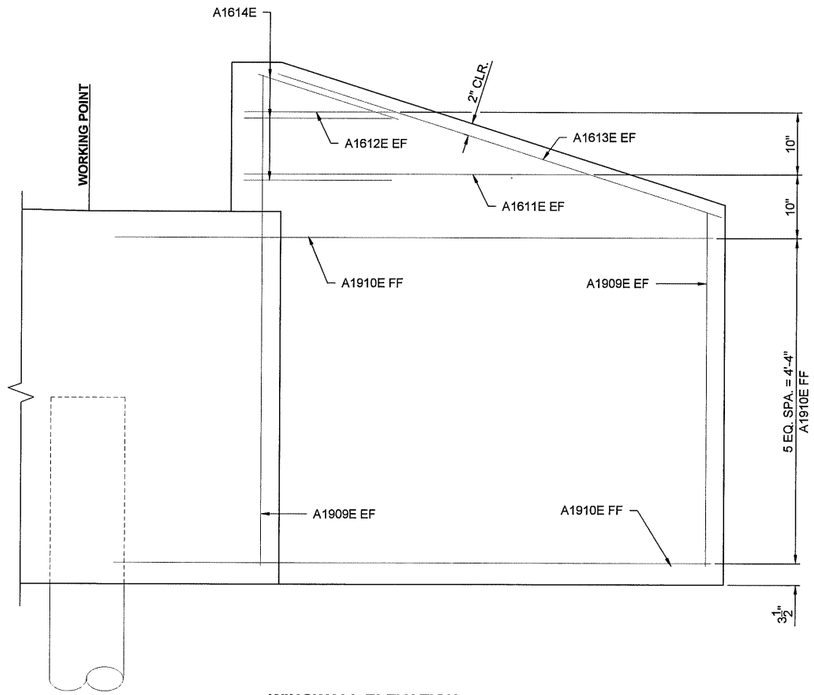


WINGWALL PLAN

0 1 2

SCALE (IN FEET)

WORKING POINT "A" SHOWN
WORKING POINTS "D", "J" & "M" SIMILAR



WINGWALL ELEVATION

0 1 2

SCALE (IN FEET)

WORKING POINT "A" SHOWN
WORKING POINTS "D", "J" & "M" SIMILAR

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\CSAH 7\C-BR-898-ABUT.dwg, 2/8/2012 2:48:12 PM, Gary.Moorman

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9- 2012

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

SHEET NO. B6 OF B27 SHEETS

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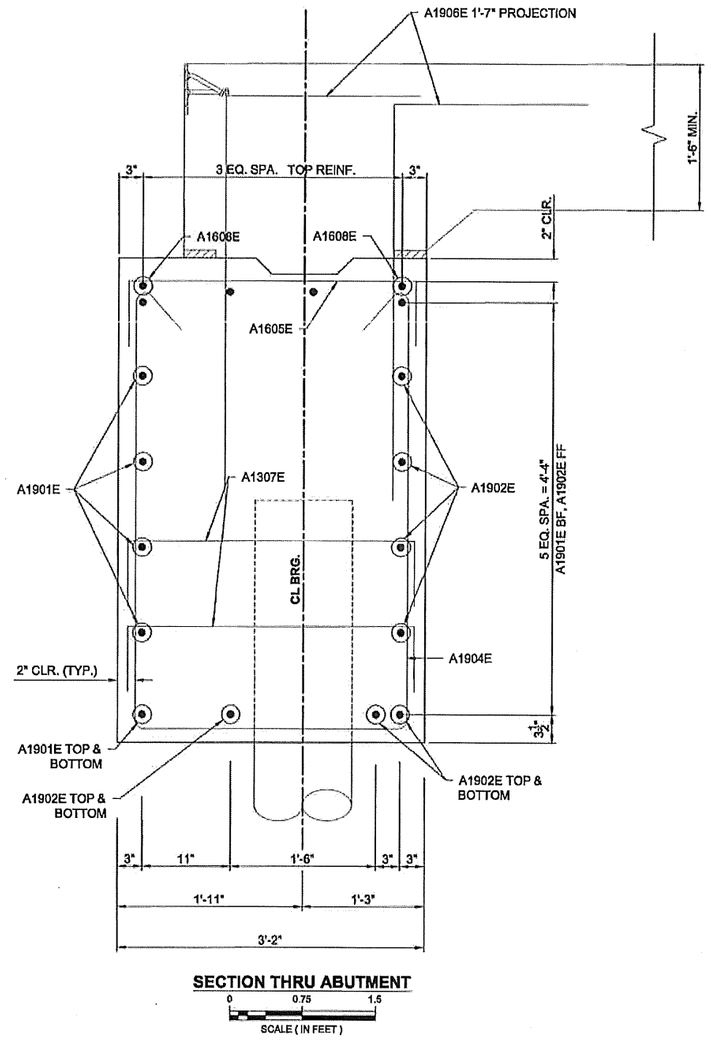
WINGWALL REINFORCEMENT

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

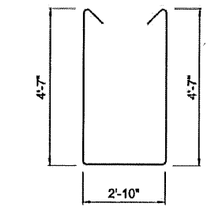


SECTION THRU ABUTMENT

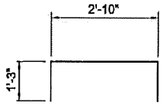
0 0.75 1.5

SCALE (IN FEET)

BAR SHAPES:



A1904E



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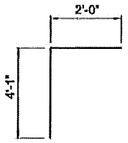

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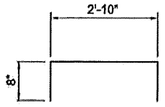

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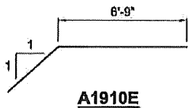

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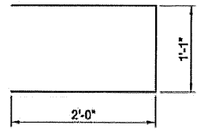

A1614E

BILL OF REINFORCEMENT FOR 2 ABUTMENTS & WINGWALLS

BAR	SOUTH ABUT.	NORTH ABUT.	LENGTH	SHAPE	LOCATION
A1901E	6	6	52'-10"	STRAIGHT	ABUT. HORZ. BF
A1902E	10	10	40'-10"	STRAIGHT	ABUT. HORZ.
A1904E	42	42	13'-4"	BENT	ABUT. STIRRUP
A1605E	42	42	5'-4"	BENT	ABUT. TIE
A1906E	78	78	6'-1"	BENT	SLAB TIE
A1307E	24	24	4'-2"	BENT	ABUT. TIE
A1608E	2	2	40'-10"	STRAIGHT	ABUT. HORZ. TOP
A1909E	4 SETS OF 7	4 SETS OF 7	4'-8" TO 6'-7"	STRAIGHT	VERT. WINGWALL EF
A1910E	12	12	8'-7"	BENT	HORZ. WINGWALL FF
A1611E	4	4	4'-8"	STRAIGHT	HORZ. WINGWALL EF
A1612E	4	4	2'-0"	STRAIGHT	HORZ. WINGWALL EF
A1613E	4	4	6'-2"	STRAIGHT	HORZ. WINGWALL TOP
A1614E	6	6	5'-1"	BENT	WINGWALL TIE

SUMMARY OF QUANTITIES FOR BOTH ABUTMENTS

	STRUCTURE CONCRETE (3Y43)	59	CU.YD.
	REINFORCEMENT BARS (EPOXY COATED)	7,020	POUND
(2)	BENCH MARK DISK (STD PL NO. 9303)	1	EACH
(1)	C.I.P. CONC. PILE DEL'D. 12"	510	LIN. FT.
(1)	C.I.P. CONC. PILE DRIVEN 12"	510	LIN. FT.
	C.I.P. CONC. TEST PILE 95' LONG, 12"	2	EACH
	PILE POINTS, 12"	8	EACH

(1) DOES NOT INCLUDE TEST PILES.

(2) COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STD. PLATE NO. 9303 FOR PLACING.

BOTH ABUTMENTS COMPUTED PILE LOADS -	TONS/PILE
FACTORED DEAD LOAD + EARTH PRESSURE	42.5
FACTORED LIVE LOAD	28.9
*FACTORED DESIGN LOAD	71.4

* BASED ON STRENGTH I LOAD COMBINATION

BOTH ABUTMENTS
REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R_n – Tons/Pile

FIELD CONTROL METHOD	Φdyn	* R_n
MnDOT Pile Formula 2012 (MPF12) $R_n = 20\sqrt{\frac{WxH}{1000}} \times \log\left(\frac{10}{S}\right)$	0.50	142.8
PDA	0.65	109.8

* R_n = (Factored Design Load) / Φdyn

PILE NOTES:

ALL PILES TO BE 12"Ø C.I.P. CONC. PILES, SEE DETAIL B201 FOR PILE SPLICES.

FOR TEST PILE LOCATIONS, SEE BRIDGE SURVEY PLAN & PROFILE SHEET.

1 - 12"Ø C.I.P. CONC. TEST PILE, ESTIMATED LENGTH 95 FT. (SOUTH ABUT.)
1 - 12"Ø C.I.P. CONC. TEST PILE, ESTIMATED LENGTH 95 FT. (NORTH ABUT.)
3 - 12"Ø C.I.P. CONC. PILES, ESTIMATED LENGTH 85 FT. (SOUTH ABUT.)
3 - 12"Ø C.I.P. CONC. PILES, ESTIMATED LENGTH 85 FT. (NORTH ABUT.)
8 - 12"Ø C.I.P. CONC. PILES REQUIRED FOR BOTH ABUTMENTS

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ABUTMENT DETAILS

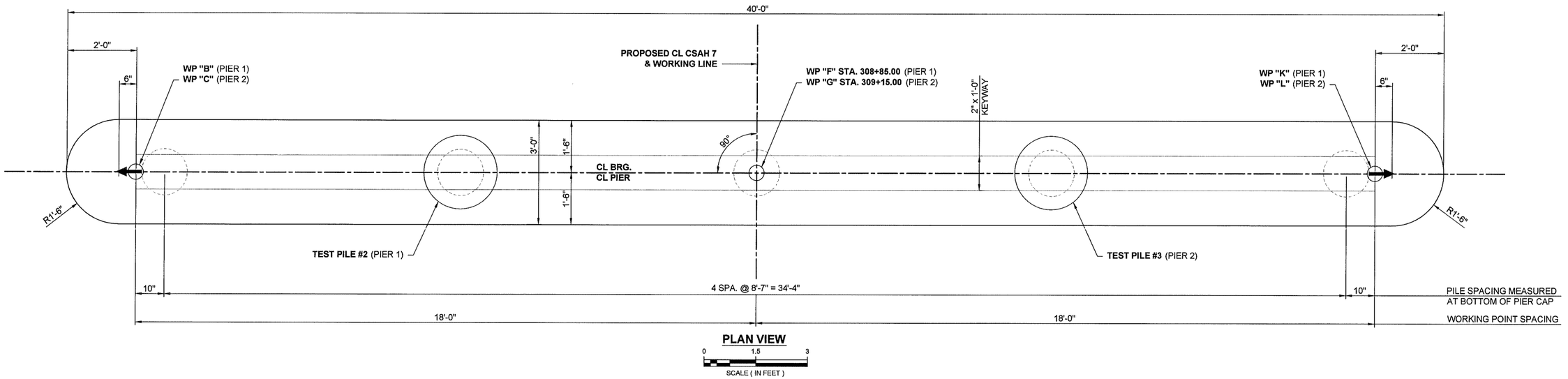
APPROVED

DES. BY T.J.M.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

CERTIFIED BY: _____ PROFESSIONAL ENGINEER KENT A. RORR LICENSE NO. 21179 DATE: 2-28-2013

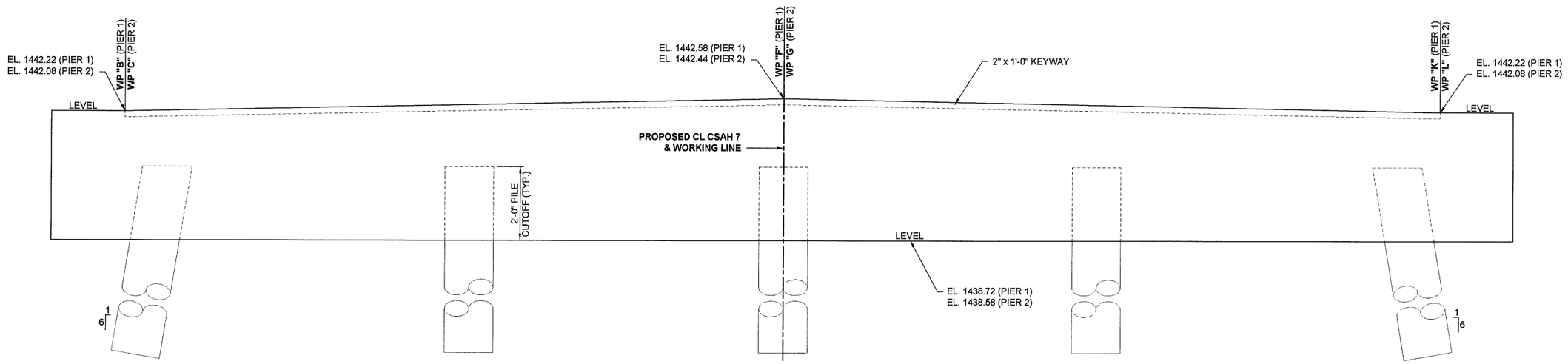
JOB NUMBER: 0460A0898 S.A.P. 042-607-026 SHEET NO. B7 OF B27 SHEETS

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\CSAH 7IC-BR-898-ABUT.dwg, 2/28/2013 1:05:17 PM, jacob.ekola



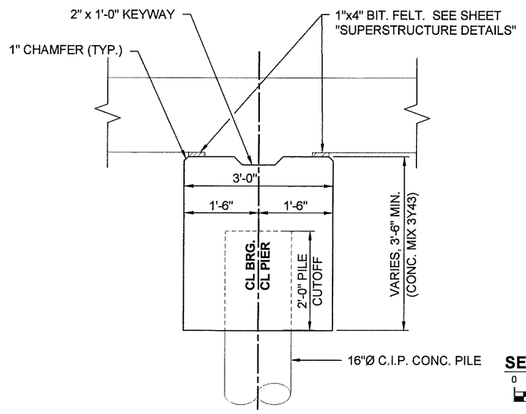
PLAN VIEW

0 1.5 3
SCALE (IN FEET)



ELEVATION VIEW

0 1.5 3
SCALE (IN FEET)



SECTION THRU PIER

0 1.5 3
SCALE (IN FEET)

ALL PILE MARKED THUS ➡ SHALL BE BATTERED 2"/FT. IN DIRECTION SHOWN.

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JOB NUMBER: 0460A0898

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SHEET NO. B8 OF B27 SHEETS

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PIER LAYOUT

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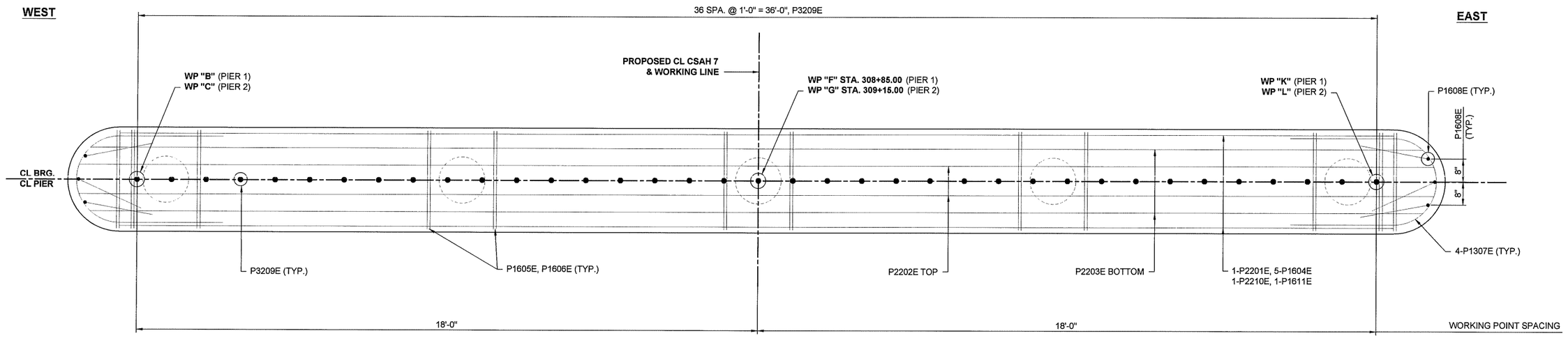
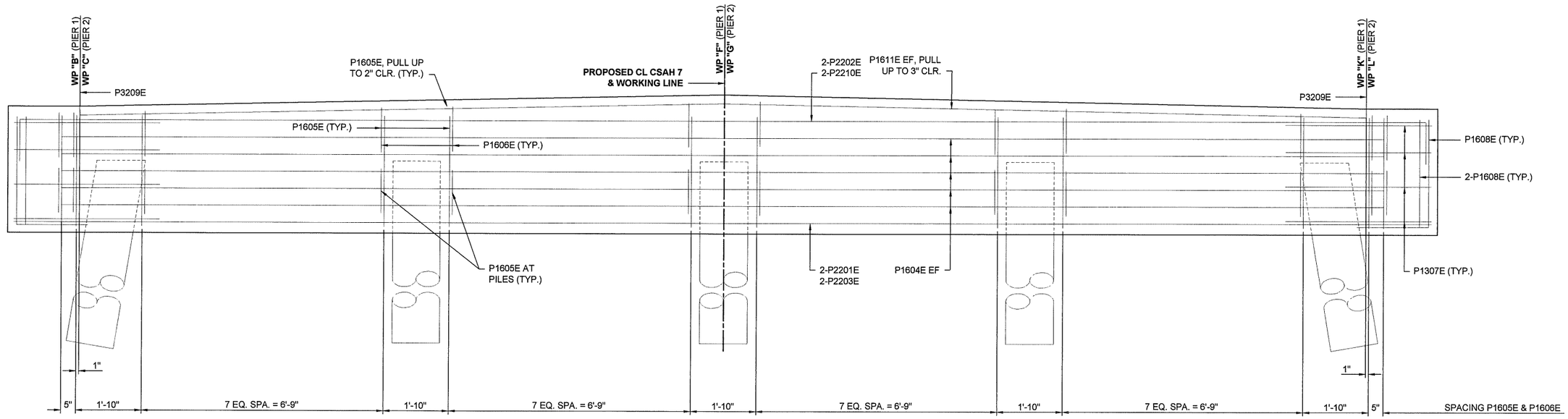
CHK. BY K.A.R.	CHK. BY T.J.M.	



PLAN VIEW

0 1.5 3

SCALE (IN FEET)



ELEVATION VIEW

0 1.5 3

SCALE (IN FEET)

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SHEET NO. B9 OF B27 SHEETS

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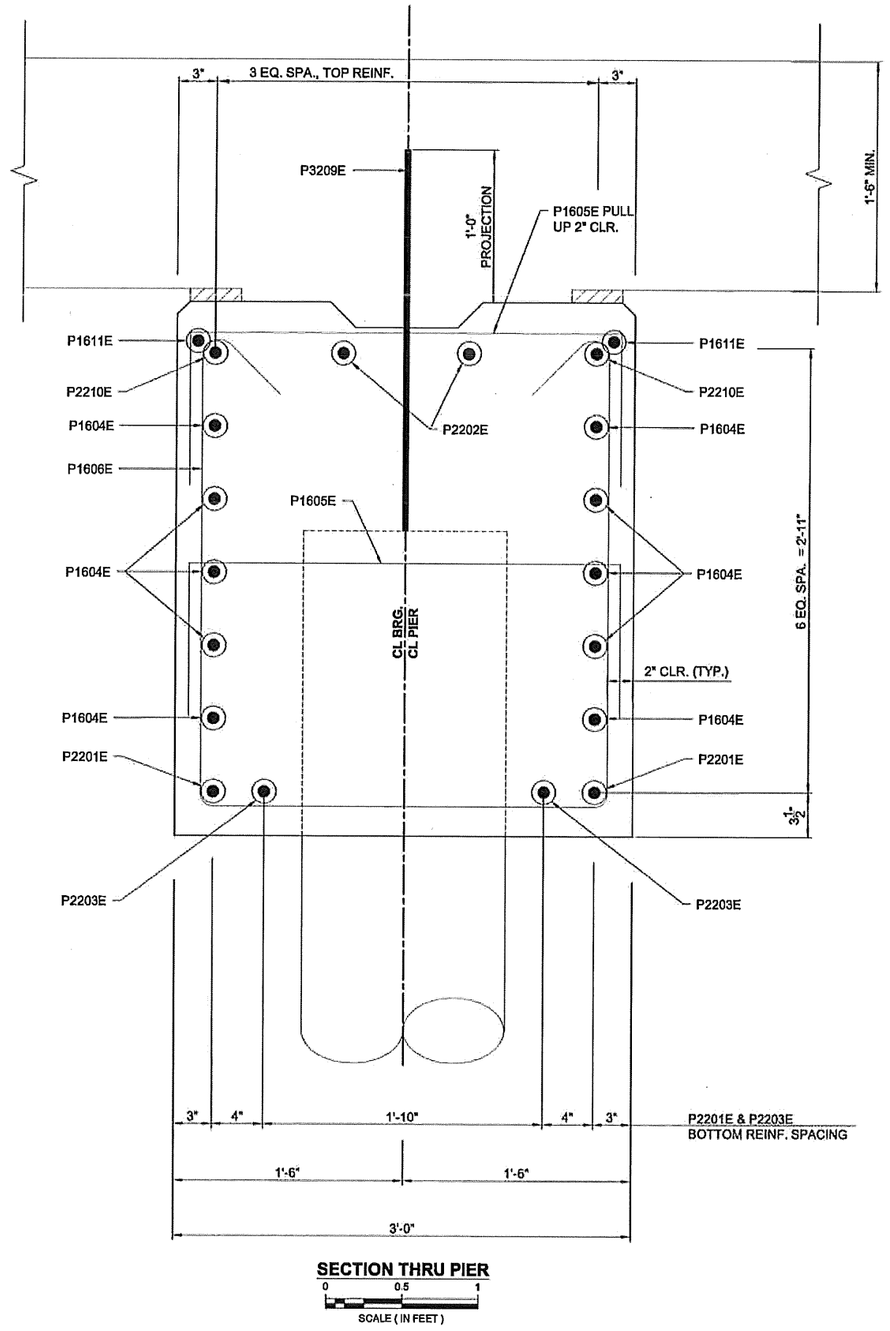
PIER REINFORCEMENT

APPROVED		
DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\CSAH 7\C-BR-898-PEIR.dwg, 2/8/2012 2:48:21 PM, Gary.Moorman

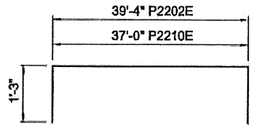


SECTION THRU PIER

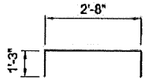
0 0.5 1

SCALE (IN FEET)

BAR SHAPES:



P2202E, P2210E



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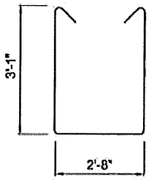

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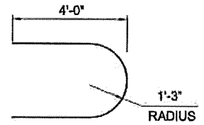

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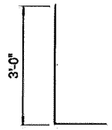

P1608E

BILL OF REINFORCEMENT FOR PIER 1 & 2

BAR	PIER 1	PIER 2	LENGTH	SHAPE	LOCATION
P2201E	2	2	36'-10"	STRAIGHT	HORZ. CAP
P2202E	2	2	41'-10"	BENT	HORZ. CAP
P2203E	2	2	38'-6"	STRAIGHT	HORZ. CAP
P1604E	10	10	36'-10"	STRAIGHT	HORZ. CAP
P1605E	48	48	5'-2"	BENT	CAP TIE
P1606E	36	36	9'-9"	BENT	STIRRUP
P1307E	8	8	9'-5"	BENT	CAP TIE AT ENDS
P1608E	6	6	5'-0"	BENT	CAP TIE AT ENDS
P3209E	37	37	2'-6"	STRAIGHT	DOWELS
P2210E	2	2	39'-6"	BENT	HORZ. CAP
P1611E	2	2	37'-0"	STRAIGHT	HORZ. CAP

SUMMARY OF QUANTITIES FOR BOTH PIERS

	STRUCTURE CONCRETE (3Y43)	32	CU.YD.
	REINFORCEMENT BARS (EPOXY COATED)	4,420	POUND
(1)	C.I.P. CONC. PILE DEL'D. 16"	640	LIN. FT.
(1)	C.I.P. CONC. PILE DRIVEN 16"	640	LIN. FT.
	C.I.P. CONC. TEST PILE 90' LONG, 16"	2	EACH
	PILE POINTS, 16"	10	EACH

(1) DOES NOT INCLUDED TEST PILES

BOTH PIERS COMPUTED PILE LOADS - TONS/PILE

FACTORED DEAD LOAD	58.0
FACTORED LIVE LOAD	35.8
FACTORED OVERTURNING	0.0
*FACTORED DESIGN LOAD	93.8

* BASED ON STRENGTH I LOAD COMBINATION

BOTH PIERS REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R_n – Tons/Pile

FIELD CONTROL METHOD	Φdyn	* R_n
MnDOT Pile Formula 2012 (MPF12) $R_n = 20\sqrt{\frac{WxH}{1000}} \times \log\left(\frac{10}{S}\right)$	0.50	187.6
PDA	0.65	144.3

* R_n = (Factored Design Load) / Φdyn

PILE NOTES:

ALL PILES TO BE 16"Ø C.I.P. CONC. PILES, SEE DETAIL B201 FOR PILE SPLICES.
FOR TEST PILE LOCATIONS, SEE BRIDGE SURVEY PLAN & PROFILE SHEET.

PIER PILING SHALL BE DRIVEN TO A MINIMUM TIP ELEVATION OF 1414.0 FOR SCOUR PROTECTION.

1 - 16"Ø C.I.P. CONC. TEST PILE, ESTIMATED LENGTH 90 FT. (PIER 1)
1 - 16"Ø C.I.P. CONC. TEST PILE, ESTIMATED LENGTH 90 FT. (PIER 2)
4 - 16"Ø C.I.P. CONC. PILES, ESTIMATED LENGTH 80 FT. (PIER 1)
4 - 16"Ø C.I.P. CONC. PILES, ESTIMATED LENGTH 80 FT. (PIER 2)
10 - 16"Ø C.I.P. CONC. PILES REQUIRED FOR BOTH PIERS

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-28- 2013

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ROCHESTER, MN

JOB NUMBER: 0460A0898

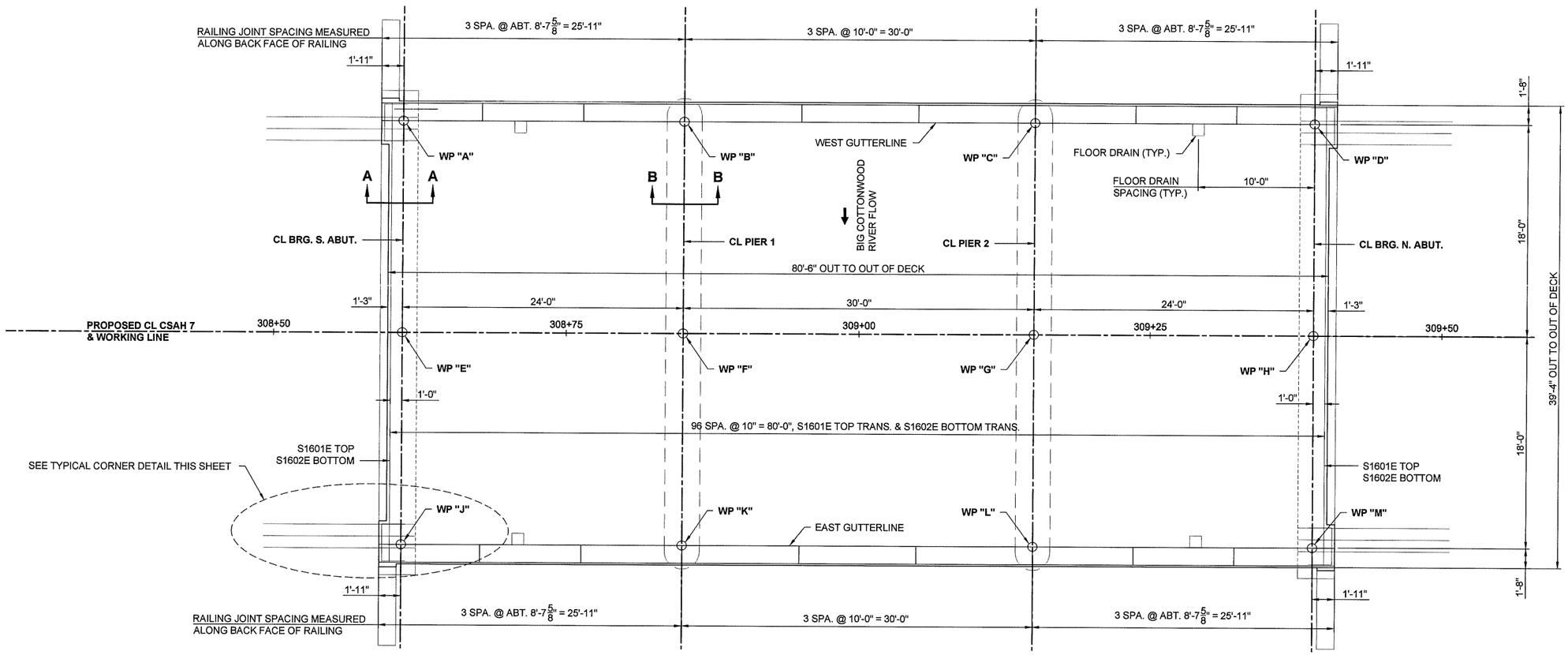
S.A.P. 042-607-026

PIER DETAILS

APPROVED

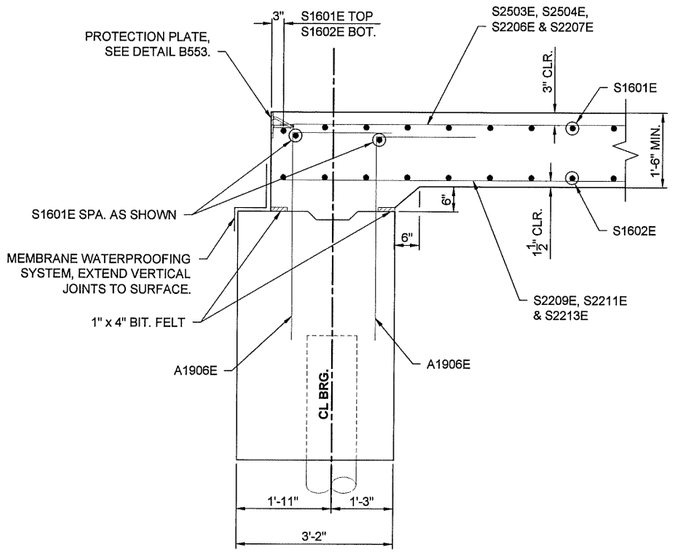
DES. BY T.J.M.	DR. BY J.J.E.		BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.		

SHEET NO. B10 OF B27 SHEETS



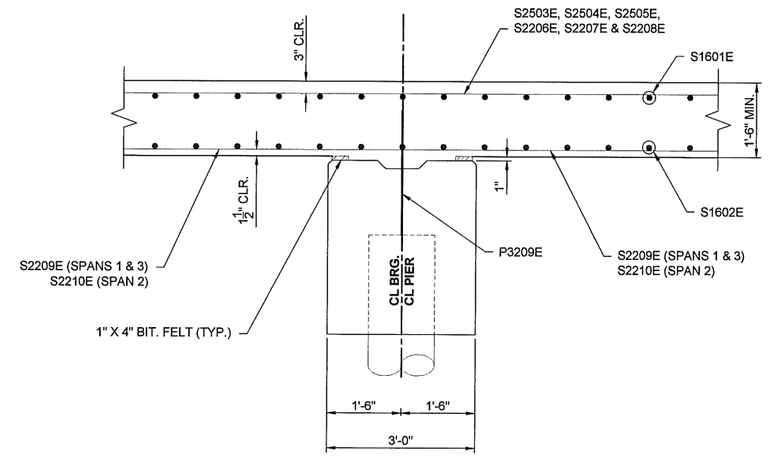
DECK PLAN

SCALE (IN FEET)



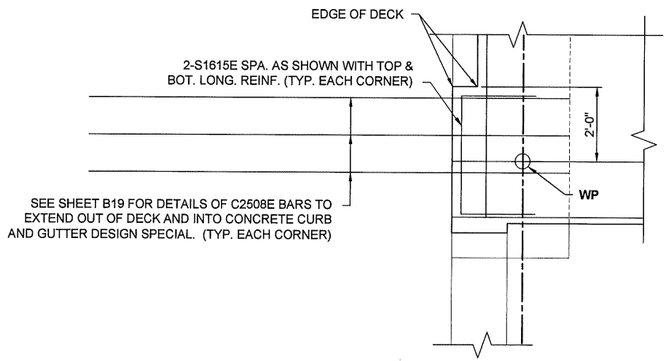
SECTION "A-A" THRU ABUTMENT

SCALE (IN FEET)



SECTION "B-B" THRU PIER

SCALE (IN FEET)



TYPICAL CORNER DETAIL

SCALE (IN FEET)

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 7-9-2012

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ROCHESTER, MN

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

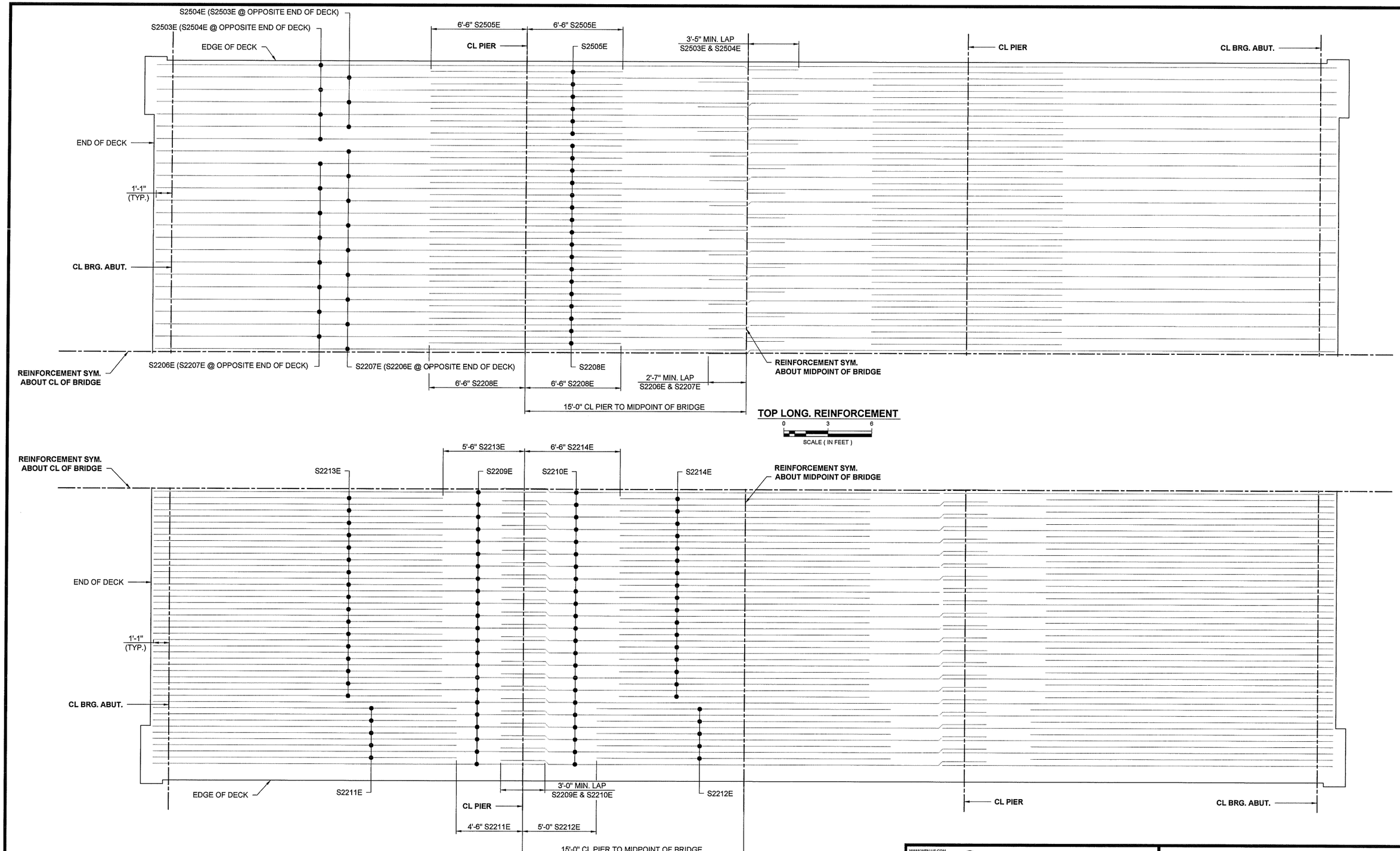
SUPERSTRUCTURE LAYOUT

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

SHEET NO. B11 OF B27 SHEETS

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\C-BR-898-DECK LAYOUT.dwg, 2/8/2012 3:41:54 PM, Gary.Moorman



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CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9-2012

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

SHEET NO. B12 OF B27 SHEETS

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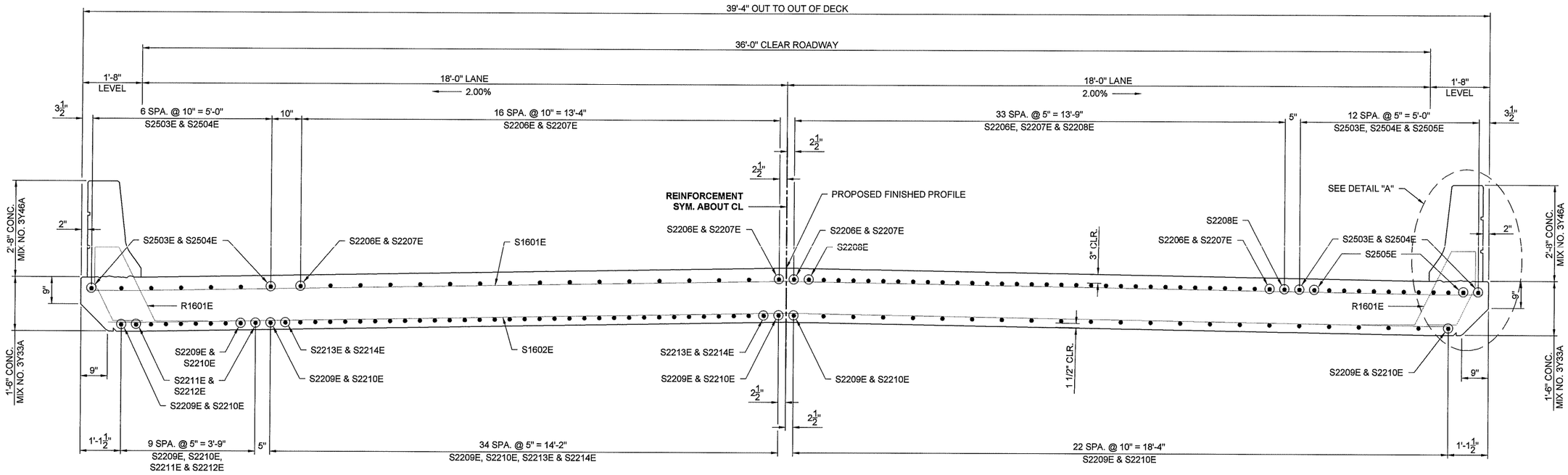
WIDSETH SMITH NOLTING
ARCHITECTS ALEXANDRIA, MN
ENGINEERS BAXTER, MN
ENVIRONMENTAL SERVICES BEMIDJI, MN
LAND SURVEYORS CROOKSTON, MN
WATER RESOURCES GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

SUPERSTRUCTURE REINFORCEMENT

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	



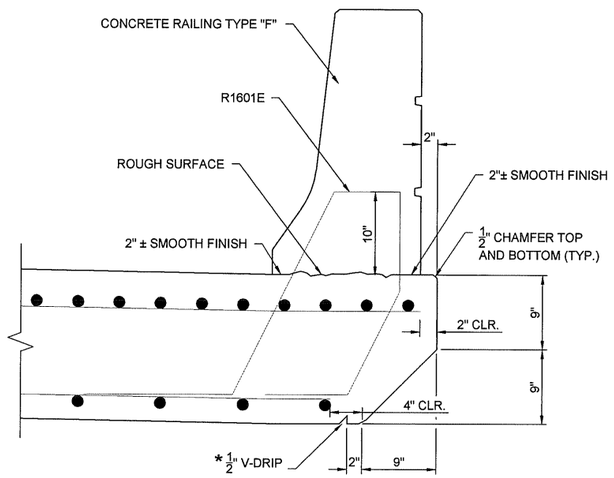
SHOWING REINFORCEMENT AT CL OF SPAN

TRANSVERSE SECTION THRU DECK

0 1.5 3

SCALE (IN FEET)

SHOWING REINFORCEMENT AT CL OF PIER



DETAIL "A"

0 0.75 1.5

SCALE (IN FEET)

* STOP V-DRIP GROOVE 1 FT. FROM FACE OF ABUTMENT AND PIER.

NOTE:

1. RAILING CONCRETE SHALL NOT BE PLACED WHILE SLAB IS SUPPORTED ON FORMWORK.

BILL OF REINFORCEMENT FOR SUPERSTRUCTURE

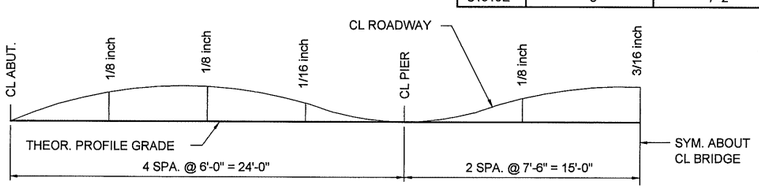
BAR	NO.	LENGTH	SHAPE	LOCATION
S1601E	101	39'-0"	STRAIGHT	TOP TRANS.
S1602E	97	37'-2"	STRAIGHT	BOTTOM TRANS.
S2503E	14	43'-6"	STRAIGHT	TOP LONG.
S2504E	14	40'-1"	STRAIGHT	TOP LONG.
S2505E	24	13'-0"	STRAIGHT	TOP LONG.
S2206E	34	42'-8"	STRAIGHT	TOP LONG.
S2207E	34	40'-1"	STRAIGHT	TOP LONG.
S2208E	68	13'-0"	STRAIGHT	TOP LONG.
S2209E	92	26'-7"	STRAIGHT	BOTTOM LONG.
S2210E	46	33'-0"	STRAIGHT	BOTTOM LONG.
S2211E	20	20'-7"	STRAIGHT	BOTTOM LONG.
S2212E	10	20'-0"	STRAIGHT	BOTTOM LONG.
S2213E	68	19'-7"	STRAIGHT	BOTTOM LONG.
S2214E	34	17'-0"	STRAIGHT	BOTTOM LONG.
S1615E	8	7'-2"	BENT	ADDTL. CORNER

LIST OF PREFORMED JOINT FILLER

TYPE	LIN. FT.	SIZE	LOCATION
BIT. FELT	158'	1" x 4"	ABUT.
BIT. FELT	152'	1" x 4"	PIER

SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

(1)	BRIDGE SLAB CONC. (3Y33A)	3,166	SQ. FT.
(2)	REINFORCEMENT BARS (EPOXY COATED)	36,270	POUND
(5)	TYPE F RAILING CONCRETE (3Y46A)	164	LIN. FT.
(4)(3)	BRIDGE NAME PLATE (DETAIL B101)	1	EACH
	FLOOR DRAIN TYPE (B702) MODIFIED	4	EACH
	STRUCTURAL STEEL (3306)	540	POUND
(6)(3)	MEMBRANE WATERPROOFING SYSTEM	88	LIN. FT.
(4)(3)	PREFORMED JOINT FILLER (SEE LIST)		

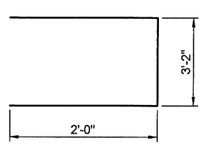


NOTE:
THE ABOVE DIAGRAM SHOWS THE CAMBER REQUIRED FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION. THESE FIGURES DO NOT INCLUDE ANY ALLOWANCE FOR SETTLEMENT OF FORMS.

CAMBER DIAGRAM

NO SCALE

BAR SHAPES:



A1615E

(1) APPROX. VOLUME 180 CU. YD.

(2) INCLUDES RAILING REINFORCEMENT.

(3) TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

(4) SEE SPECIAL PROVISIONS.

(5) APPROX. VOLUME 18 CU. YD.

(6) EXTEND WATERPROOFING FOR VERTICAL JOINTS TO SURFACE OF DECK.

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9- 2012

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

SHEET NO. B13 OF B27 SHEETS

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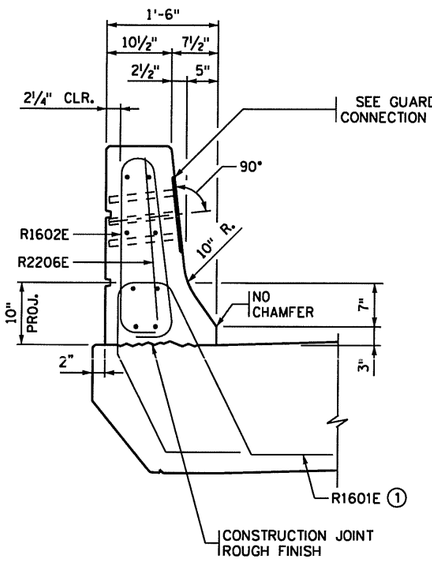
LAND SURVEYORS CROOKSTON, MN
WATER RESOURCES GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

SUPERSTRUCTURE DETAILS

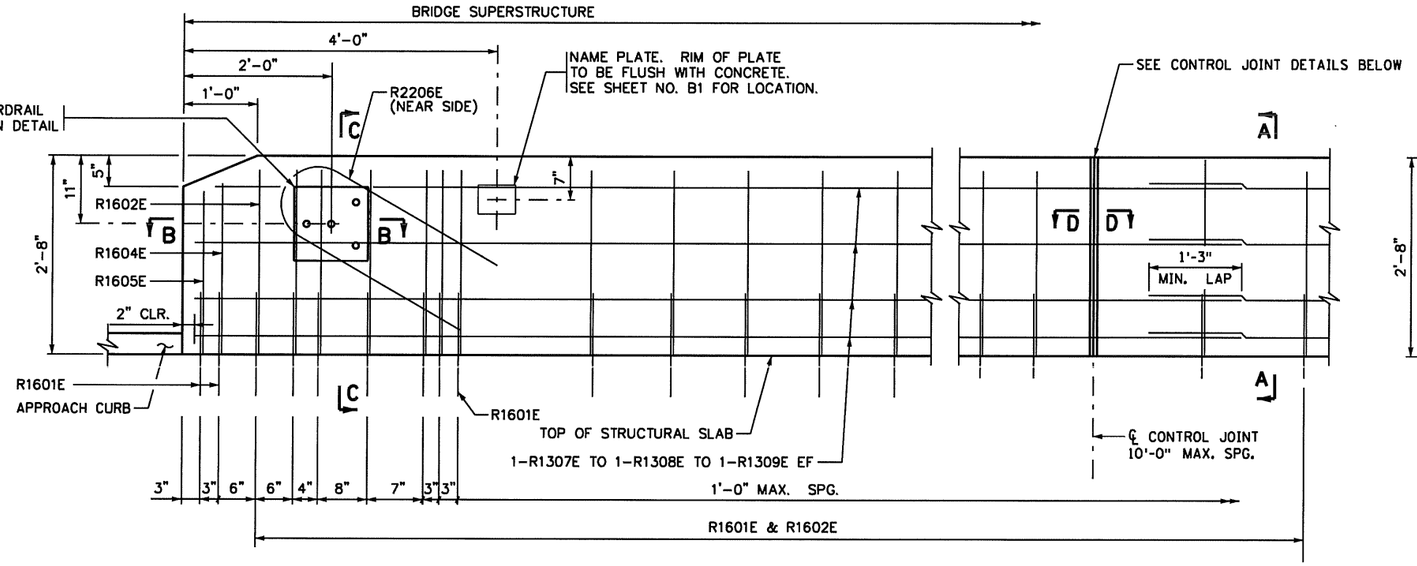
APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

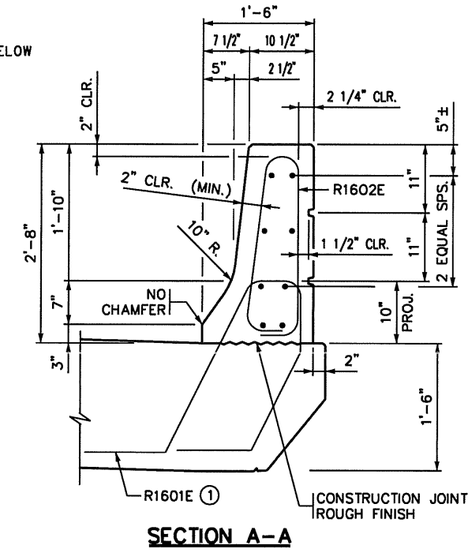
J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\C-BR-898-DECK REINF.dwg, 2/8/2012 2:48:37 PM, Gary.Mcorman



SECTION C-C



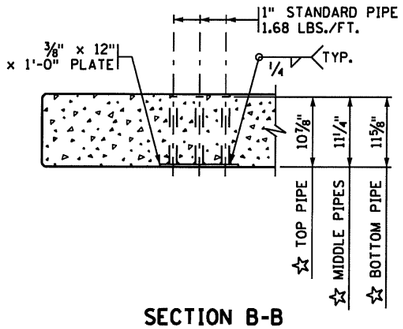
CONTROL JOINT



SECTION A-A

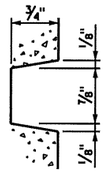
INSIDE ELEVATION OF BARRIER

BARRIER MEETS TEST LEVEL 4 REQUIREMENTS OF NCHRP REPORT 350

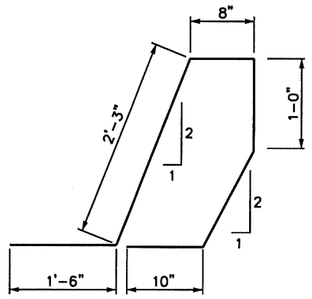


SECTION B-B

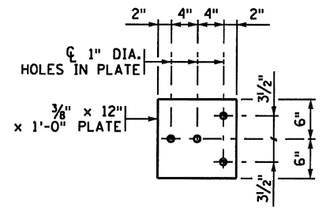
(REINFORCEMENT NOT SHOWN)
☆ DIMENSIONS INCLUDE ⅜" PLATE



BARRIER RUSTICATION

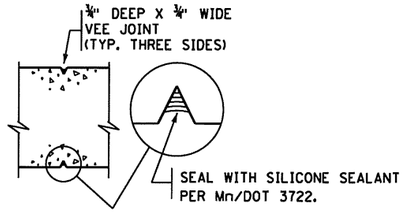


R1601E



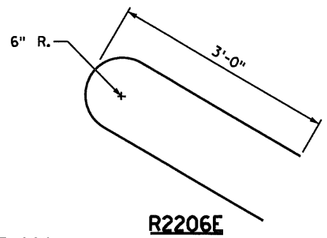
GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394
ESTIMATED WEIGHT = 22 LBS

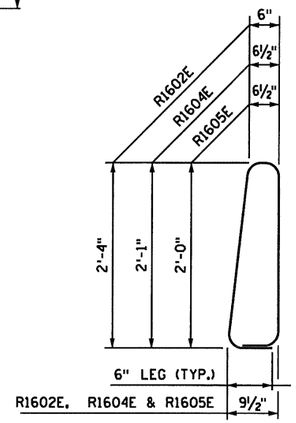


SECTION D-D

CONTROL JOINT DETAILS



R2206E



R1602E, R1604E & R1605E

BILL OF REINFORCEMENT FOR RAILING

BAR	NO.	LENGTH	SHAPE	LOCATION
R1601E	184	7'-5"		RAIL DOWEL
R1602E	176	6'-3"		RAIL VERTICAL
R1604E	4	5'-9"		RAIL VERTICAL
R1605E	4	5'-7"		RAIL VERTICAL
R2206E	4	6'-6"		RAIL VERTICAL
R1307E	16	40'-0"		RAIL LONGITUDINAL
R1308E	16	30'-0"		RAIL LONGITUDINAL
R1309E	16	14'-0"		RAIL LONGITUDINAL

GENERAL NOTES

LENGTH OF "TYPE F (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" FOR PAYMENT SHALL BE MEASURED BETWEEN THE OUTSIDE FACES OF THE CONCRETE BARRIER.

CONCRETE BARRIER = 439 LBS./FT. (0.108 CU. YDS./FT.)

FINISH ALL EDGES OF BARRIER WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

MAXIMUM SPACING OF CONCRETE CONTROL JOINTS SHALL BE 10 FT.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, Mn/DOT SPEC. 3306.

GUARDRAIL CONNECTION AND NAME PLATE TO BE CONSIDERED INCIDENTAL TO "TYPE F (TL-4) RAILING CONCRETE (3Y46 OR 3Y46A)" .

BARRIER QUANTITIES ARE LISTED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

① PLACE BAR ON TOP OF BOTTOM REINFORCEMENT MAT.

REVISED: 05-26-2006

APPROVED: DECEMBER 18, 2003
STATE BRIDGE ENGINEER

S.A.P. 042-607-026

CERTIFIED BY _____ 2-7-12
LICENSED PROFESSIONAL ENGINEER — DATE

NAME: KENT A. ROHR LIC. NO. 21179

WSN 0460A0898

TITLE: CONCRETE BARRIER (TYPE F, TL-4)
WITH INTEGRAL END POST
(WITHOUT CONCRETE WEARING COURSE)

DES: J.R.R. DR: J.J.E.
CHK: K.A.R. CHK: T.J.M.

APPROVED:

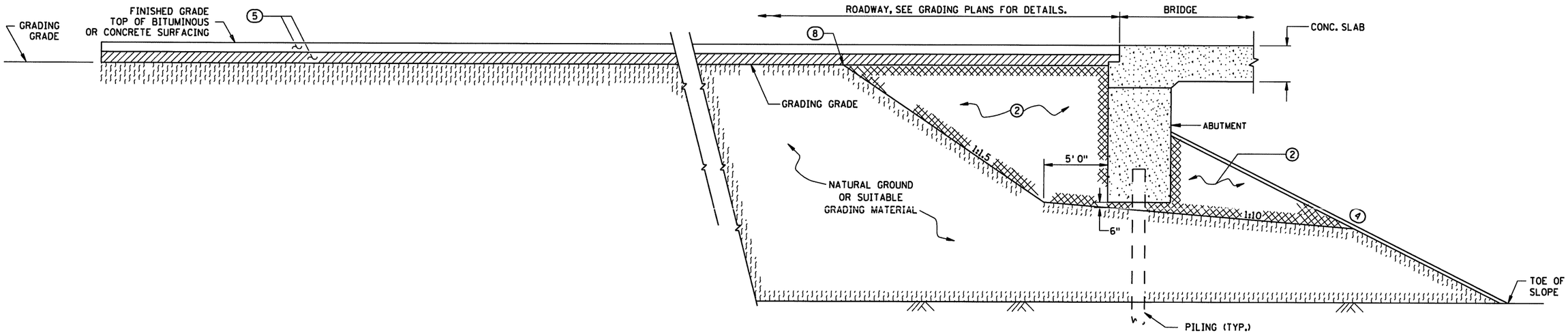
FIG. 5-397.115

BRIDGE NO. 42567

SHEET NO. B14 OF B27 SHEETS

DATE: 2/8/2012
TIME: 3:05:08 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\CivilMicroStation-Detail-Sheets\fig7115e.dgn
FILE NAME: ...\fig7115e.dgn

NOTE: NO APPROACH PANELS ON THIS PROJECT.



ELEVATION

FINISHED GRADING SECTION
(INTEGRAL ABUTMENT ON PILING SHOWN)
(AFTER ABUTMENT HAS BEEN CONSTRUCTED)

NOTES:

1. ~~SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.~~
2. QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. ~~SEE GRADING PLAN FOR QUANTITY.~~ IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
3. ~~PLACE ABUTMENT APPROACH SURCHARGE MATERIAL PRIOR TO ABUTMENT CONSTRUCTION. AFTER COMPLETION OF SURCHARGE WAITING PERIOD, REMOVE SURCHARGE AND EXISTING NATURAL GROUND OR SUITABLE GRADING MATERIAL TO THE LIMITS SHOWN IN "ROUGH GRADING SECTION" ABOVE, PRIOR TO ABUTMENT CONSTRUCTION. SEE BRIDGE PLANS AND SPECIAL PROVISIONS FOR ABUTMENT APPROACH SURCHARGE REQUIREMENT AND PAYMENTS.~~
4. SEE BRIDGE PLANS FOR SLOPE AND SLOPE PROTECTION.
5. SEE GRADING PLANS FOR TYPE OF MATERIAL.
6. ~~START 1:20 TAPER AT END OF APPROACH PANEL. 1:20 VARIES WHEN APPROACH PANEL IS SKEWED.~~
7. ~~GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.~~
8. TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).
9. ~~SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.~~
10. ~~PLACE 12 MIL POLYETHYLENE SHEETING (OR TWO LAYERS OF OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCIDENTAL.~~
11. ~~SEE GRADING PLANS FOR UTILIZATION OF 1:20 TAPER UNDER ROADWAY AND QUANTITIES.~~

CERTIFIED BY Kent A. Rohr 2-9-12
LICENSED PROFESSIONAL ENGINEER — DATE
NAME: KENT A. ROHR — LIC. NO. 21179

WSN 0460A0898

MODIFIED

BR. 42567

~~STANDARD SHEET NO.~~ 5-297.234 (1 OF 2)
~~STANDARD APPROVED:~~ AUGUST 1, 2011

TITLE: BRIDGE ABUTMENT APPROACH TREATMENT FOR INTEGRAL ABUTMENTS

STATE AID PROJ. NO. 042-607-026 — SHEET NO. B15 OF B27 SHEETS

DATE: 2/8/2012
TIME: 3:05:09 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\MICROSTATION-DETAIL-SHEETS\s234_1_sprd.dgn
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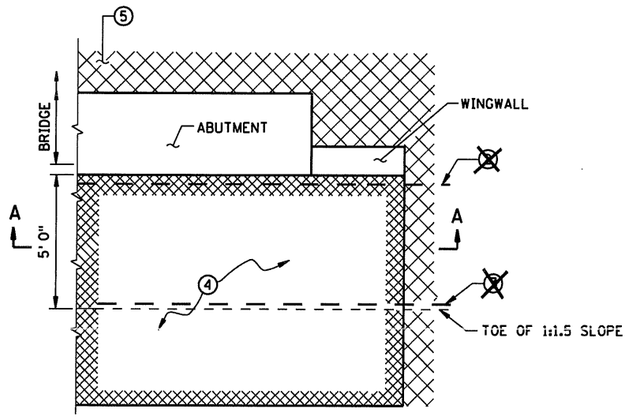
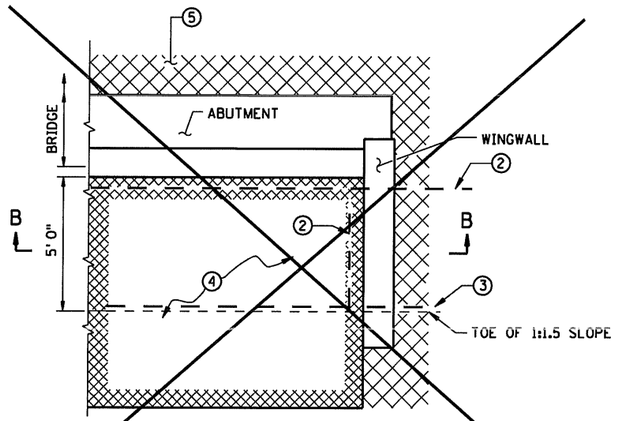
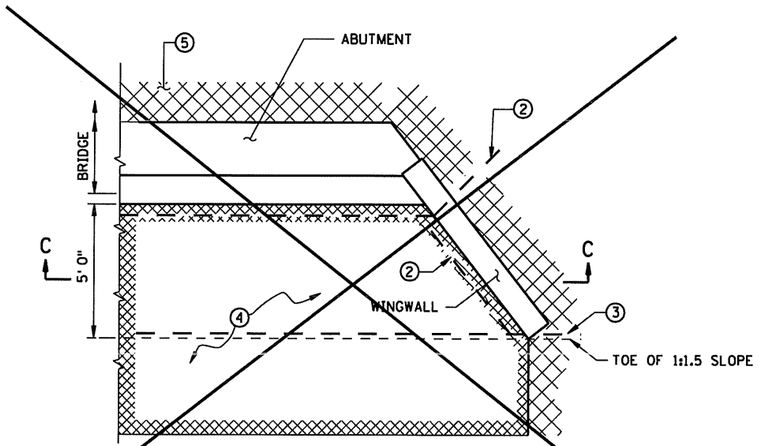


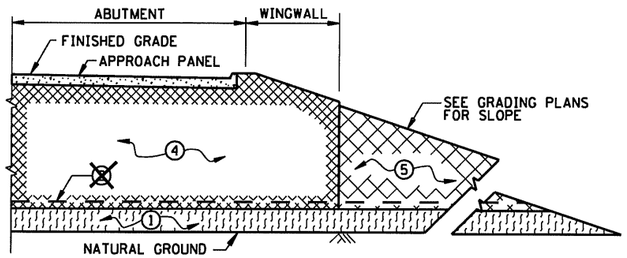
PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT 180°) (FINISHED GRADING)



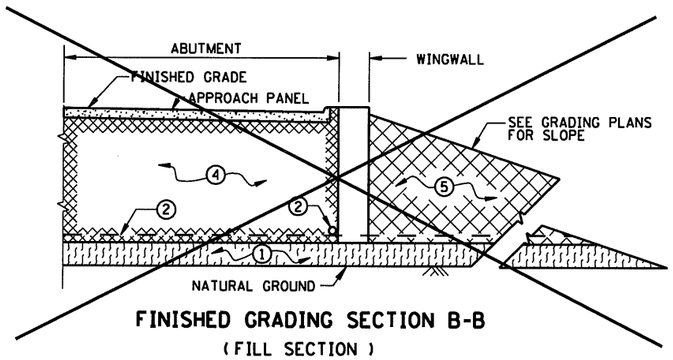
PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT 90°) (FINISHED GRADING)



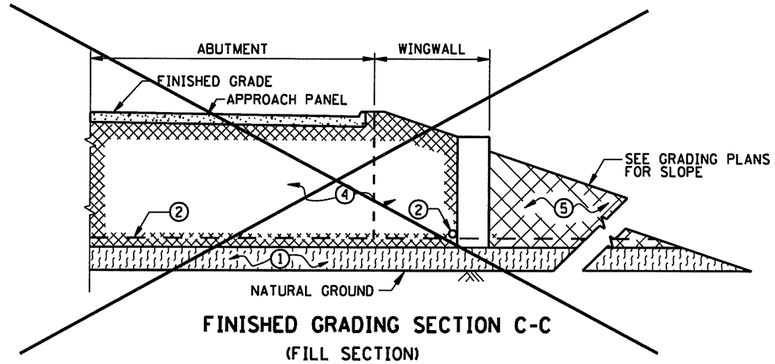
PARTIAL PLAN VIEW AT ABUTMENT
(WINGWALL AT ANY OTHER ANGLE) (FINISHED GRADING)



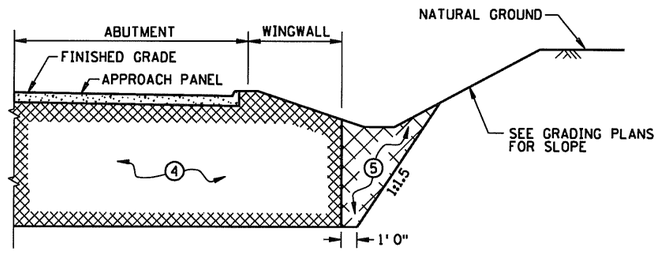
FINISHED GRADING SECTION A-A
(FILL SECTION)



FINISHED GRADING SECTION B-B
(FILL SECTION)



FINISHED GRADING SECTION C-C
(FILL SECTION)



FINISHED GRADING SECTION A-A
(CUT SECTION)
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)

NOTES:

① NATURAL GROUND OR SUITABLE GRADING MATERIAL.

~~② SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.~~

~~③ SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.~~

④ QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. ~~SEE GRADING PLAN FOR QUANTITY.~~ IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.

⑤ SUITABLE GRADING MATERIAL.

MODIFIED

BR. 42567

STANDARD SHEET NO. ~~5-297.234 (2 OF 2)~~

STANDARD APPROVED: ~~AUGUST 1, 2011~~

TITLE: BRIDGE ABUTMENT APPROACH TREATMENT FOR INTEGRAL ABUTMENTS

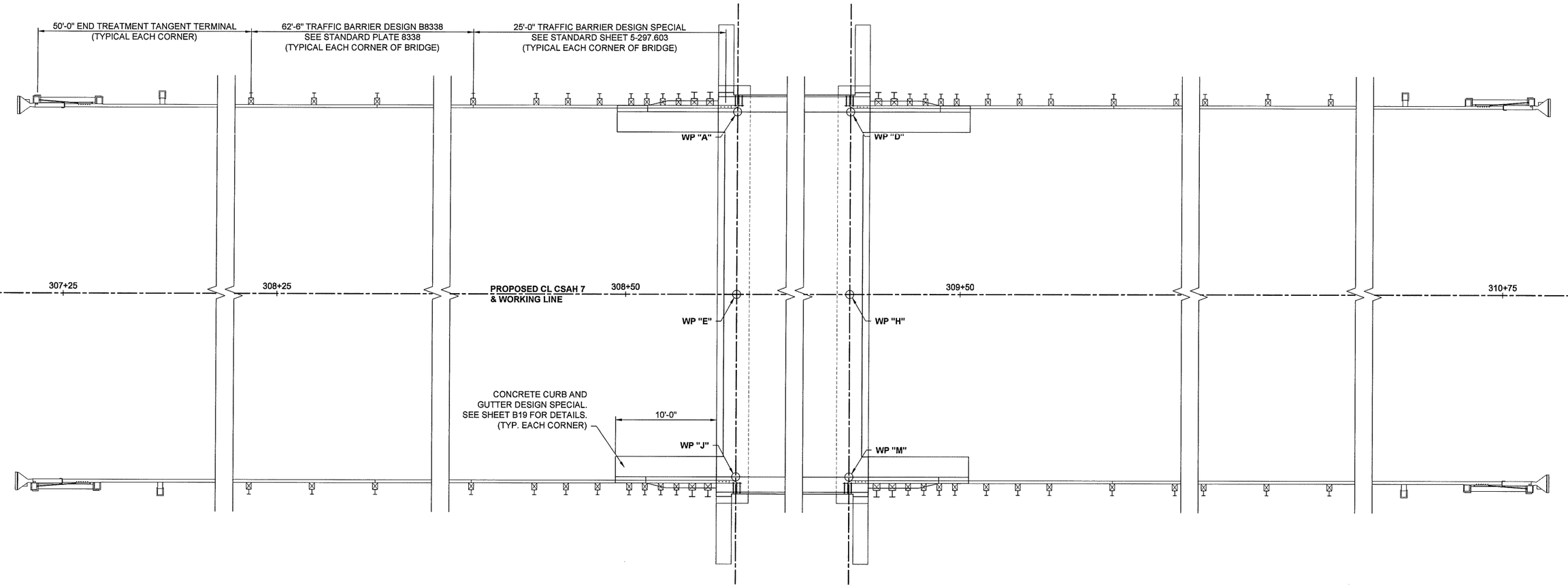
CERTIFIED BY _____ 7-9-12
LICENSED PROFESSIONAL ENGINEER DATE

NAME: KENT A. ROHR LIC. NO. 21179

WSN 0460A0898

STATE AID PROJ. NO. 042-607-026 SHEET NO. B16 OF B27 SHEETS

FILE NAME: ...\s234_2_spn.dgn
DATE: 2/8/2012
TIME: 3:05:09 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\CIVIL\MICROSTATION-DETAIL-SHEETS\s234_2_spn.dgn



GUARDRAIL LAYOUT

0 5 10

SCALE (IN FEET)

NORTH

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 7-9- 2012

JOB NUMBER: 0460A0898

S.A.P. 042-607-026

SHEET NO. B17 OF B27 SHEETS

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WIDSETH SMITH NOLTING
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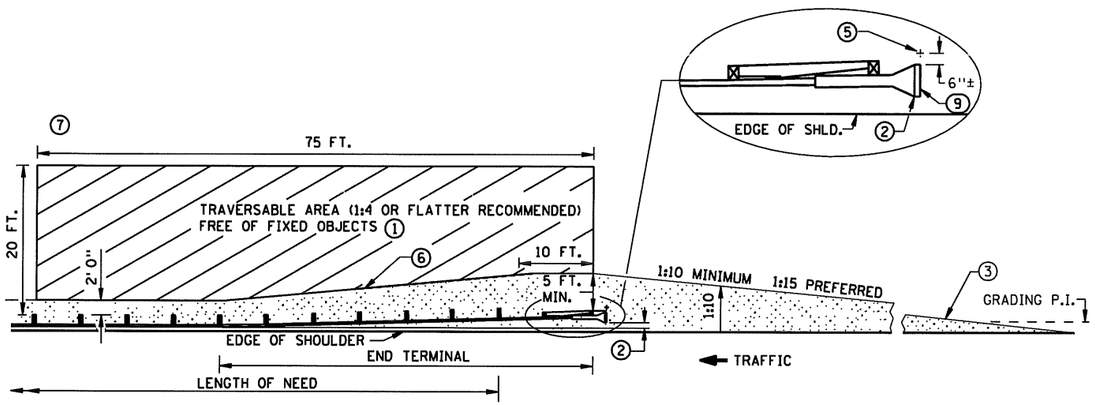
LAND SURVEYORS CROOKSTON, MN
WATER RESOURCES GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

GUARDRAIL LAYOUT

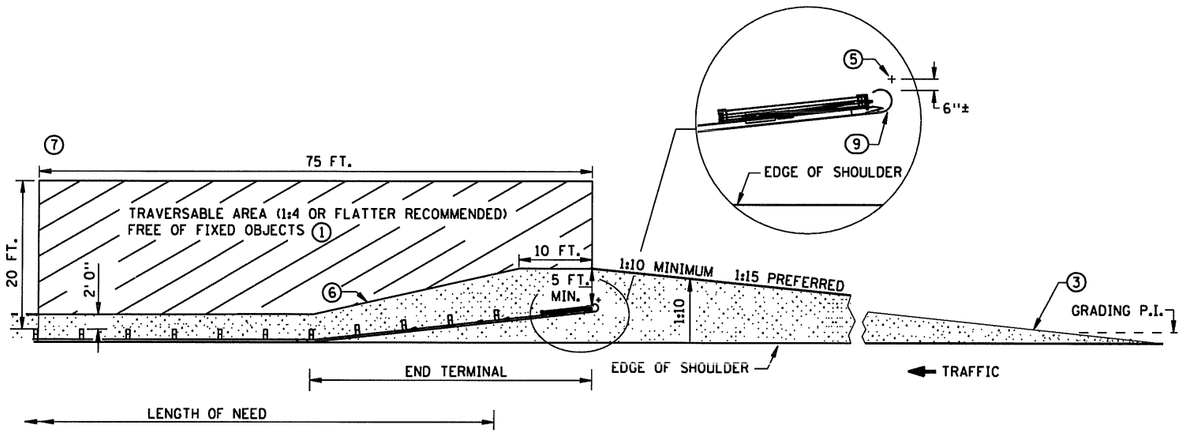
APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO.
CHK. BY K.A.R.	CHK. BY T.J.M.	42567



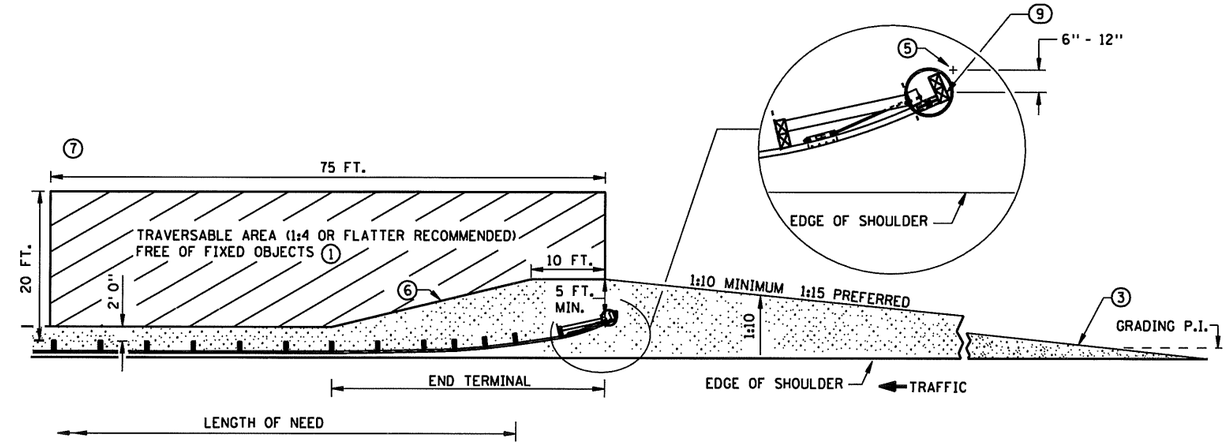
PLAN VIEW

(PROPRIETARY TANGENT TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ⑧

(PROPRIETARY FLARED TERMINAL SHOWN AS EXAMPLE)



PLAN VIEW ④ ⑧

(ELT)

NOTES:

ALL CROSS SLOPES ARE IN FOOT/FOOT UNLESS OTHERWISE NOTED.

ALL GUARDRAIL POSTS SHALL BE 6 FT. 3 IN. CENTER TO CENTER (DESIGN B), EXCEPT WHERE NOTED.

CHANGES (TO SUBJECTS COVERED BY THIS SHEET) INDICATED IN THE PLANS OR ON PLATES WITH MORE RECENT APPROVAL DATES SHALL APPLY.

GRADING AND DRAINAGE HARDWARE ARE NOT INCIDENTAL TO GUARDRAIL INSTALLATION.

① SLOPES BETWEEN 1:3 AND 1:4 PERMITTED WHEN 1:4 OR FLATTER IS NOT POSSIBLE. FOR SLOPES STEEPER THAN 1:3 THE AREA IMMEDIATELY BEHIND AND BEYOND THE END TERMINAL SHOULD, AT LEAST, BE SIMILAR IN CROSS SECTION TO THE UNSHIELDED ROADSIDE AREA UPSTREAM OF THE END TERMINAL.

② THE LAST 50 FT. OF TANGENT TERMINALS CAN BE FLARED AT 1:50 TAPER.

③ WHEN GRADING PLATFORMS ARE BUILT, THEY MUST BE SMOOTHLY TRANSITIONED TO EXISTING SIDE SLOPE SO THE ENTIRE ROADSIDE APPROACH TO THE BARRIER REMAINS TRAVERSABLE, AS WELL AS THE AREA IMMEDIATELY BEHIND IT.

④ SEE STANDARD PLATE 8329.

⑤ SNOWPLOW MARKER (X4-5) WITH A 2 LB./FT. DELINEATOR POST 8 FT. LONG (SPEC. 3401) DRIVEN INTO THE GROUND. EXTEND 3 FT. ABOVE TERMINAL. THE MARKER IS INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE. MARK BOTH THE BEGINNING AND END OF PLATE BEAM GUARDRAIL INSTALLATION.

⑥ 1:10 OR FLATTER SLOPE P.I.

⑦ GRADUALLY BLEND SLOPE FROM TRAVERSABLE AREA TO STEEP EXISTING SLOPE (WHEN SLOPE IS STEEPER THAN 1:6).

⑧ IF THE TERRAIN BEYOND THE TERMINAL END AND IMMEDIATELY BEHIND THE BARRIER IS NOT SAFELY TRAVERSABLE, A TANGENT (ENERGY- ABSORBING) TERMINAL SHALL BE USED.

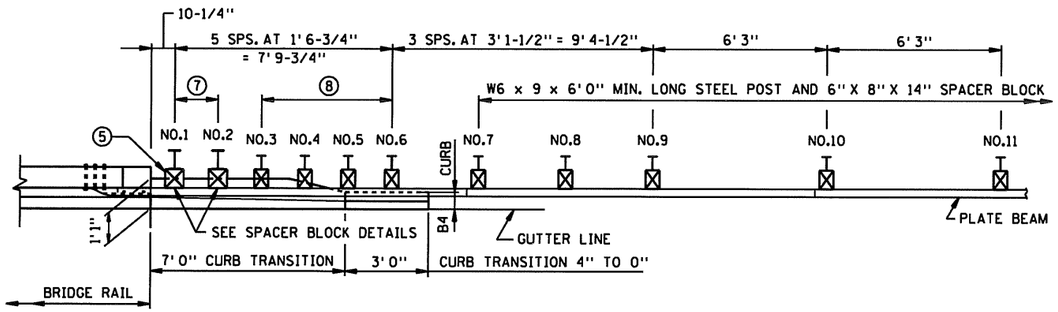
⑨ MARK THE APPROACH END OF PLATE BEAM GUARDRAIL INSTALLATIONS WITH A STRIPED OBJECT MARKER SIZED TO FIT THE END TERMINAL, HAVING ALTERNATING BLACK AND REFLECTIVE YELLOW (WIDE ANGLE PRISMATIC RETROREFLECTIVE SHEETING). STRIPES SHALL SLOPE DOWNWARD AT A 45 DEGREE ANGLE TOWARD THE SIDE ON WHICH TRAFFIC PASSES. FOR FLAT END TREATMENTS THE OBJECT MARKER SHALL FIT INSIDE THE RECESSED AREA. FOR ROUNDED END TREATMENTS THE OBJECT MARKER SHALL WRAP AROUND THE CIRCULAR END AND BE MOUNTED SO THE TOP OF THE OBJECT MARKER LINES UP WITH THE TOP OF THE END TREATMENT.

BR. 42567

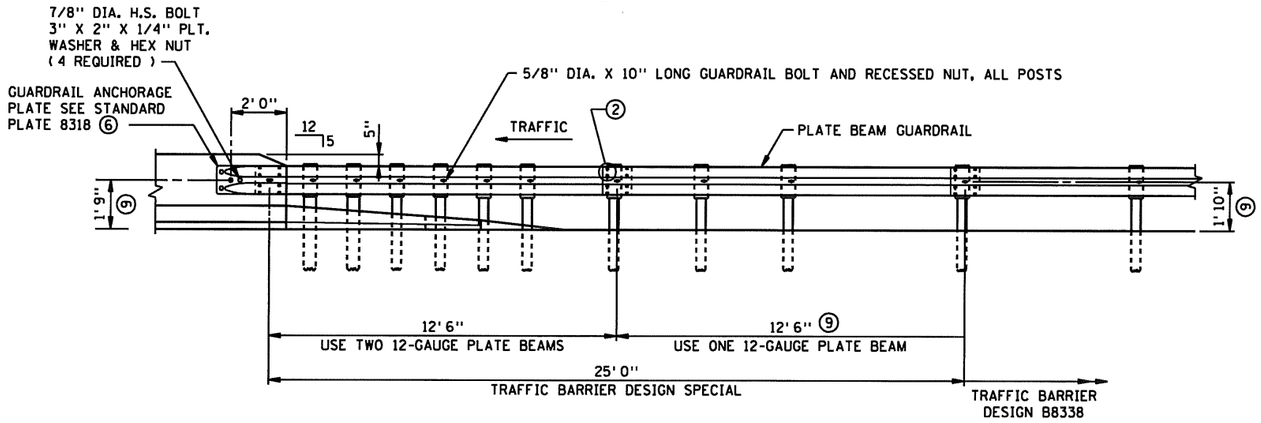
WSN 0460A0898

STANDARD SHEET NO. 5-297.601 (3 OF 3)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS & END TREATMENTS
STANDARD APPROVED: MARCH 23, 2011	(FOR NEW CONSTRUCTION AND RETROFITS WITHOUT SITE RESTRICTIONS)
STATE AID PROJ. NO. 042-607-026	SHEET NO. B18 OF B27 SHEETS

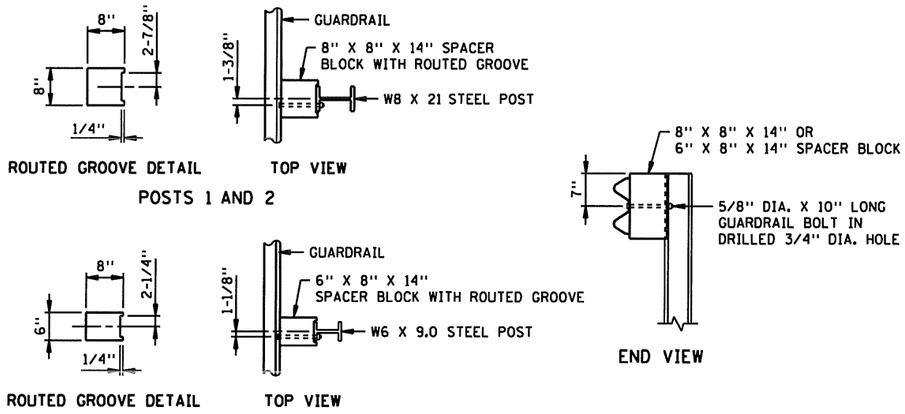
DATE: 2/8/2012
TIME: 3:05:09 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\CIVIL\MICROSTATION-DETAIL-SHEETS\s601_3_spn.dgn
FILE NAME: ...\s601_3_spn.dgn



PLAN



ELEVATION



SPACER BLOCK DETAILS

BILL OF REINFORCEMENT ⑪③ FOR CURB TRANSITION

~~CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.~~

BAR	NO.	LENGTH	SHAPE	LOCATION
C1301E	4	4'0"	⌐	CURB VERTICAL
C1302E	4	4'3"	⌐	CURB VERTICAL
C1303E	4	4'6"	⌐	CURB VERTICAL
C1304E	4	4'9"	⌐	CURB VERTICAL
C1305E	4	4'11"	⌐	CURB VERTICAL
C1306E	4	6'9"	—	CURB LONGITUDINAL
C1307E	28	3'3"	⌐⌐	CURB TRANSVERSE
C2508E	12	12'3"	—	CURB LONGITUDINAL

NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

① FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.

② 5/8" DIA. X 1-1/4" LONG GUARDRAIL BOLTS AND NUTS TYPICAL AT SPLICES.

③ AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.

④ SLOPE TO MATCH BRIDGE CROSS SLOPE.

⑤ ADDITIONAL BLOCKING MAY BE REQUIRED TO CLEAR BRIDGE STRUCTURE. VERIFY IN FIELD.

⑥ SANDWICH ANCHOR PLATE BETWEEN RAIL BEAMS.

⑦ POSTS 1 AND 2 TO BE W8 x 21 X 8'0" MINIMUM LONG STEEL POST AND 8" X 8" X 14" SPACER BLOCK.

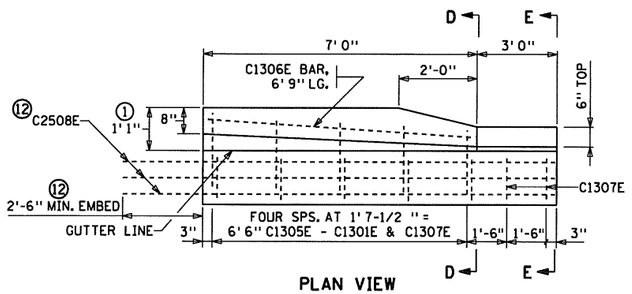
⑧ POSTS 3, 4, 5, AND 6 TO BE W6 x 9 X 6'0" MIN. LONG STEEL POST AND 6" X 8" X 14" SPACER BLOCK.

⑨ GUARDRAIL CENTERLINE HEIGHT IS 1'-9" FROM 0' TO 12'-6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 1'-9" TO 1'-10" BETWEEN 12'-6" AND 25' FROM BRIDGE.

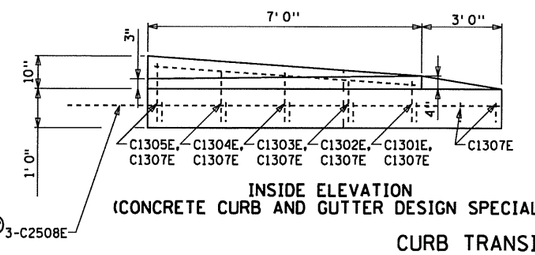
⑩ ~~MATCH DISTANCE FROM TOP OF EXISTING PAVING BRACKET TO TOP OF CONCRETE END BLOCK.~~

⑪ ALL REINFORCEMENT TO BE INCLUDED IN PRICE BID FOR ITEM NO. 2531.501 "CONCRETE CURB AND GUTTER DESIGN SPECIAL".

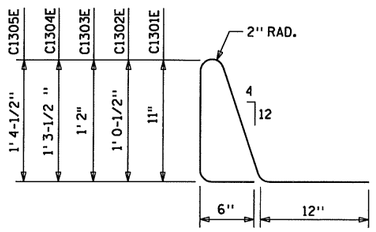
⑫ C2508E MAY BE CAST WITH OR DRILLED INTO CONCRETE DECK CONSTRUCTED AS PART OF ITEM "BRIDGE SLAB CONCRETE (3Y33A)" IF DRILLED IN OPTION IS UTILIZED, BARS SHALL BE EMBEDDED INTO SOUND CONCRETE TO A LENGTH SUFFICIENT TO DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.



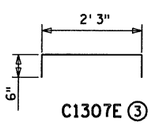
PLAN VIEW
(CONCRETE CURB AND GUTTER DESIGN SPECIAL)



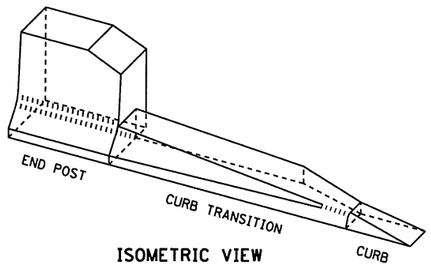
INSIDE ELEVATION
(CONCRETE CURB AND GUTTER DESIGN SPECIAL)



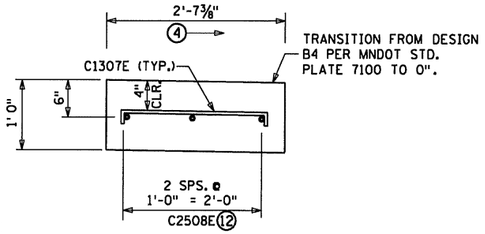
C1301E - C1305E ③



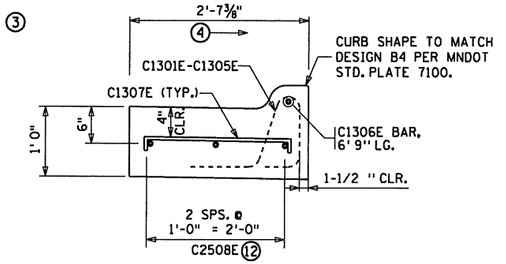
C1307E ③



ISOMETRIC VIEW



SECTION E-E



SECTION D-D

CURB TRANSITION DETAILS

F-SHAPE SAFETY BARRIER TO B4 CURB WITH W-BEAM GUARDRAIL BARRIER

WSN 0460A0898

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER 29-12 DATE

PRINTED NAME: KENT A. ROHR LIC. NO. 21179

MODIFIED

~~STANDARD SHEET NO. 5-297.603~~

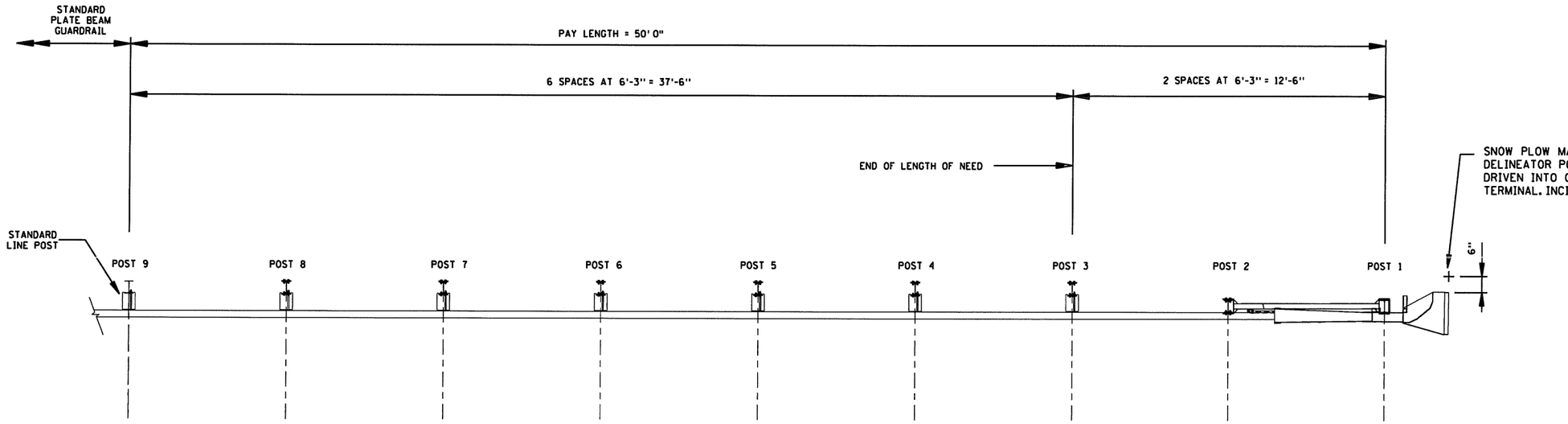
~~STANDARD APPROVED: MARCH 23, 2011~~

BRIDGE NO. 42567 TRAFFIC BARRIER DESIGN SPECIAL

TITLE: W-BEAM TRANSITION TO CONCRETE F-SHAPE SAFETY RAIL WITH APPROACH CURB (STEEL POST)

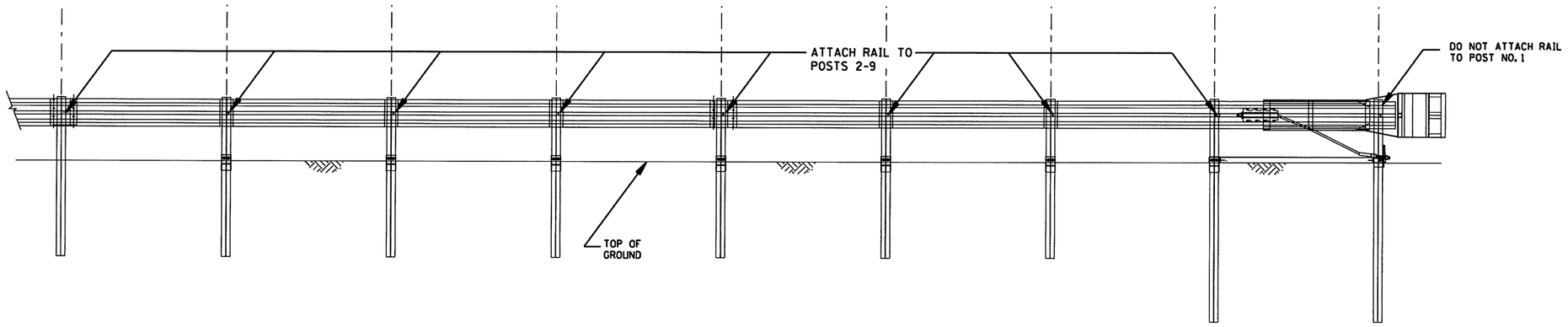
STATE AID PROJ. NO. 042-607-026 SHEET NO. B19 OF B27 SHEETS

DATE: 2/8/2012
TIME: 3:05:10 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\Civil\MICROSTATION-DETAIL-SHEETS\s603_1_spn.dgn
FILE NAME: ...\s603_1_spn.dgn



PLAN

← TRAFFIC



ELEVATION

NOTES:

A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE SKT WHERE THERE IS LESS THAN 25' BETWEEN THE OUTLET SIDE OF THE SKT AND ANY ADJACENT DRIVING LANE.

POSTS 2-9 HAVE RAIL ATTACHED WITH BOLT, WASHER, AND NUT.

THIS DRAWING IS TO BE USED ONLY FOR PICTORIAL REPRESENTATION.
DESIGN CHANGES ARE NOT ALWAYS SHOWN.

CONTACT MANUFACTURER FOR INSTALLATION INSTRUCTIONS.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

WSN 0460A0898

BR. 42567

SKT-350 END TREATMENT (STEEL BOLTED HINGED POSTS)
(ENGLISH)

REFERENCE DATE
8-1-03

STATE AID PROJ. NO. 042-607-026 SHEET NO. B20 OF B27 SHEETS

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DATE: 2/8/2012
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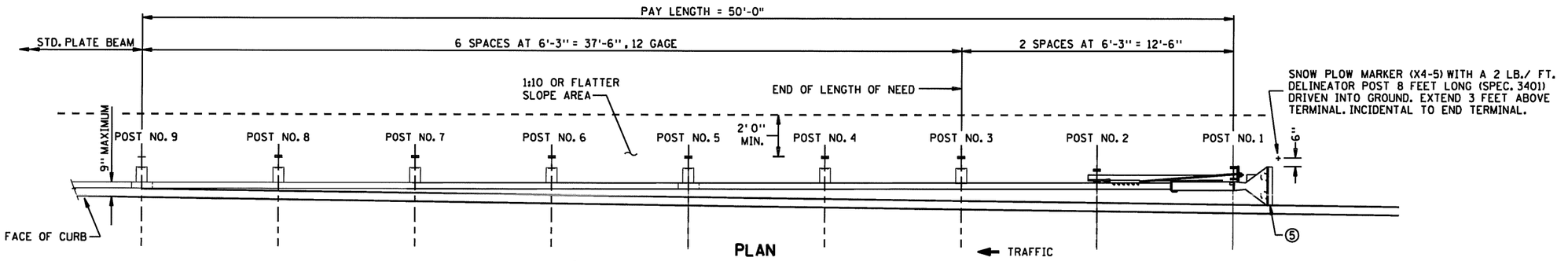

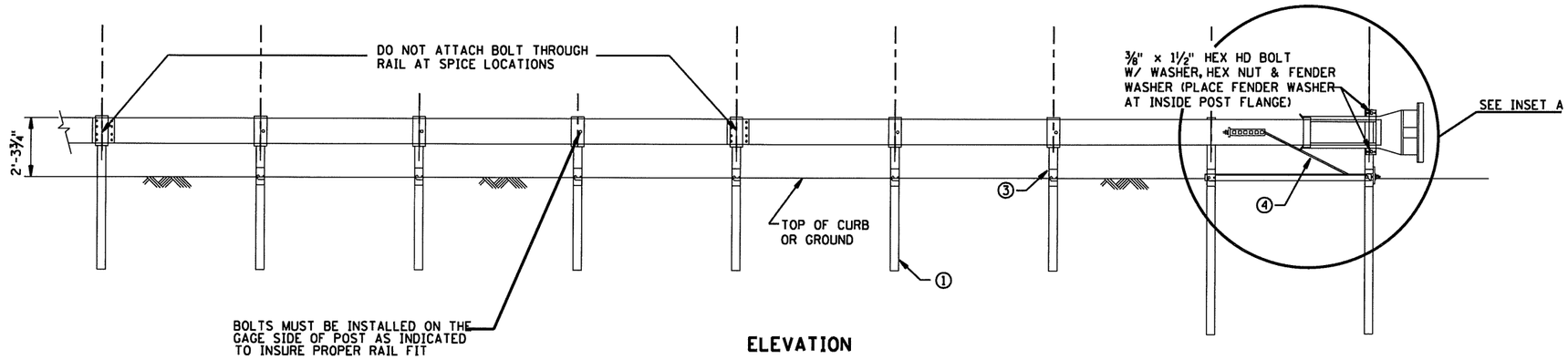

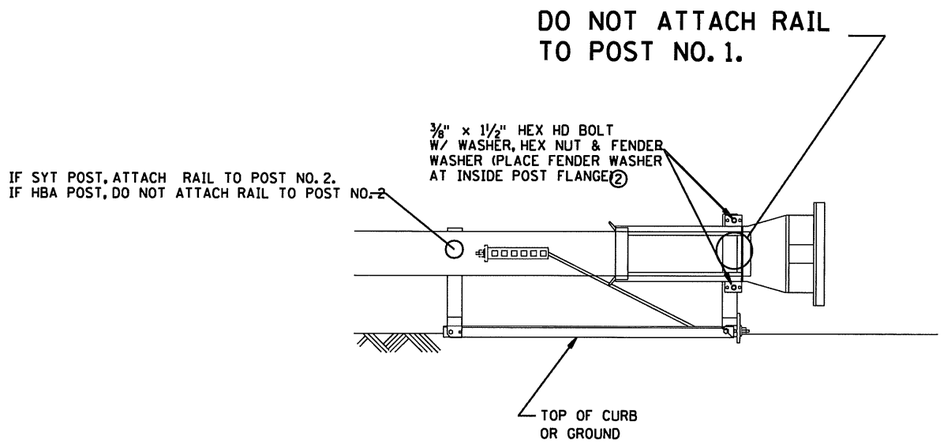

NOTES:

THIS DRAWING IS FOR INFORMATION ONLY. CONTACT THE MANUFACTURER FOR INSTALLATION INSTRUCTIONS DURING THE CONSTRUCTION PHASE.

THIS IS A PROPRIETARY ITEM AS PER SPEC. 1703.

NOTES:

① HINGED BREAKAWAY (HBA) POSTS OR STEEL YEILDING TERMINAL (SYT) POSTS ARE REQUIRED WITH THE ET-2000 AND ET-2000 PLUS.

② ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.

③ THE NON-BREAKAWAY SECTION OF THE HBA OR SYT POSTS SHALL NOT EXTEND MORE THAN 4" ABOVE THE FINISHED GROUND LINE.

④ THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT UPON COMPLETION OF INSTALLATION. PREVENT CABLE FROM TWISTING DURING INSTALLATION.

⑤ EXTRUDER HEAD OFFSETS UP TO 2' MAX. ARE ALLOWABLE USING A STRAIGHT TAPER BETWEEN POSTS 1 AND 9. SET EXTRUDER HEAD A MAX. OF 9" BEHIND FACE OF CURB.

WSN 0460A0898

BR. 42567

ET-2000 END TREATMENT (STEEL POSTS) (ENGLISH)

REFERENCE DATE 6-28-04

STATE AID PROJ. NO. 042-607-026

SHEET NO. B21 OF B27 SHEETS

DATE: 2/8/2012
TIME: 3:05:10 PM
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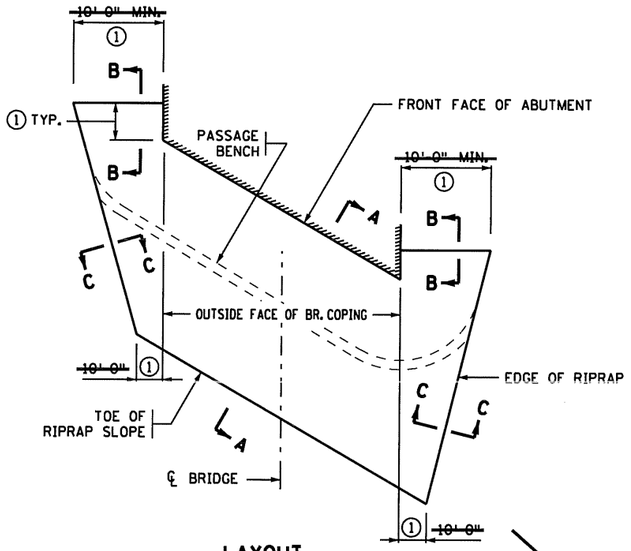
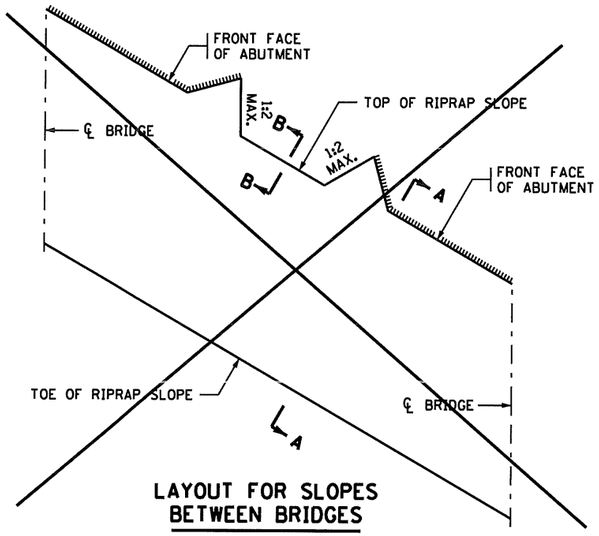


LAYOUT



LAYOUT FOR SLOPES BETWEEN BRIDGES

GENERAL NOTES

SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.

GEOTEXTILE FILTER MATERIAL AS PER Mn/DOT SPECIAL PROVISION 2511.

~~PAYMENT WILL BE MADE UNDER ITEM 2511.515 GEOTEXTILE FILTER TYPE IV (MODIFIED) BY THE SQ. YD.~~

PAYMENT WILL BE MADE UNDER ITEM 2511.503 QUARRY RUN RIPRAP CLASS IV BY THE CU. YD.

SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE : HORIZONTAL DISTANCE.

~~BENCHES TO BE SURFACED WITH AGGREGATE CLASS 5 (INCIDENTAL TO RIPRAP). BENCHES SHOULD TIE INTO NATURAL GROUNDLINES OUTSIDE OF BRIDGE.~~

SLOPE BOTTOM OF TRENCHES 1:20 PARALLEL TO ABUTMENT FACE TO PROVIDE POSITIVE DRAINAGE.

(1) SEE PLAN SHEET NO. B27 FOR DIMENSIONS, AND FOR ELEVATIONS OF RIPRAP TOE AND PASSAGE BENCHES.

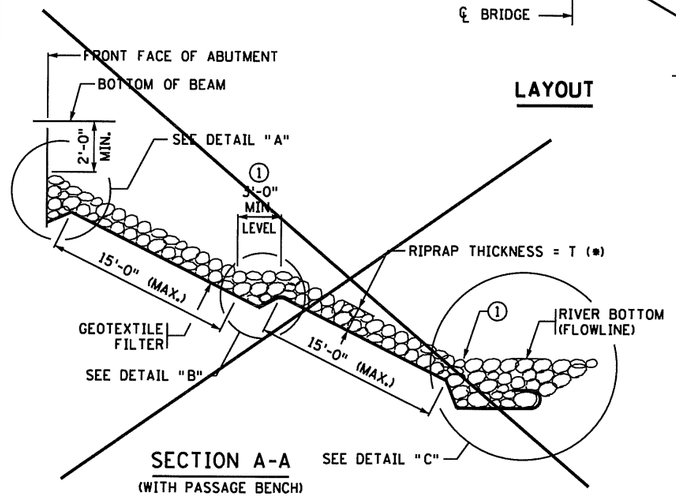
(2) PLACE RIPRAP IN TRENCH TO HOLD THE GEOTEXTILE FABRIC IN PLACE BEFORE PLACING THE REST OF THE RIPRAP (FROM THE BOTTOM OF THE SLOPE).

(3) OVERLAP GEOTEXTILE FILTER 1'-6" MINIMUM.

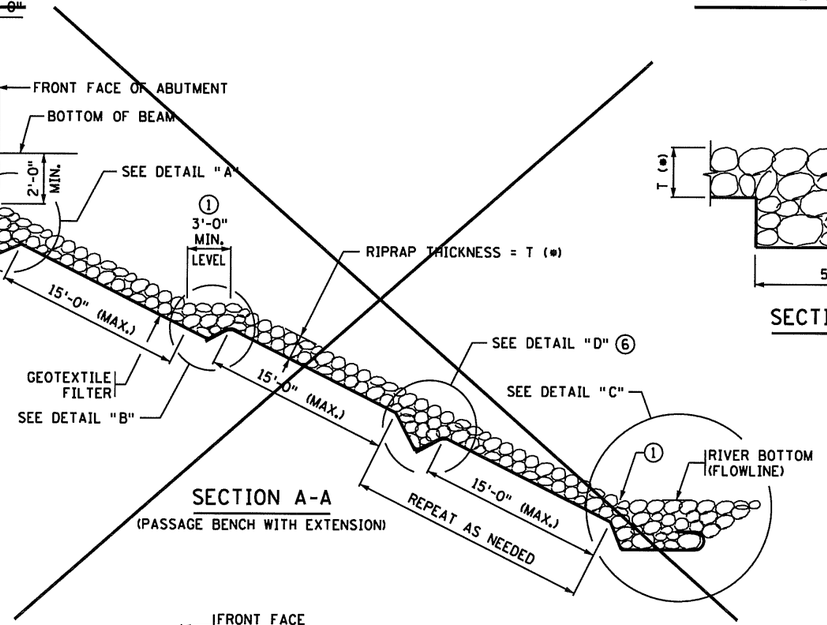
(4) WRAP GEOTEXTILE FILTER AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP.

(5) BURY EDGES OF GEOTEXTILE FILTER SUFFICIENTLY TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.

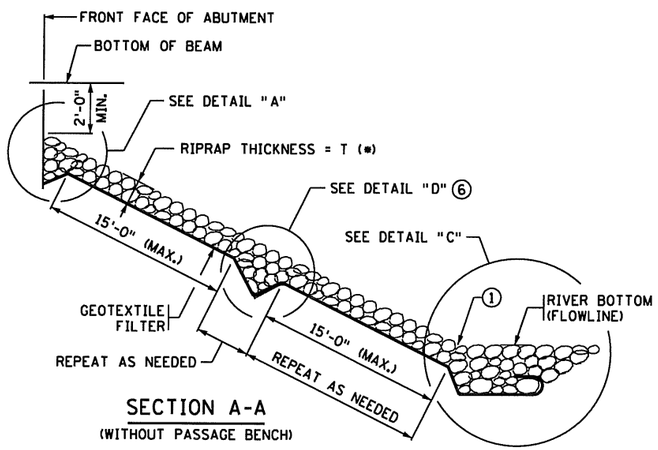
(6) THE TRENCH SHOWN IN DETAIL "D" AND THE 15'-0" MAXIMUM SPACING BETWEEN TRENCHES MAY BE OMITTED FOR SLOPES 1:3 OR FLATTER.



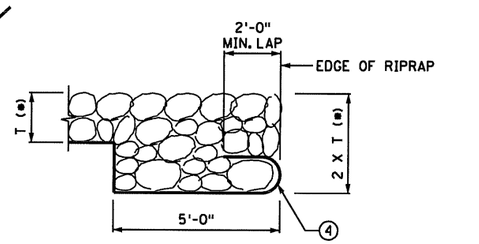
SECTION A-A
(WITH PASSAGE BENCH)



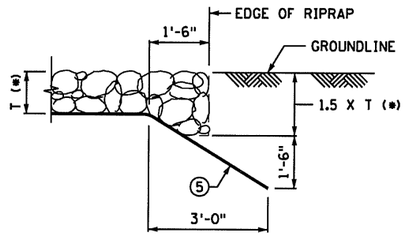
SECTION A-A
(PASSAGE BENCH WITH EXTENSION)



SECTION A-A
(WITHOUT PASSAGE BENCH)

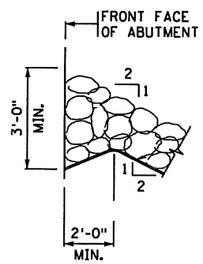


SECTION C-C

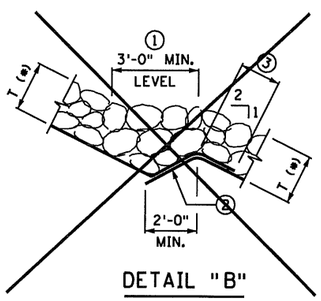


SECTION B-B

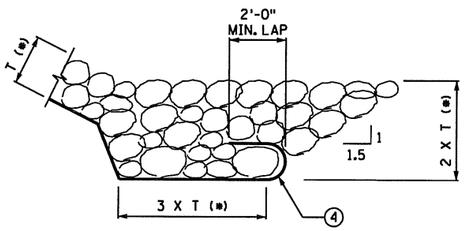
* DIMENSION T
CLASS III = 1'-6"
CLASS IV = 2'-0"



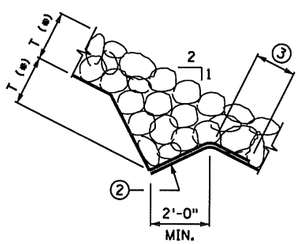
DETAIL "A"



DETAIL "B"



DETAIL "C"

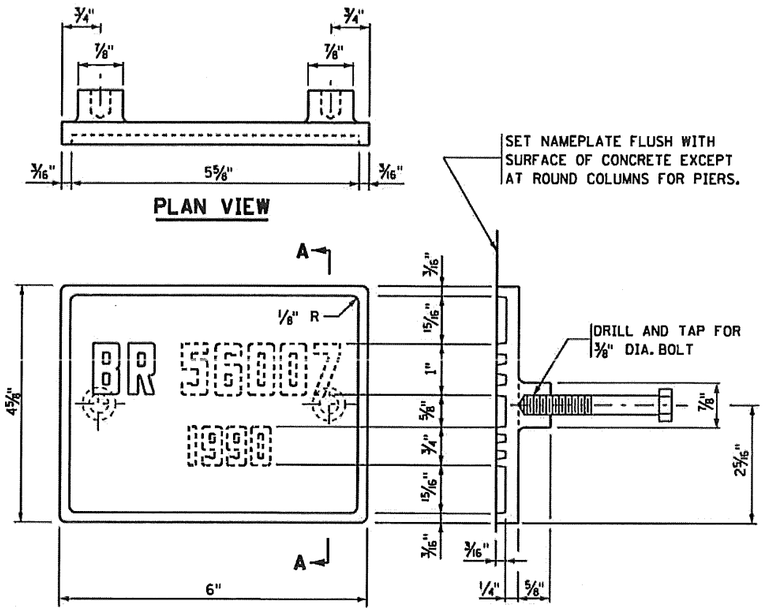


DETAIL "D"

S.A.P. NO. 042-607-026

REVISED:	CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER 2-9-12 DATE	TITLE: RIPRAP SLOPE WITH GEOTEXTILE FILTER (SLOPES 1:2 AND FLATTER)	DES: J.R.R. DR: CHK: K.A.R. CHK: T.J.M.	APPROVED:
APPROVED: XXXXXXX XX, XXXX	NAME: KENT A. ROHR LIC. NO. 21179		SHEET NO. B22 OF B27 SHEETS	BRIDGE NO. 42567
STATE BRIDGE ENGINEER	WSN 460A0898			

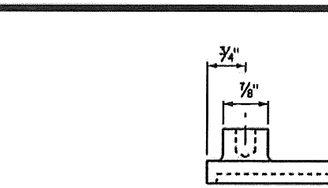
DATE: 2/8/2012
TIME: 3:44:36 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898_DGN
FILE NAME: ...\RIPRAP_DGN



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

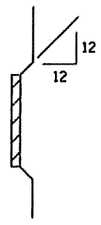
BRIDGE 42567

YEAR 2013



NAMEPLATE PLACEMENT

(ROUND CONCRETE PIER COLUMNS)



SECTION B-B

NUMBERS FOR NAMEPLATE

NOTES:

NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

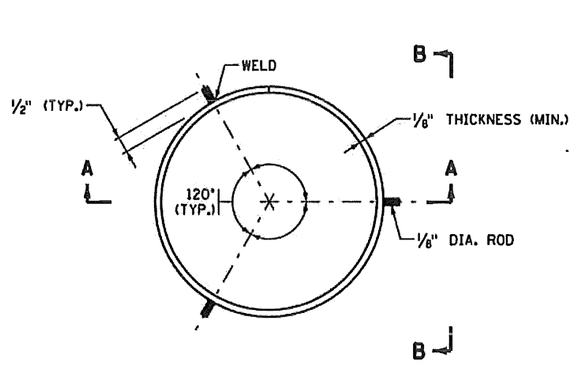
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.

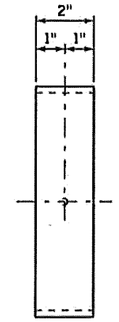
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel D. Morgan STATE BRIDGE ENGINEER	**BRIDGE NAMEPLATE** (FOR NEW BRIDGES)		**B101**



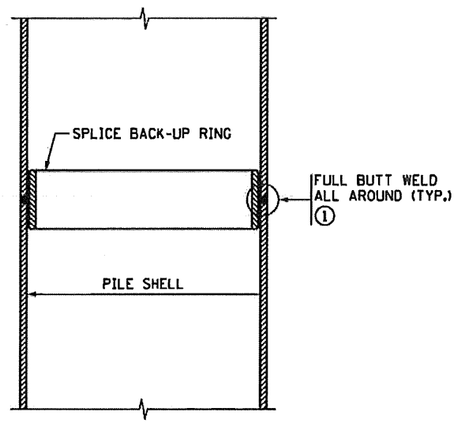
PLAN VIEW SPLICE

PILE NOT SHOWN



SECTION B-B

PILE NOT SHOWN



SECTION A-A

NOTES:

APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.

WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.

ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.

WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

① FOR PILE SHELL THICKNESSES GREATER THAN 1/2", USE A B-U4a WELD CONFIGURATION.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel D. Morgan STATE BRIDGE ENGINEER	**PILE SPLICE** (CAST-IN-PLACE CONCRETE PILES)		**B201**

WSN 0460A0898 **S.A.P. 042-607-026**

CERTIFIED BY _____ 2-28-13
LICENSED PROFESSIONAL ENGINEER — DATE

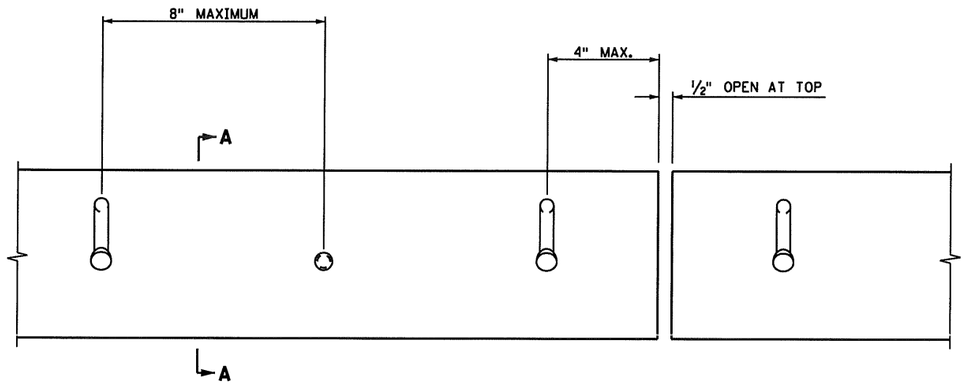
NAME: KENT A. ROHR LIC. NO. 21179

TITLE: **BRIDGE DETAILS**

DES: J.R.R.	DR: J.J.E.	APPROVED:
CHK: K.A.R.	CHK: T.J.M.	

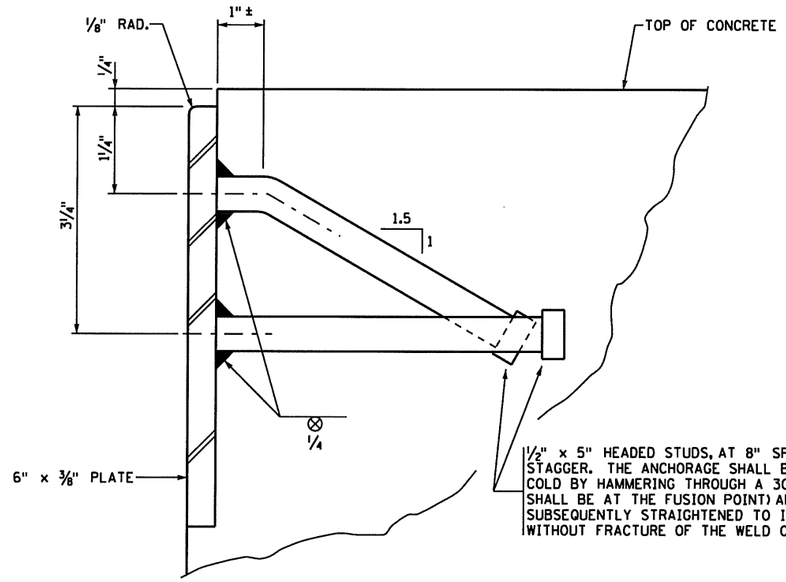
SHEET NO. B23 OF B27 SHEETS

BRIDGE NO. 42567



ELEVATION

CONCRETE NOT SHOWN



SECTION A-A

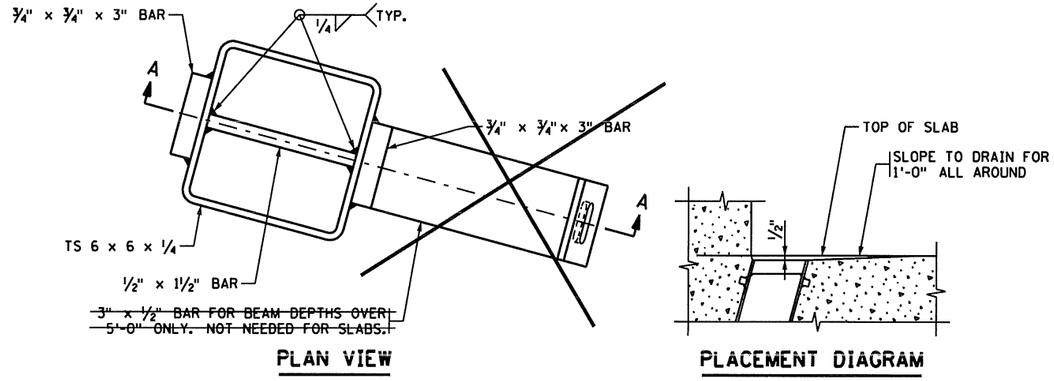
NOTES:

PLATES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN GUTTER LINES WITH A ½" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAX. LENGTH 22 FT.

MATERIALS: STRUCTURAL STEEL PER Mn/DOT SPEC. 3306. GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394

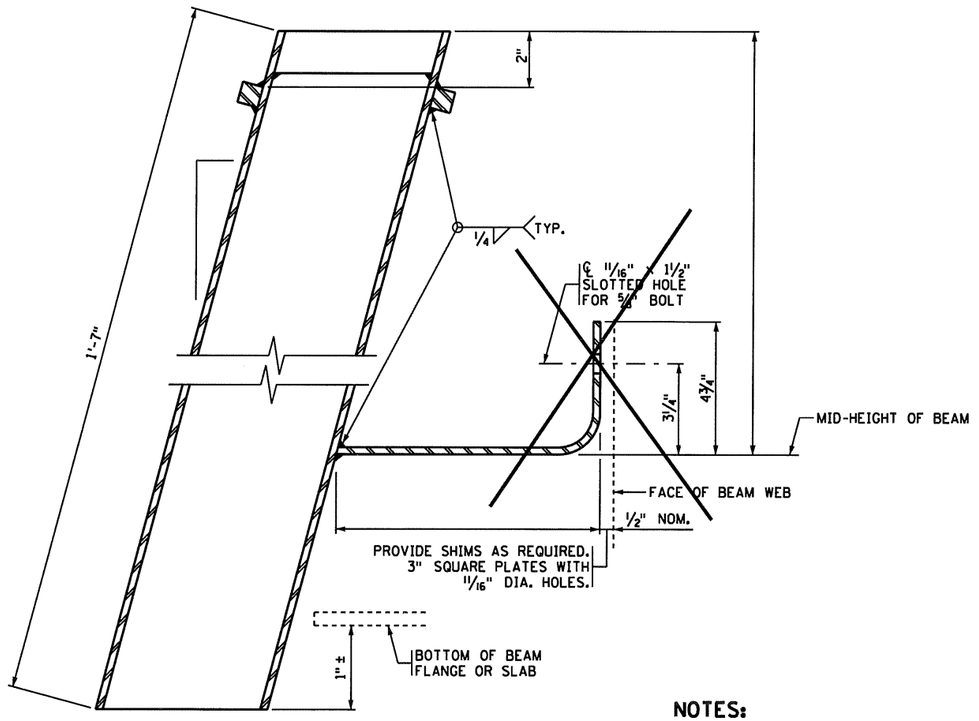
SET PLATE TO PROPER GRADE AND CROWN.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Daniel J. Wogsyan STATE BRIDGE ENGINEER	**PROTECTION PLATE** (FOR END OF SLAB)		B553



PLAN VIEW

PLACEMENT DIAGRAM



SECTION A-A

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.

GALVANIZE BOLTS AND WASHER PER Mn/DOT SPEC. 3392.

GALVANIZE OTHER MATERIALS PER Mn/DOT SPEC. 3394 AFTER FABRICATION.

PAYMENT FOR FLOOR DRAIN TYPE SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

APPROVED: NOVEMBER 22, 2002	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISED 01-13-2004	DETAIL NO.
Daniel J. Wogsyan STATE BRIDGE ENGINEER	**BRIDGE FLOOR DRAIN** (STRUCTURAL TUBE)		B702

WSN 0460A0898 **S.A.P. 042-607-026**

CERTIFIED BY _____ LICENSED PROFESSIONAL ENGINEER — DATE 7-9-12 — TITLE:

NAME: KENT A. ROHR LIC. NO. 21179

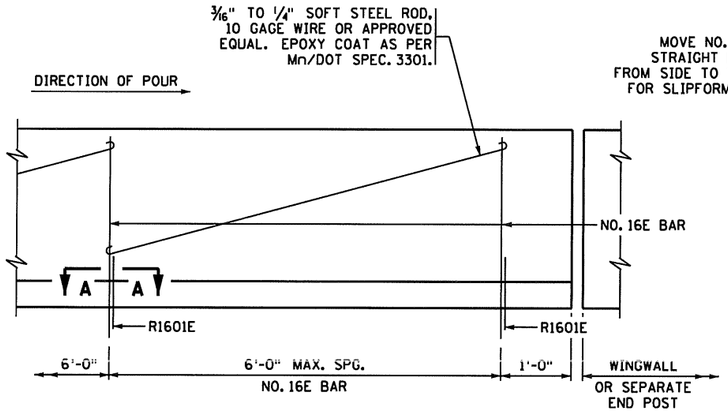
BRIDGE DETAILS

DES: J.R.R.	DR: J.J.E.	APPROVED:
CHK: K.A.R.	CHK: T.J.M.	

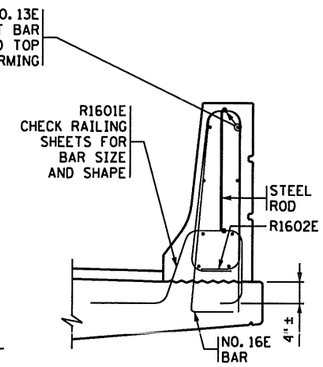
SHEET NO. B24 OF B27 SHEETS

BRIDGE NO. 42567

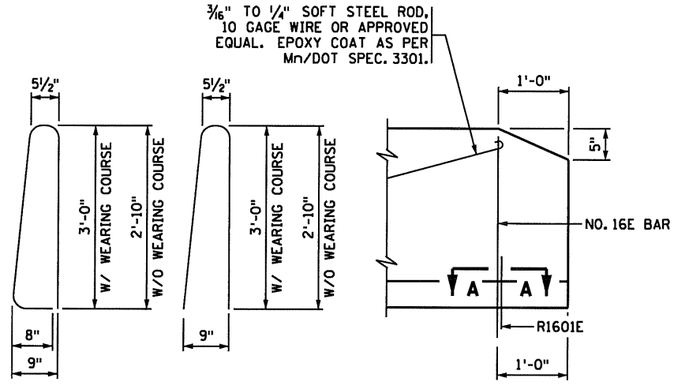
DATE: 2/8/2012
TIME: 3:05:11 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\CIVIL\MICROSTATION-DETAIL-SHEETS\B-DETAIL.dgn
FILE NAME: ...\B-DETAIL.dgn



INSIDE ELEVATION OF RAILING



RAILING SECTION



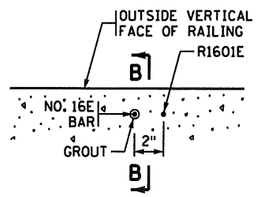
NO. 16E BAR

NO. 16E BAR

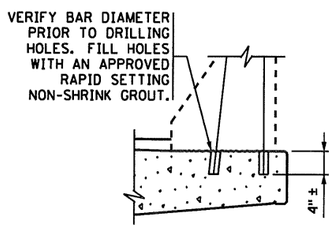
DRILLED IN ALTERNATE

INSIDE ELEVATION OF RAILING

AT END OF WINGWALL



SECTION A-A



SECTION B-B

INSTALLATION DETAILS FOR NO. 16E (DRILLED IN ALTERNATE)

NOTES:

CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 2' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.

APPROVED: NOVEMBER 22, 2002

Daniel L. Hogan

STATE BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE RAILING (TYPE F)
(SLIPFORM ALTERNATE)

REVISION

DETAIL NO. B830

CERTIFIED BY Kent A. Rohr 2-9-12
LICENSED PROFESSIONAL ENGINEER — DATE

NAME: KENT A. ROHR LIC. NO. 21179

TITLE: BRIDGE DETAILS

DES: J.R.R.	DR: J.J.E.	APPROVED:
CHK: K.A.R.	CHK: T.J.M.	

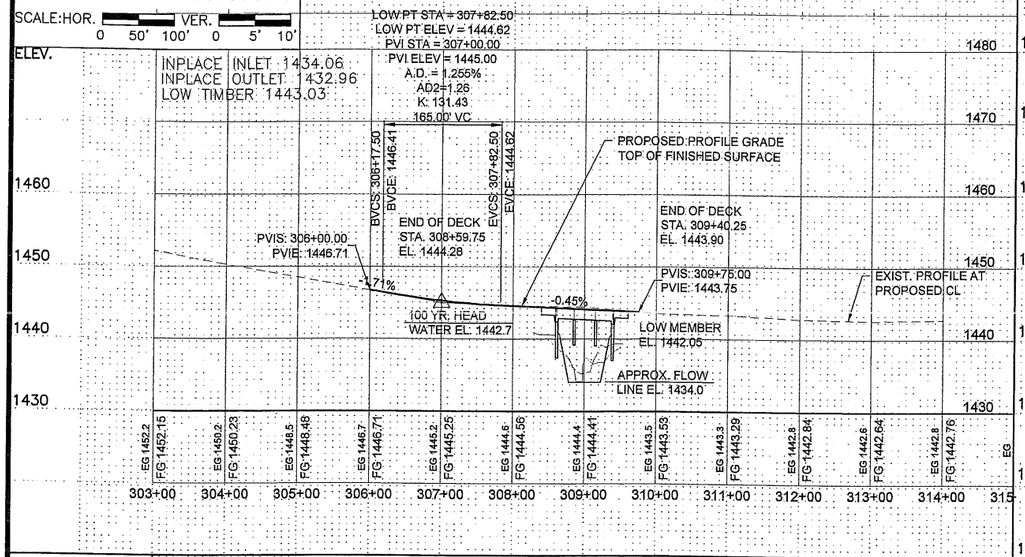
SHEET NO. B25 OF B27 SHEETS

BRIDGE NO. 42567

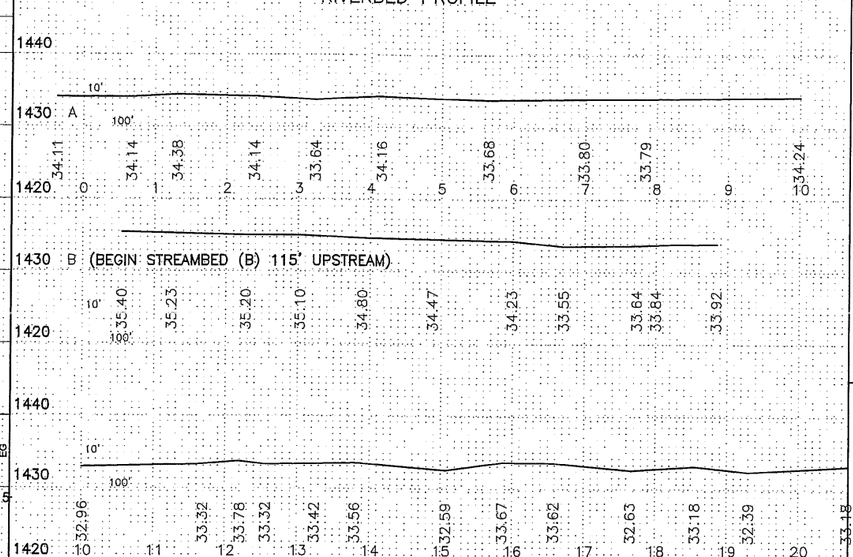
WSN 0460A0898 S.A.P. 042-607-026

FILE NAME: ...\B-DETAILdgn
DATE: 2/8/2012
TIME: 3:05:11 PM
PATH & FILENAME: J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\CADD\CivilMicroStation-DETAIL-SHEETS\B-DETAIL.dgn

CONTRACTED PROFILE DESIGN SPEED 55 MPH



RIVERBED PROFILE



1. Special features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating. NONE

2. Other bridges or culverts over the same stream (particulary structures which carry high water without overflow of roadway) Given location, type, length, height above high water, cross-sectional area ect.

UPSTREAM: SEC 6 T109N–R41W BR. 42543 PRESTRESSED QUAD TEE 240 SQ. FT.

UPSTREAM: SEC. 31 T110N–R41W BR. 97129 10'X7' PRECAST CONCRETE BOX CULVERT 70 SQ. FT.

DOWNSTREAM: SEC. 33 T110N–R41W BR. 42550 84.0'X35.3' PRESTRESSED CONCRETE BEAM SPAN 222 SQ. FT.

3. Apparent highwater elevation UNKNOWN Obtained from

4. Other data: Approx. velocity of water at time of survey

HYDRAULIC ENGINEERS RECOMMENDATION

DATE AUGUST 4, 2011

Stream or ditch designation BIG COTTONWOOD RIVER
Drainage area 44.1 SQ. MI.
Max. flood on record UNKNOWN C.F.S. (DATE)
Max. observed highwater elevation UNKNOWN
Design flood(100 yr. freq.) 2314 C.F.S.
Headwater elevation 1442.7 Ft.
Design mean velocity through structure 6.8 F.P.S.
Total stage increase 2.3 Ft.
Low member at or above elevation 1441.4 Ft.
Waterway area req'd. below elevation 1440.4 = 340 Sq. Ft. at Rt. angles to channel
Basic flood (100 yr. freq.) X C.F.S.
Headwater elevation X Ft.
Total stage increase X Ft.
Mean velocity through structure X F.P.S.
Flowline elevation 1434.0 Ft. Skew angle 0°
Estimated preliminary total scour at pier elevation 1423.0 Ft. (500 or OT yr. freq.)

SCOUR CONFIRMATION RECOMMENDATION

DATE DECEMBER 21, 2011
Total scour at pier elevation 1423.0 Ft. (500 or OT yr. freq.)
SCOUR CODE L

FOUNDATION ENGINEER'S RECOMMENDATION

DATE

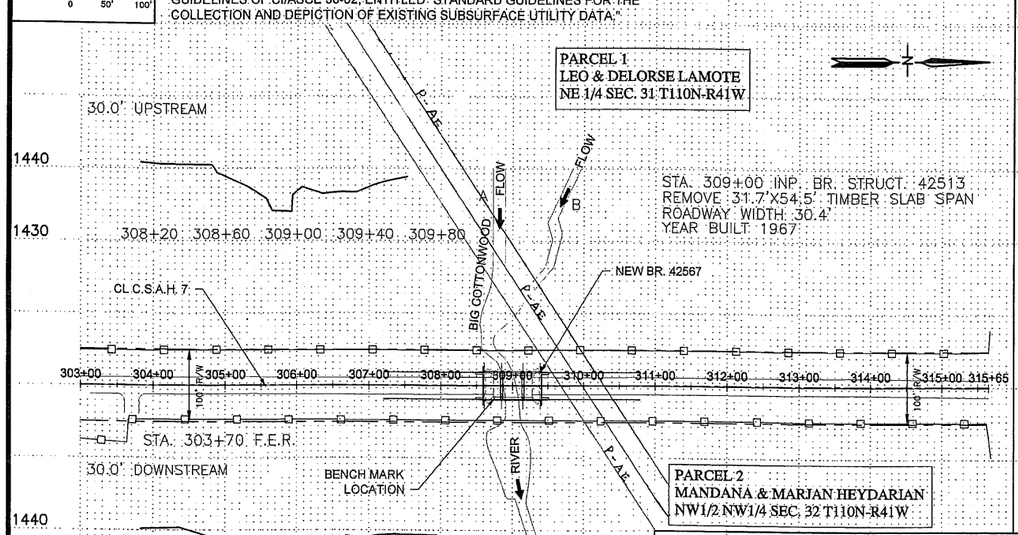
Bridge survey sheets made from LYON COUNTY HIGHWAY DEPT.

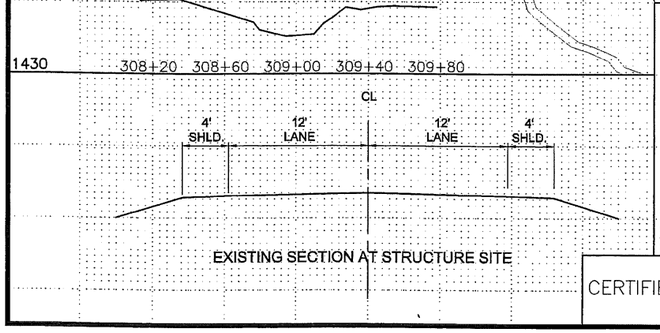
BENCH mark elevation 1444.913 (M.S.L. 1929 ADJ.)
LOCATION SOUTHEAST COR. WEST CURB

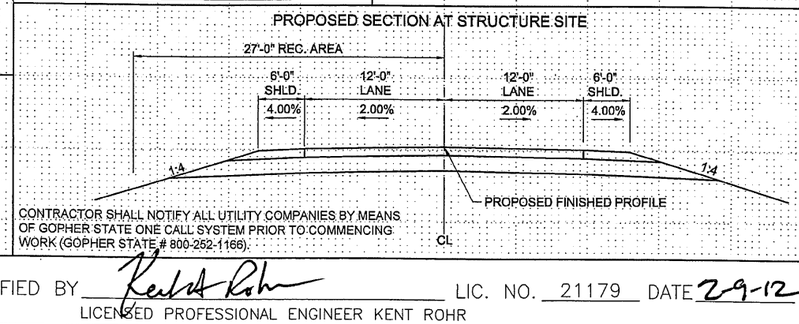
PLAT

SCALE: 0 50' 100'

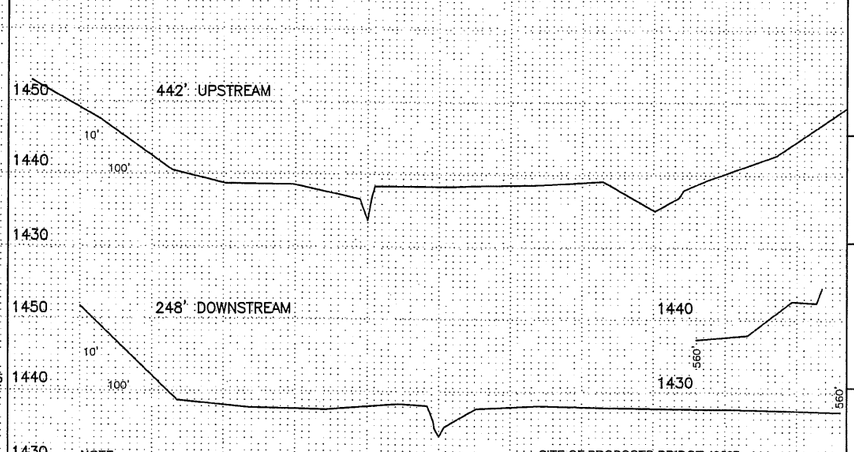
THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."





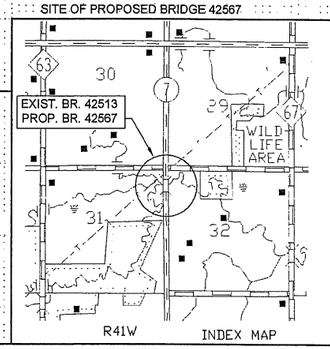


CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES BY MEANS OF GOPHER STATE ONE CALL SYSTEM PRIOR TO COMMENCING WORK (GOPHER STATE # 800-252-1166).



NOTE:
APPROACH GRADING UNDER SAME CONTRACT.
SEE APPROACH GRADING DETAILS

SITE OF PROPOSED BRIDGE 42567



STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT ON CSAH 7 (T.H.,C.S.A.H.,C.R. ect.)
PROPOSED BRIDGE LOCATED 6.0 MILES NE OF BALATON
SEC. 32 TWP. T110N R R41W
TOWNSHIP SODUS COUNTY LYON

BRIDGE NO.
PROPOSED BRIDGE NO. 42567

CERTIFIED BY Kent Rohr LIC. NO. 21179 DATE 2-9-12
LICENSED PROFESSIONAL ENGINEER KENT ROHR

BRIDGE SURVEY

STATE AID PROJECT NO. 042–607–026 (CSAH 7) SHEET B26 OF B27 SHEETS

J:\0460A-Alexandria Structural\0460A0898-Lyon County\0460A0898.000-Bridge 42513 CSAH 7\C-BR-898-SURVEY.dwg, 2/8/2012 2:49:03 PM, Gary.Moorman

EXTEND RIPRAP TO WINGWALL (TYP.)

50'-0" EXIST. R/W

CL BRG. SOUTH ABUT.

FRONT FACE ABUT.

CL BRG. SOUTH ABUT.
STA. 308+61.00
EL. 1444.27

TEST PILE #1
STA. 308+61.00
6.00 FT. RT.

29'-8"± LIMITS OF RIPRAP

1:2 SLOPE

TEST PILE #2
STA. 308+85.00
8.58 FT. LT.

BIG COTTONWOOD RIVER

CL BRG. PIER 2

LIMITS OF RIPRAP
AVG. 4'-0"
THICK (TYP.)

LIMITS OF RIPRAP
AVG. 2'-0" THICK (TYP.)

B1

FRONT FACE ABUT.

TEST PILE #4
STA. 309+39.00
6.00 FT. LT.

CL BRG. NORTH ABUT.

CL PIER 2
STA. 309+15.00
EL. 1444.02

PROPOSED CL CSAH 7
& WORKING LINE

309+00

CL PIER 1
STA. 308+85.00
EL. 1444.16

CL BRG. PIER 1

1:2 SLOPE

CL BRG. NORTH ABUT.
STA. 309+39.00
EL. 1443.91

FLOW

TEST PILE #3
STA. 309+15.00
8.58 FT. RT.

B2

EXIST. BR. 42513

NORTH

PLAN VIEW

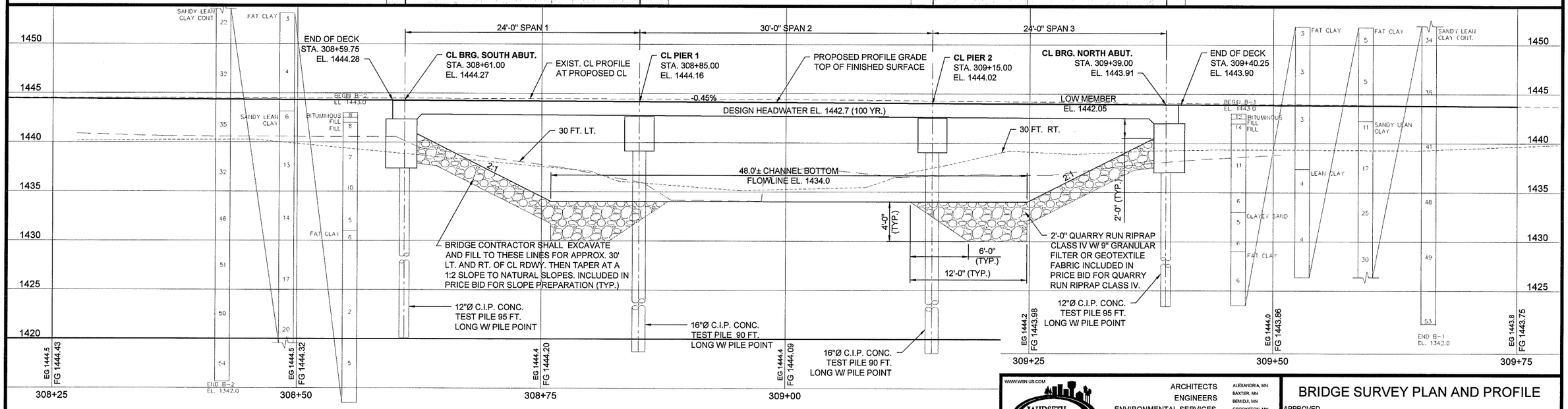
0 5 10
SCALE (IN FEET)

LIMITS OF QUARRY RUN RIPRAP ARE APPROX. ONLY. THE EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

APPROACH GRADING UNDER SAME CONTRACT. SEE APPROACH DETAILS ELSEWHERE IN THIS PLAN SET.

BORINGS SHOWN (B1 & B2)
BLOWS PER 1 FOOT WITH 140 LB. HAMMER
AND A STANDARD ENERGY OF 210 LBS/FT.

BENCHMARK
ELEV. 1444.913 (M.S.L. 1929 adj)
SOUTHEAST CORNER WEST CURB
EXISTING BR. 42513



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WIDSETH SMITH NOLTING

ARCHITECTS — ALEXANDRIA, MN
ENGINEERS — BAXTER, MN
ENVIRONMENTAL SERVICES — BEMIDJI, MN
LAND SURVEYORS — CROOKSTON, MN
WATER RESOURCES — GRAND FORKS, ND
RED WING, MN
ROCHESTER, MN

BRIDGE SURVEY PLAN AND PROFILE

APPROVED

DES. BY J.R.R.	DR. BY J.J.E.	BRIDGE NO. 42567
CHK. BY K.A.R.	CHK. BY T.J.M.	

CERTIFIED BY: _____ PROFESSIONAL ENGINEER: KENT A. ROHR LICENSE NO. 21179 DATE: 2-9-2012

JOB NUMBER: 0460A0898 S.A.P. 042-607-026 SHEET NO. B27 OF B27 SHEETS