

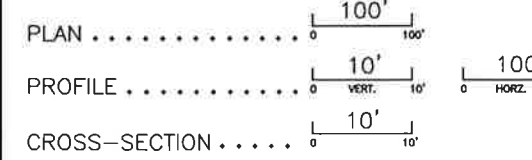
PLAN SYMBOLS

STATE LINE	----
COUNTY LINE	-----
TOWNSHIP OR RANGE LINE	-----
SECTION LINE	-----
QUARTER LINE	-----
SIXTEENTH LINE	-----
RIGHT OF WAY LINE	-----
SLOPE EASEMENT	-----
PRESENT RIGHT OF WAY LINE	-----
CONTROL OF ACCESS LINE	-----
PROPERTY LINES	-----
VACATED PLATTED PROPERTY	-----
CORPORATE HIGHWAY CENTER LINE	=====
TRUNK HIGHWAY CENTER LINE	=====
RETAINING WALL	=====
RAILROAD	=====
RAILROAD RIGHT OF WAY LINE	=====
RIVER OR CREEK	=====
DRY RUN	=====
DRAINAGE DITCH	=====
DRAIN TILE	=====
CULVERT	=====
DROP INLET	=====
RAILROAD	=====
RAILROAD RIGHT OF WAY LINE	=====
BARBED WIRE FENCE	=====
WOVEN WIRE FENCE	=====
CHAIN LINK FENCE	=====
RAILROAD SNOW FENCE	=====
STONE WALL OR FENCE	=====
HEDGE	=====
RAILROAD CROSSING SIGN	=====
RAILROAD CROSSING BELL	=====
ELECTRIC WARNING SIGN	=====
CROSSING GATE	=====
MEANDER CORNER	=====
SPRINGS	=====
MARSH	=====
TIMBER	=====
ORCHARD	=====
BRUSH	=====
NURSERY	=====
CATCH BASIN	=====
FIRE HYDRANT	=====
CATTLE GUARD	=====
OVERPASS (HIGHWAY OVER)	=====
UNDERPASS (HIGHWAY UNDER)	=====
BRIDGE	=====
BUILDING (ONE STORY FRAME)	=====
F - FRAME	C - CONCRETE
S - STONE	T - TILE
B - BRICK	ST - STUCCO
IRON PIPE OR ROD	=====
MONUMENT (STONE, CONCRETE, OR METAL)	=====
WOODEN HUB	=====
GRAVEL PIT	=====
SAND PIT	=====
BORROW PIT	=====
ROCK QUARRY	=====

UTILITIES SYMBOLS

POWER POLE LINE	=====
TELEPHONE POLE LINE	=====
JOINT TELEPHONE AND POWER ON POWER POLES	=====
ON TELEPHONE POLES	=====
ANCHOR	=====
STEEL TOWER	=====
STREET LIGHT	=====
PEDESTAL	=====
GAS MAIN	=====
WATER MAIN	=====
CONDUIT	=====
TELEPHONE CABLE IN CONDUIT	=====
ELECTRIC CABLE IN CONDUIT	=====
TELEPHONE MANHOLE	=====
ELECTRIC MANHOLE	=====
BURIED TELEPHONE CABLE	T-BUR
BURIED ELECTRIC CABLE	P-BUR
AERIAL TELEPHONE CABLE	T-AE
SEWER (SANITARY OR STORM)	=====
SEWER MANHOLE	=====

SCALES



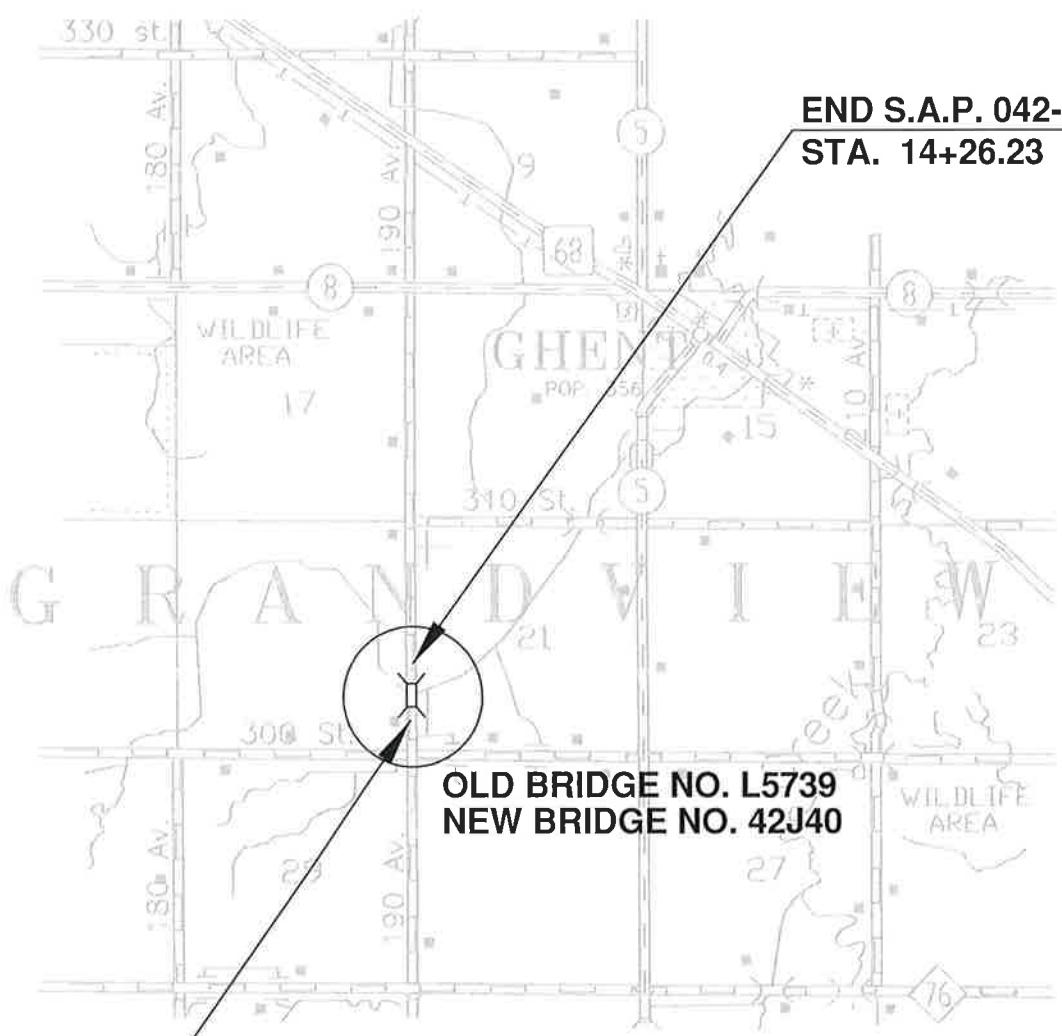
INDEX MAP N.T.S.

MINNESOTA DEPARTMENT OF TRANSPORTATION LYON COUNTY

CONSTRUCTION PLAN FOR BRIDGE REPLACEMENT: BRIDGE NO. 42J40

LOCATED ON: 190th Ave. BETWEEN: 300th Street AND: 310th Street (1.5 MILES SW OF GHENT) (Geographical Description)
 BEGINNING AT A PT. 1338.77' NORTH OF THE NE COR. SEC. 29 T112N-R42W
 TO A PT. 1424.23' NORTH OF THE NE COR. SEC. 29 T112N-R42W (Legal Description)

STATE AID PROJECT NO. : 042-598-149
 GROSS LENGTH: 87.46 FEET 0.017 MILES
 BRIDGES-LENGTH: FEET MILES
 EXCEPTIONS-LENGTH: FEET MILES
 NET LENGTH: 87.46 FEET 0.017 MILES



**BEG. S.A.P. 042-599-149
STA. 13+38.77**

MINN. PROJ. NO.

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
 "STANDARD SPECIFICATION FOR CONSTRUCTION" SHALL GOVERN.

INDEX

SHEET NO. 01	TITLE SHEET
SHEET NO. 02	ESTIMATED QUANTITIES SHEET
SHEET NO. 03	DETAIL SHEETS
SHEET NO. 04	BARREL DETAIL SHEET
SHEET NO. 05	END SECTION DETAIL SHEET
SHEET NO. 06	TRAFFIC CONTROL SHEET
SHEET NO. 07	BRIDGE SURVEY SHEET

THIS PLAN CONTAINS 07 SHEETS

DESIGN DESIGNATION

PROJ. SOIL FACTOR:	= 100%
ADT (CURRENT YEAR) 2014:	= 25
ADT (FUTURE YEAR) 2034:	= 25
DESIGN LOADING:	=
SOIL FACTOR:	= 100%
SHOULDER WIDTH:	= 1.0'
DESIGN SPEED:	= 55 MPH
HCADT:	=

FUNCTIONAL CLASSIFICATION: LOCAL COLLECTOR
 NO. OF TRAFFIC LANES: 2 NO. OF PARKING LANES: 0

BASED ON STOPPING SIGHT DISTANCE:
 HEIGHT OF EYE: 3.5' HEIGHT OF OBJECT: 2.5'
 DESIGN SPEED NOT ACHIEVED AT:
 STA TO STA MPH

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

Signature: *Aaron VanMoer* Typed Name: Aaron VanMoer

Date: 6/20/17 License No. 50428

Approved County Engineer: *[Signature]* DATE: 6/20/17

Recommended For Approval: *[Signature]* DATE: 6/29/17
 District State Aid Engineer: Reviewed For Compliance With State Aid Rules/Policy

Approved for State Aid Funding - For State Aid Engineer: *[Signature]* DATE: 7/7/17



Lyon County, MN

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38--2, ENTITLED "STANDARD GUIDELINES OF THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

ESTIMATED QUANTITIES

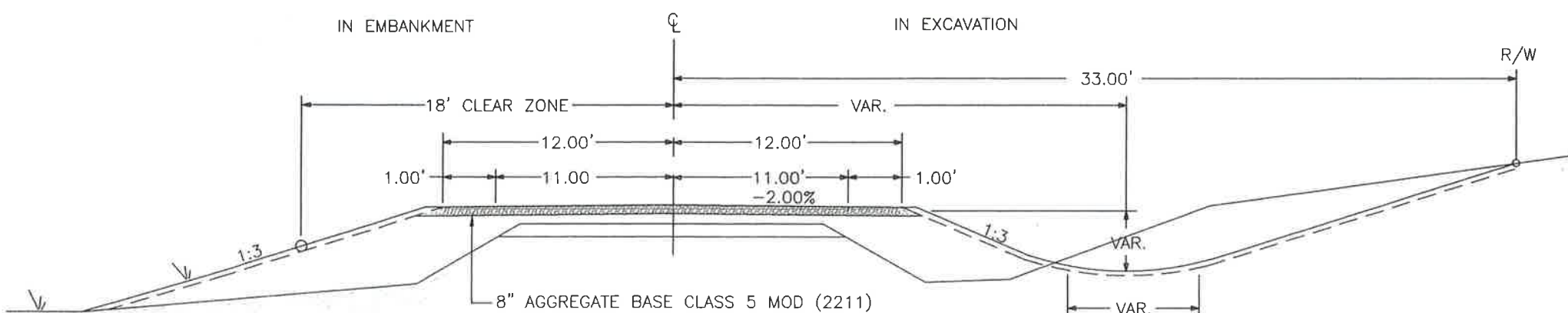
NOTES	SPECIFICATION NUMBER	ITEM	UNIT	RURAL (TWN BR)		TOTAL ESTIMATED QUANTITIES
				PARTICIPATING	NON-PARTICIPATING	
	2021 . 501	MOBILIZATION	LUMP SUM	1.00		1.00
1	2123 . 610	1.5 CU YD BACKHOE	hour		2.00	2.00
2	2211 . 501	AGGREGATE BASE CL. 5 MOD	TON		82.00	82.00
3,4,5	2412 . 511	12'x9' PRECAST CONCRETE BOX CULVERT	LIN FT	40.00		40.00
3,4,5	2412 . 511	12'x10' PRECAST CONCRETE BOX CULVERT	LIN FT	40.00		40.00
3,4,5	2412 . 512	12'x9' PRECAST CONC. BOX CULV END SECT	EACH	2.00		2.00
3,4,5	2412 . 512	12'x10' PRECAST CONC. BOX CULV END SECT	EACH	2.00		2.00
6	2442 . 501	REMOVE EXISTING BRIDGE	LUMP SUM		1.00	1.00
7	2451 . 515	COURSE AGGREGATE BEDDING (CV)	CU YD	120.00		120.00
8	2451 . 609	GRANULAR BACKFILL	TON	360.00		360.00
9	2511 . 502	RANDOM RIPRAP CLASS IV	TON	88.00		88.00
10	2563 . 601	TRAFFIC CONTROL	LUMP SUM	1.00		1.00
11	2573 . 533	SEDIMENT CONTROL LOG TYPE STRAW	LIN FT		80.00	80.00
12	2575 . 523	EROSION CONTROL BLANKET CATEGORY 3	SQ YD		160.00	160.00
13	2575 . 605	TURF ESTABLISHMENT	ACRE		0.35	0.35

CONSTRUCTION NOTES (ITEM SPECIFIC)

- EQUIPMENT HOURS PROVIDED FOR ANY ADDITIONAL SHAPING OUTSIDE THE RIGHT OF WAY AND WITHIN TEMPORARY EASEMENTS. IF THE CONTRACTOR SHOULD CHOOSE TO USE A LARGER SIZED BACKHOE IT SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
- SHALL BE MODIFIED TO 6-12% PASSING THE #200 SIEVE. SHALL BE PLACED USING THE ORDINARY COMPACTION METHOD.
- PLACE MASTIC AND FILTER CLOTH ENTIRE JOINT. ALL JOINTS SHALL BE TIED.
- THE TOTAL UNIT PRICE SHALL INCLUDE EXCAVATION, BACKFILLING, GROUT, COFFERDAMS, DIVERSION CHANNELS, AND DEWATERING. ANY EXCESS EXCAVATION MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.
- PRECAST CONC. BOX CULV. SHALL BE CLASS 2. PRECAST CONC. BOX CULV. END SECTIONS SHALL BE TYPE 1, 0' SKEW.
- REMOVAL ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF ACCORDING TO SPECIFICATION 2104.3 D.3. DISPOSAL WITHIN THE RIGHT OF WAY IS STRICTLY PROHIBITED.
- COURSE AGGREGATE BEDDING SHALL BE PLACED UNDER THE BOX CULVERT TO THE APRON SECTIONS.
- GRANULAR BACKFILL TO BE PLACED ON SIDES AND OVER THE BOX CULVERT.
- GEOTEXTILE FABRIC MATERIAL SHALL BE INCLUDED IN THE TOTAL BID PRICE. RIPRAP SHALL BE CLASS IV QUARRY RUN MATERIAL.
- THE CONTRACTOR SHALL COMPLETELY CLOSE OFF ROADWAY AS TO NOT ALLOW TRAFFIC DURING CONSTRUCTION. EXACT LOCATION OF TRAFFIC CONTROL DEVICES TO BE DETERMINED BY THE ENGINEER. EXISTING ACCESS TO RESIDENCES SHALL BE MAINTAINED THROUGHOUT THE PROJECT DURATION.
- PLACE SEDIMENT CONTROL LOGS AS DIRECTED BY THE ENGINEER.
- PLACE EROSION CONTROL BLANKET ON ALL EXPOSED AREAS OR AS DIRECTED BY THE ENGINEER.
- NO ADDITIONAL COMPENSATION WILL BE MADE FOR MOBILIZATIONS DUE TO THE CONTRACTOR'S SCHEDULE. SEE "BASIS OF ESTIMATED QUANTITIES" FOR TURF ESTABLISHMENT QUANTITIES AND RATES.

TYPICAL GRADING AND SURFACING SECTION

NOT TO SCALE
STA. 13+38.77 TO STA. 14+26.23



BASIS FOR ESTIMATED QUANTITIES

GRANULAR BACKFILL (2421)

GRANULAR BACKFILL: 1 C.Y. (CV) = 1.89 TONS

COURSE AGGREGATE BEDDING (CV) (2451)

COURSE AGGREGATE BEDDING: 1 C.Y. (CV) = 1.89 TONS

RANDOM RIPRAP CLASS IV (2511)

RANDOM RIP-RAP: 1 C.Y. = 1.40 TONS

AGGREGATE BASE CL. 5 MOD (2211)

AGGREGATE BASE CLASS 5 MOD: 140 LBS./CU.FT. (DRY)

TURF ESTABLISHMENT (2575)

SEEDING: 0.35 ACRES

SEED MIXTURE 25-142: 80 LBS./ACRE (ADJUSTED RATE) = 28.0 POUNDS

FERTILIZER TYPE 2: 200 LBS./ACRE = 70 POUNDS

STANDARD PLATES

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

PLATE NO.	DESCRIPTION
3133 D	RIPRAP AT OUTLETS
3145 G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
8000 J	CHANNELIZERS

CERTIFIED BY  LIC. NO. 50428 DATE 6/20/17
LICENSED PROFESSIONAL ENGINEER

LIC. NO. 50428 DATE 6/20/17

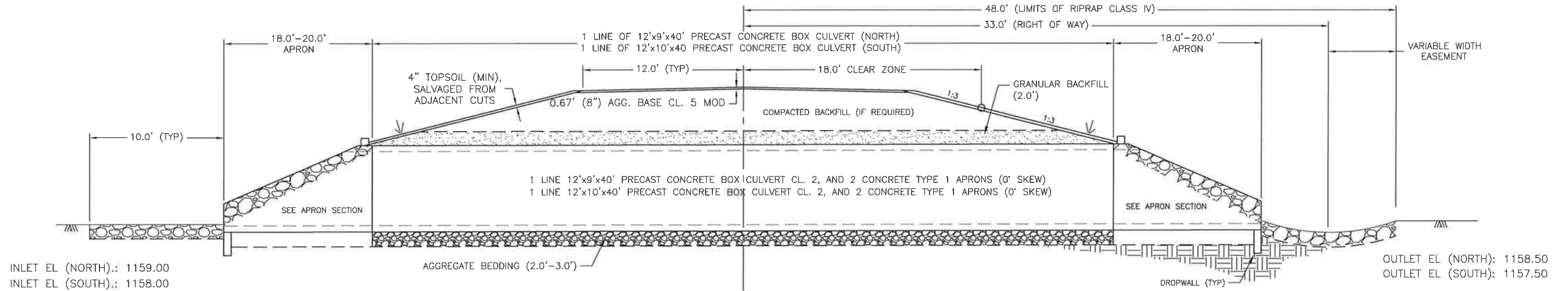
ESTIMATED QUANTITIES

STATE AID PROJECT NO. 042-599-149

SHEET 02 OF 07 SHEETS

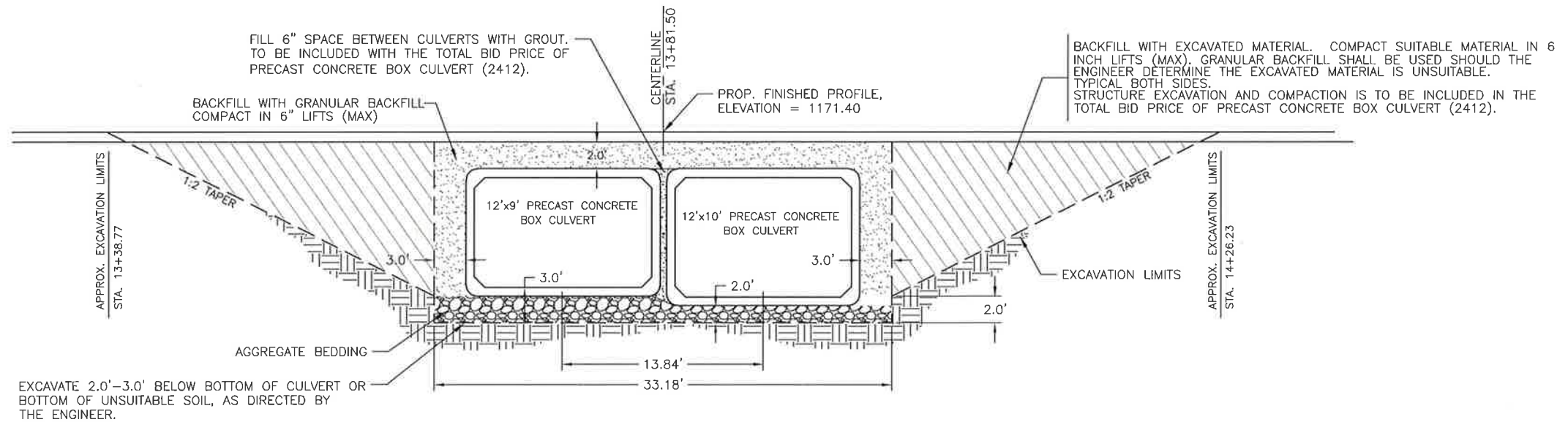
ELEVATION - BOX CULVERT SECTION

NOT TO SCALE



THRU CULVERT SECTION

NOT TO SCALE

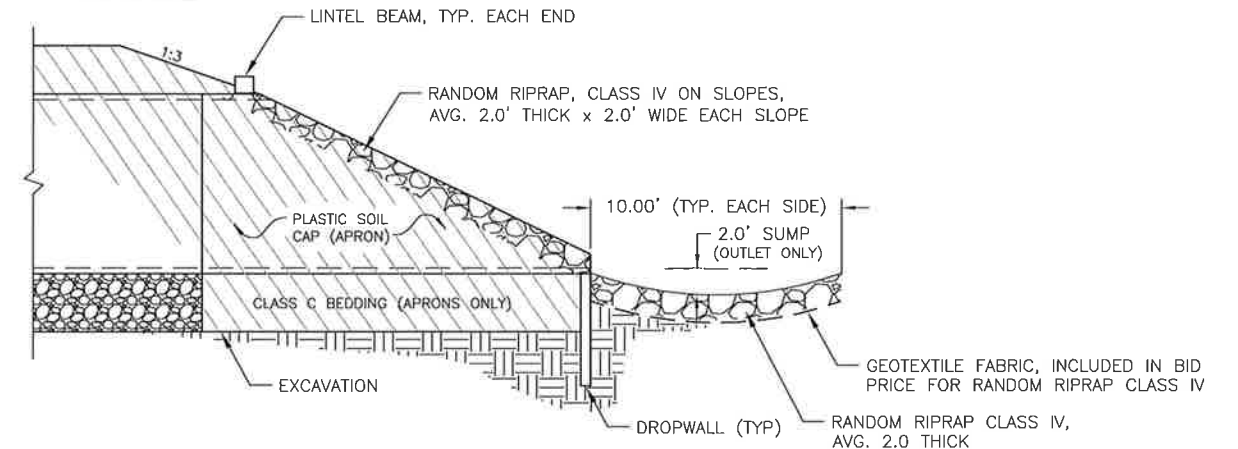


GENERAL CONSTRUCTION NOTES

- NO VEHICLE TRAFFIC SHALL BE ALLOWED ABOVE CULVERT UNLESS 2.0' OF FILL HAVE BEEN PLACED.
- ALL CONSTRUCTION SHALL BE COMPLETED WITHIN RIGHT OF WAY LIMITS OR EASEMENTS.
- ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO CONSTRUCT COFFERDAMS, DIVERSIONARY CHANNELS, AND DEWATERING HOLES SHALL BE INCLUDED IN THE TOTAL BID PRICE OF CONCRETE BOX CULVERT.
- SELECTED GRADING MATERIALS SHALL BE USED FOR ALL EMBANKMENT CONSTRUCTION AND SHALL CONSIST OF ALL SOILS ENCOUNTERED EXCEPT TOPSOILS, HIGHLY ORGANIC SOILS, DEBRIS, AND OTHER UNUSABLE MATERIALS. GRANULAR BACKFILL SHALL BE USED SHOULD THE ENGINEER DETERMINE THE EXCAVATED MATERIAL IS UNSUITABLE FOR EMBANKMENT.
- THE CONTRACTOR SHALL SALVAGE TOPSOIL AND PLACE ON ALL AREAS THAT REQUIRE TURF ESTABLISHMENT. ALL SOILS SHALL BE PREPARED USING THE PROVISIONS OF MNDOT 2574.3 PRIOR TO SEEDING.
- THE CONTRACTOR SHALL FILL THE 6" GAP BETWEEN CULVERT WITH GROUT. GROUT SHALL BE 1 PART PORTLAND CEMENT TO 3 PARTS SAND. GROUT SHALL BE TYPE 3A. ALL MATERIALS AND LABOR SHALL BE INCLUDED IN THE TOTAL BID PRICE OF THE CONCRETE BOX CULVERT.
- RIPRAP MATERIALS SHALL BE CLASS IV AND QUARRY-RUN MATERIAL. GEOTEXTILE FABRIC SHALL BE PLACED UNDER THE ENTIRE RIPRAP AREA. GEOTEXTILE MATERIAL SHALL BE INCLUDED IN THE TOTAL BID PRICE OF RANDOM RIPRAP CLASS IV.
- PLASTIC SOILS TREATMENT REQUIRED AT BOTH ENDS. COMPACT SELECT SOILS IN 6" (MAX) LIFTS.
- PER D.N.R. RECOMMENDATION, THE SOUTH BARREL SHALL BE BURIED 1.0' BELOW THE NATURAL CHANNEL BOTTOM. THE CULVERT ELEVATIONS SHALL BE VERIFIED AT THE TIME OF CONSTRUCTION STAKING. IF THE CULVERT POSITION OR ELEVATION IS NOT COMPATIBLE WITH THE EXISTING STREAM, THE ENGINEER SIGNING THESE PLANS SHALL BE NOTIFIED.
- IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN THE TOWNSHIP ROAD AND RESTORE IT TO PRE-CONSTRUCTION CONDITION.
- THE EXCAVATING CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE UNDERGROUND UTILITIES.
- ALL EXPOSED SOILS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE LATER THAN SEVEN (7) DAYS AFTER CONSTRUCTION ACTIVITIES HAS TEMPORARILY OR PERMANENTLY CEASED. THE NORMAL WETTED PERIMETER MUST BE STABILIZED WITHIN 200 LINEAR FEET OF THE POINT OF DISCHARGE WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.
- DROP WALLS SHALL BE INCLUDED WITH THE TOTAL BID PRICE FOR PRECAST CONCRETE BOX CULVERT (2412).

APRON SECTION

NOT TO SCALE



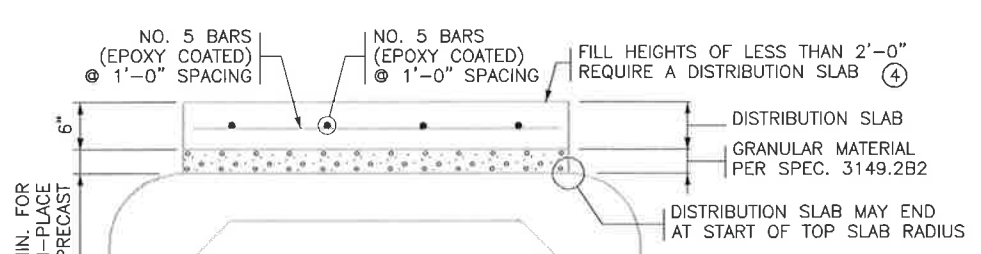
CERTIFIED BY  LICENSED PROFESSIONAL ENGINEER

LIC. NO. 50428 DATE 6/20/17

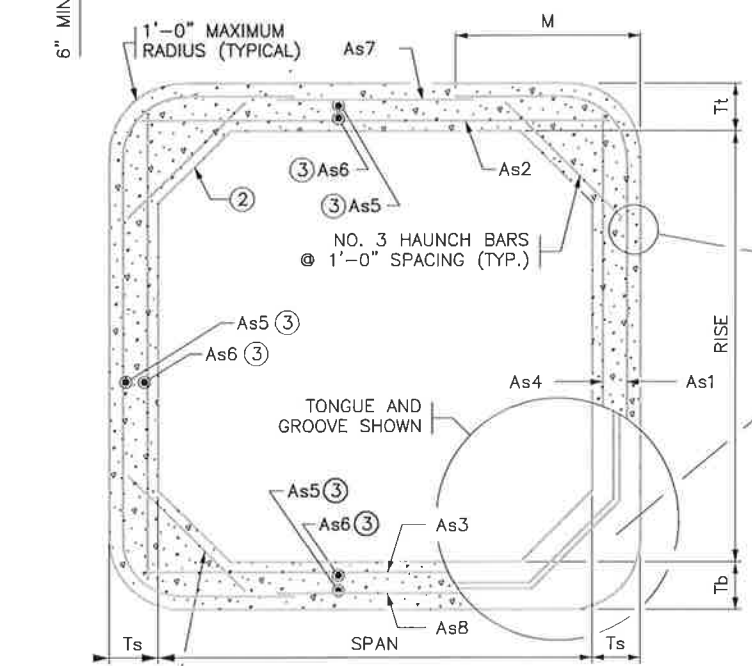
SECTION DETAILS

STATE AID PROJECT NO. 042-599-149

SHEET 03 OF 07 SHEETS

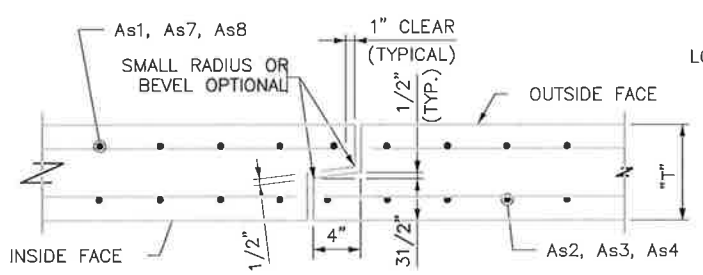


DISTRIBUTION SLAB SECTION



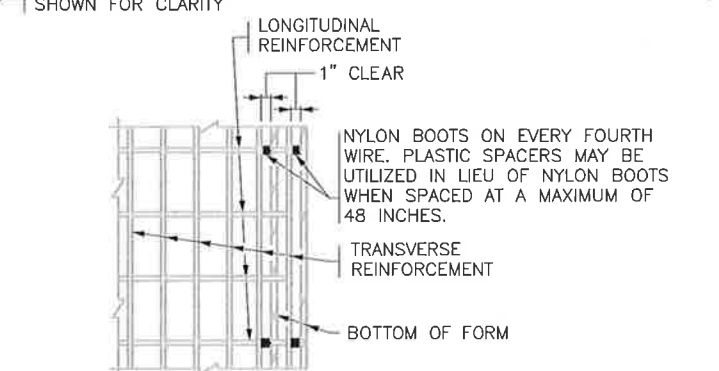
TRANSVERSE BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN

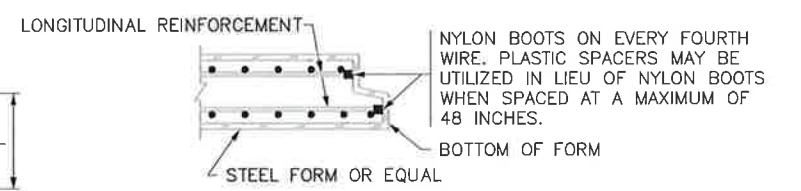


TONGUE AND GROOVE JOINT DETAIL

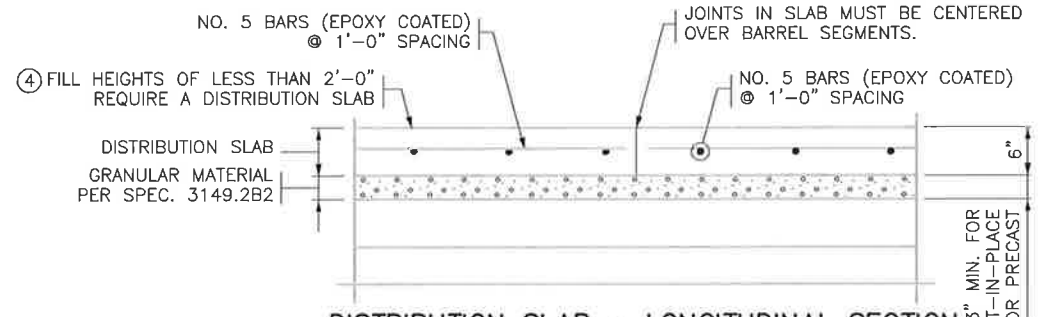
HAUNCH BAR LENGTH:
 31" FOR 8" WALL THICKNESS
 34" FOR 9" WALL THICKNESS
 34" FOR 10" WALL AND 10" SLAB
 36" FOR 10" WALL AND 11" SLAB
 38" FOR 10" WALL AND 12" SLAB
 38" FOR 11" WALL THICKNESS



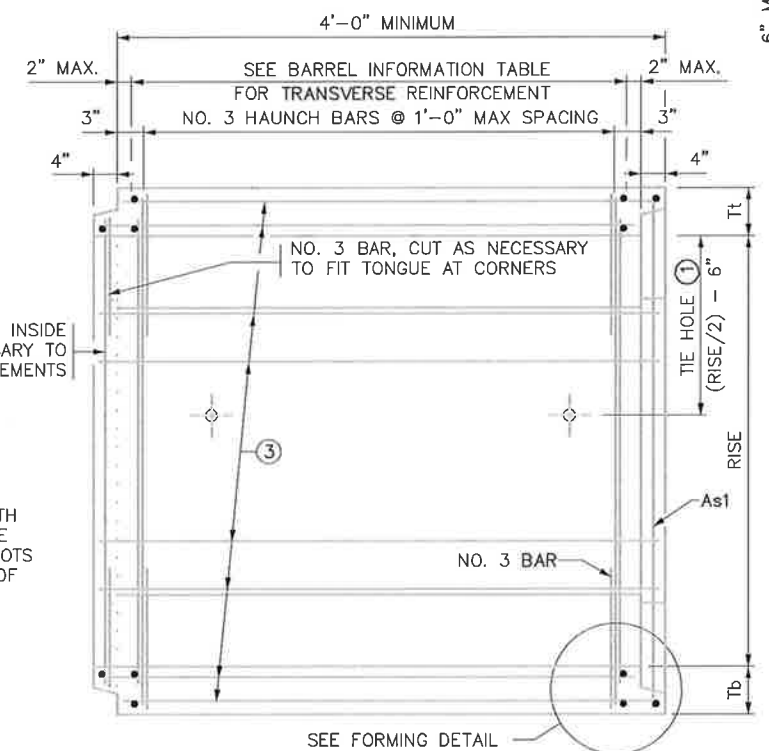
PLAN



SECTION FORMING DETAIL

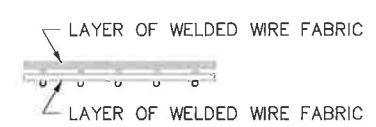


DISTRIBUTION SLAB - LONGITUDINAL SECTION



LONGITUDINAL BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF WELDED WIRE FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE WELDED WIRE FABRIC SHALL BE PLACED AS SHOWN

CONSTRUCTION NOTES

- CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.
- IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (SPEC. 2520) BETWEEN THE CULVERTS AS APPROVED BY THE ENGINEER. IF PEA ROCK IS USED PROVIDE APPROVED GROUT SEEPAGE CUTOFF CORE, MINIMUM 12" THICK, BETWEEN THE CULVERT'S TWO ENDS. SEE STANDARD FIGURE 5-395.115 FOR DETAILS. MINIMUM DISTANCE BETWEEN THE BARRELS IS 6".
- THE WELDED WIRE FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.
- 1 1/2" MIN. AND 2" MAX. CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.
- ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
 - (a) 1 OR 2 LAYERS OF WELDED WIRE FABRIC OR
 - (b) 1 LAYER OF WELDED WIRE FABRIC AND 1 LAYER OF REINFORCEMENT BARS OR
 - (c) 1 LAYER OF REINFORCEMENT BARS.
- THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE FABRIC, THE AREA OF REINFORCEMENT SHALL BE INCREASED BY 8%, AND CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS VERIFYING COMPLIANCE WITH AASHTO 5.7.3.4. "CONTROL OF CRACKING BY DISTRIBUTION OF REINFORCEMENT".
- THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM WELDED WIRE FABRIC SIZE SHALL BE A W23 PER LAYER (MAXIMUM OF 2 LAYERS).
- THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".
- WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR WELDED WIRE FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.
- WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.
- CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.
- SHOP DRAWING APPROVAL PER SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.
- COMPACT THE FIRST 1.5' (LOOSE) OF FILL ABOVE THE BOX WITH LIGHT COMPACTION EQUIPMENT SUCH AS PLATE COMPACTORS OR WALK BEHIND ROLLERS.
- TRANSVERSE REINFORCEMENT IS PARALLEL TO THE CULVERT SPAN. LONGITUDINAL REINFORCEMENT IS PERPENDICULAR TO THE CULVERT SPAN.
- ① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.
- ② HAUNCH SIZES ARE TO BE 12" VERTICAL, 12" HORIZONTAL ON ALL BOX SIZES.
- ③ LONGITUDINAL REINFORCEMENT DENOTED AS As5 AND As6 MUST BE PLACED IN ALL SLABS AND WALLS AND MUST BE 0.06 SQ. IN./FT. MIN.
- ④ FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB.
- USE CONCRETE MIX 3Y43 FOR THE DISTRIBUTION SLAB.
- CAST-IN-PLACE DISTRIBUTION SLABS SHALL BE 6" THICK. PROVIDE 3" MINIMUM GRANULAR MATERIAL PER SPEC. 3149.2B2 BETWEEN BARREL AND DISTRIBUTION SLAB.
- PRECAST DISTRIBUTION SLABS SHALL BE 6" THICK AND MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM GRANULAR MATERIAL PER SPEC. 3149.2B2 BETWEEN BARREL AND DISTRIBUTION SLAB.
- THE WIDTH OF THE DISTRIBUTION SLAB SHALL EXTEND BETWEEN THE OUTSIDE EDGES OF THE SHOULDERS UNLESS DIRECTED BY THE ENGINEER.
- PAYMENT FOR THE DISTRIBUTION SLAB AND GRANULAR MATERIAL BENEATH THE SLAB SHALL BE CONSIDERED INCIDENTAL.
- IF DISTRIBUTION SLAB IS USED AS PAVEMENT SURFACE IT MUST BE REDESIGNED PER THE MNDOT PAVEMENT DESIGN MANUAL.

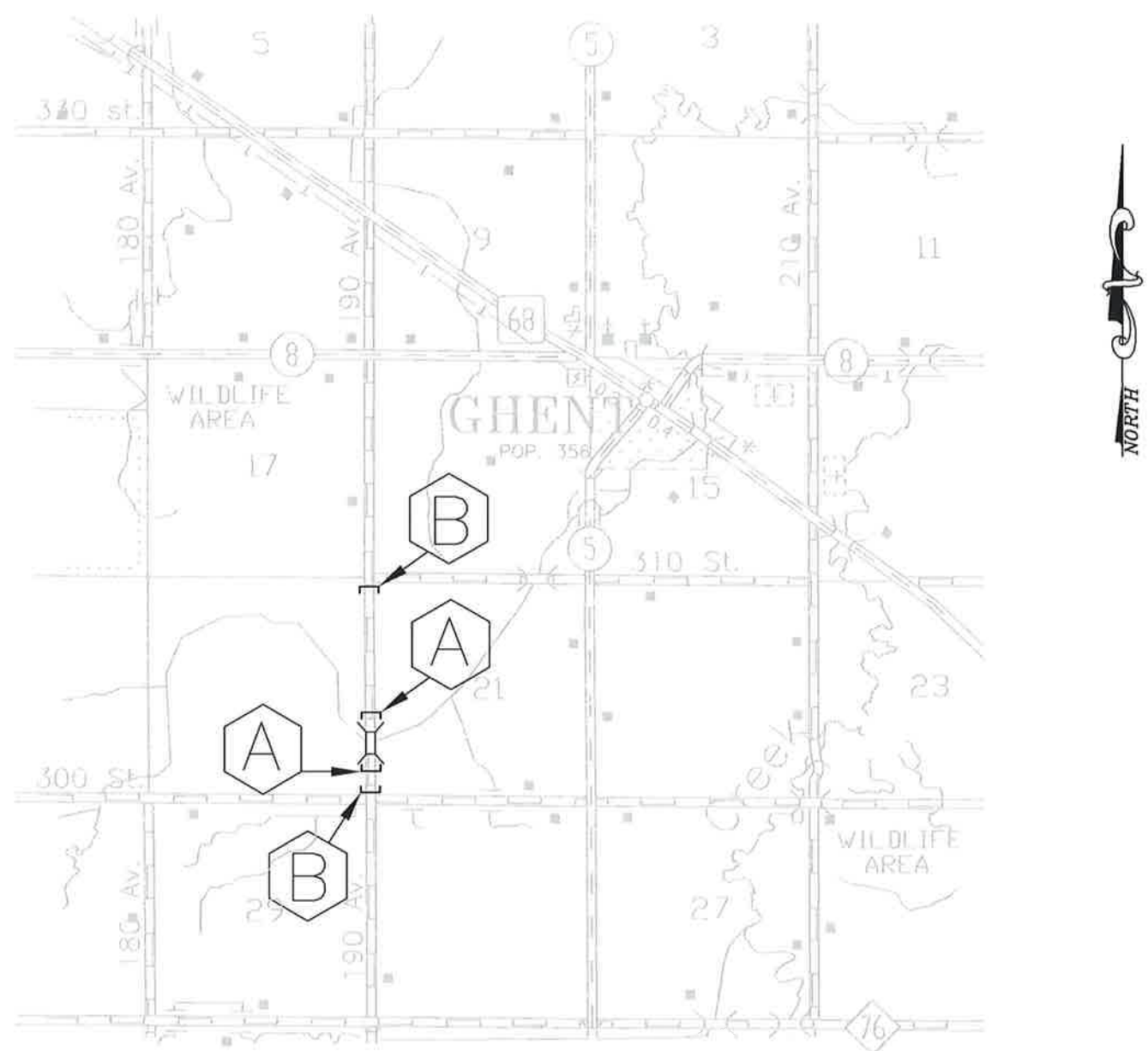
BARREL INFORMATION TABLE ***

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DISTRIBUTION SLAB REQUIRED *	RECESSED TIE RODS REQUIRED **	DIMENSIONS					WEIGHT (LBS./FT.)	WELDED WIRE FABRIC REINFORCEMENT												
							SPAN (FT.)	RISE (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		As1		As2		As3		As4		As7		As8		
													AREA (IN./FT.)	LENGTH (FT.)	M (FT.)	AREA (IN./FT.)	LENGTH (FT.)	AREA (IN./FT.)	LENGTH (FT.)	AREA (IN./FT.)	LENGTH (FT.)	AREA (IN./FT.)	LENGTH (FT.)	AREA (IN./FT.)	LENGTH (FT.)
13+81.50	12'x9'	2	5,000	3'-7"	NO	NO	12'	9'	9"	10"	8"	5275	0.53	15'-8"	2'-10"	0.87	12'-6"	0.92	12'-6"	0.20	9'-6"	0.24	10'-3"	0.24	10'-3"
13+75.58	12'x10'	2	5,000	3'-7"	NO	NO	12'	10'	9"	10"	8"	5475	0.59	18'-0"	3'-6"	0.97	12'-6"	0.96	12'-6"	0.20	10'-6"	0.24	10'-3"	0.24	10'-3"

- * ALL CLASS 1 CULVERTS WITH FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB. IF A DISTRIBUTION SLAB IS NOT REQUIRED, INDICATE "NO" IN THIS BOX.
- ** FOR PEDESTRIAN CULVERT APPLICATIONS HIDE-AWAY OR RECESSED TIE CONNECTIONS ARE REQUIRED, SEE STANDARD PLATE 3145. IF REQUIRED, INDICATE "YES" IN THIS BOX.
- *** BOX CULVERTS WITH SPANS FROM 6 TO 14 FT. ARE DESIGNED FOR HL-93 LIVE LOADS (AASHTO LRFD 3.6.2.1) NOT INCLUDING THE DESIGN LANE LOAD. BOXES WITH SPANS OF 16 FT. ARE DESIGNED FOR HL-93 LIVE LOADS INCLUDING THE DESIGN LANE LOAD.

REVISION: 11-06-2013
 APPROVED: MARCH 24, 2011
 Nancy S. Baer
 STATE BRIDGE ENGINEER

STATE AID PROJECT NO 042-599-148
 FIG. 5-395.101(A)
 CERTIFIED BY: *[Signature]* 6/20/17
 LICENSED PROFESSIONAL ENGINEER DATE
 NAME: Aaron Vanmoer LIC. NO. 50428
 BARREL DETAILS
 DES: _____ DR: _____ APPROVED: _____
 CHK: _____ CHK: _____
 SHEET NO. 04 OF 07 SHEETS BRIDGE NO. 42J40



SIGN TABLE					
SIGN	SIGN NO.	QUANTITY	SIZE	COLOR	FLASHERS
	TYPE III BARRICADE	8	60"x48"	ORANGE ON WHITE	4
	R11-2A	2	48"x30"	BLACK ON WHITE	
	R11-3C	2	60"x30"	BLACK ON WHITE	

DETOUR AND TRAFFIC CONTROL PLAN

EXISTING ACCESS TO RESIDENCES SHALL BE MAINTAINED THROUGHOUT THE PROJECT DURATION.

ALL COSTS INCURRED FOR MATERIALS, INSTALLATION, MAINTENANCE AND REMOVAL OF TRAFFIC CONTROL DEVICES AS SHOWN ON THIS SHEET AND RELATED WORK DURING CONSTRUCTION SHALL BE INCLUDED IN PRICE BID FOR ITEM "TRAFFIC CONTROL".

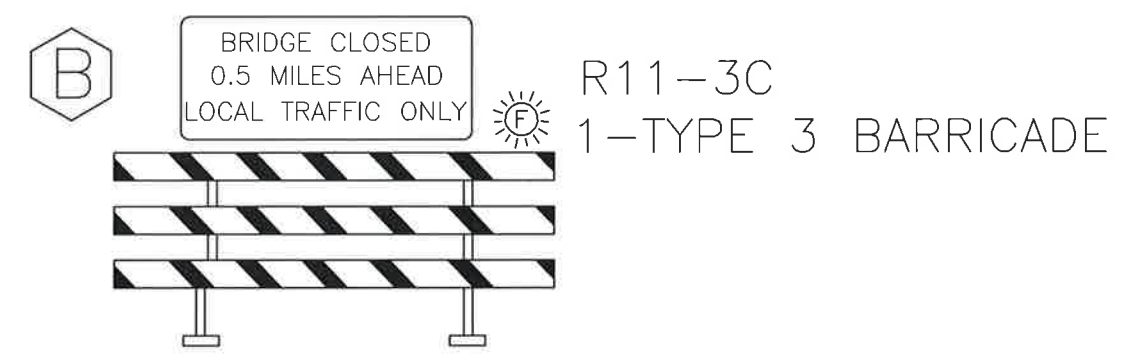
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE CURRENT EDITION OF THE MN MUTCD INCLUDING THE CURRENT TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL.

BARRICADE PLACEMENT TO BE DETERMINED IN THE FIELD SO AS NOT TO OBSTRUCT VISION TO OR FROM ROADWAY ENTRANCES.

EXACT LOCATIONS OF TRAFFIC CONTROL DEVICES TO BE DETERMINED BY THE ENGINEER IN THE FIELD.

ALL TRAFFIC CONTROL DEVICES SHALL HAVE REFLECTIVE SHEETING.

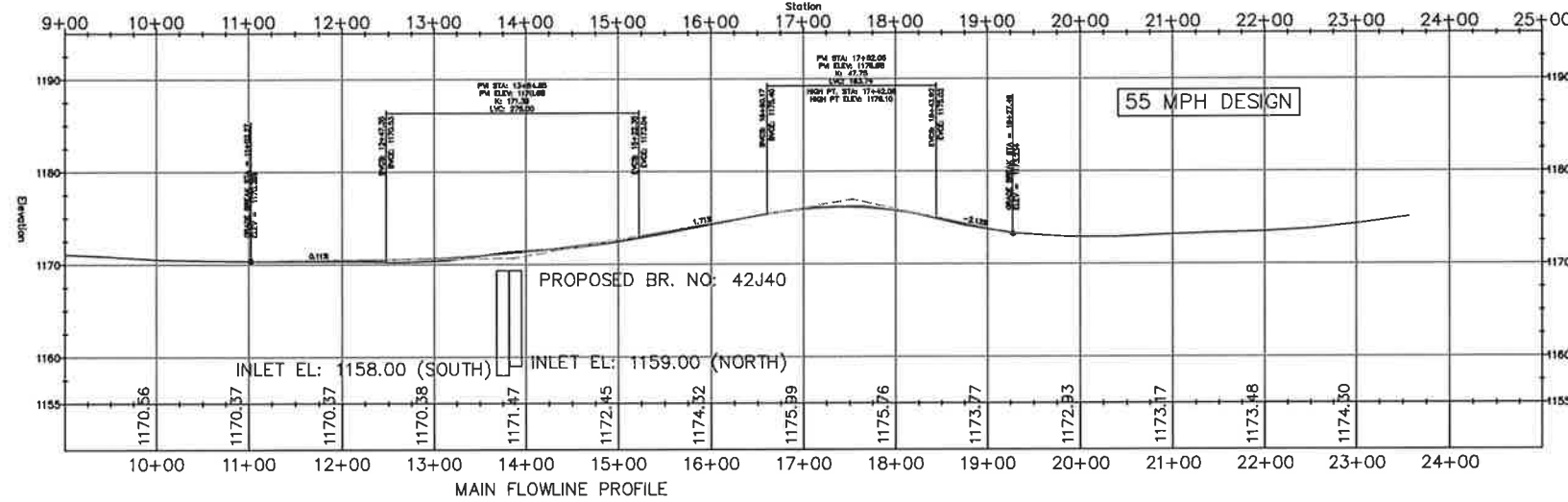
THE USE OF TEMPORARY ORANGE CONSTRUCTION FENCING IS REQUIRED BY THE ENGINEER TO COMPLETELY CLOSE OFF ANY SPECIFIC WORK AREA.



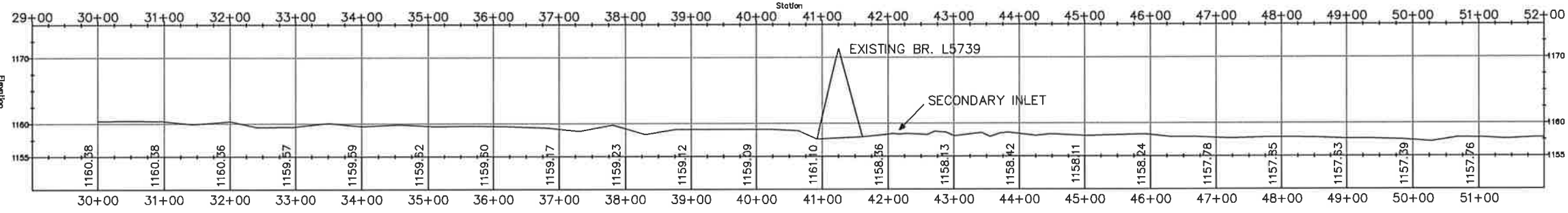
CONTRACTED PROFILE

SCALE: HOR. 0 50' 100' 0 5' 10' VER.

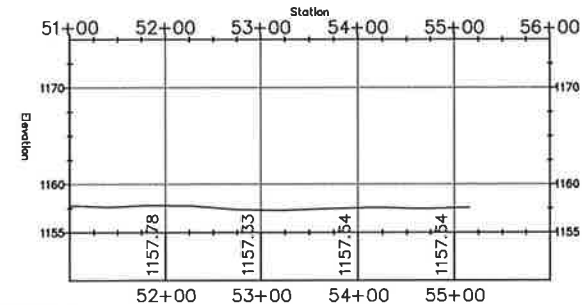
CENTERLINE PROFILE



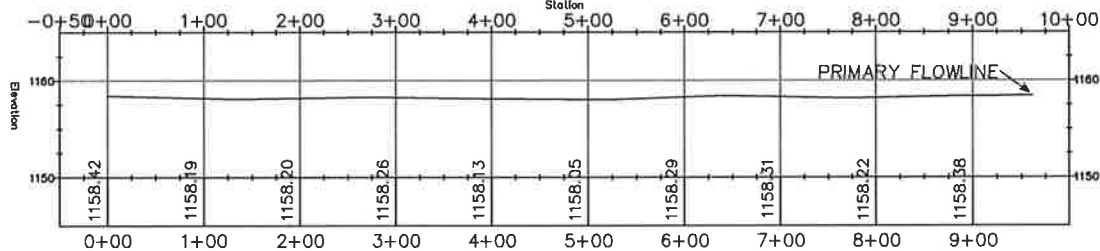
MAIN FLOWLINE PROFILE



MAIN FLOWLINE PROFILE (CONT'D)

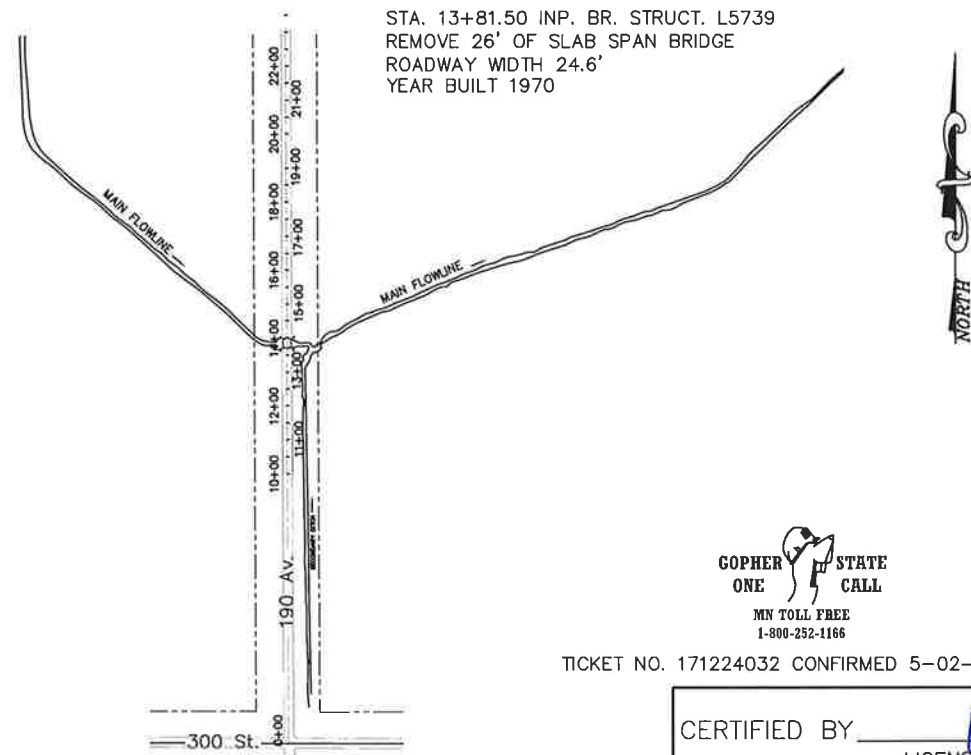
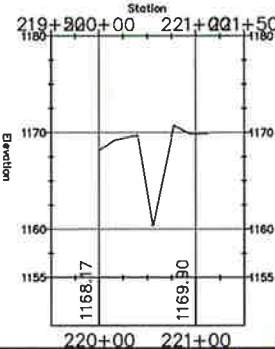
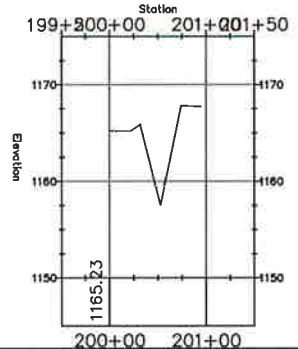


SECONDARY FLOWLINE PROFILE



1300FT DOWNSTREAM PROFILE

1125FT UPSTREAM PROFILE



STA. 13+81.50 INP. BR. STRUCT. L5739
REMOVE 26' OF SLAB SPAN BRIDGE
ROADWAY WIDTH 24.6'
YEAR BUILT 1970



TICKET NO. 171224032 CONFIRMED 5-02-2017

CERTIFIED BY: *[Signature]*
LICENSED PROFESSIONAL ENGINEER

LIC. NO. 50428 DATE 6/20/17

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- Special features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating. NONE
- Other bridges or culverts over the same stream (particular structures which carry high water without overflow of roadway) Given location, type, length, height above high water, cross-sectional area ect.
UPSTREAM: BR# R0608 (5.5'x11.7' TIMBER BOX CULVERT)
DOWNSTREAM: BR# 95666 (2 LINES, 12'x8' PRECAST BOX CULV.)
- Apparent highwater elevation UNKNOWN Obtained from _____
- Other data: Approx. velocity of water at time of survey _____

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE: 5-01-2017

Stream or ditch designation UNNAMED DITCH
Drainage area 7.2 SQ. MI.
Max. discharge on record _____ Design discharge (100 yr. freq.) 1400 C.F.S.
Max. observed highwater elevation _____ Design highwater elevation 1189.2
Design mean velocity through structure 6.5 F.P.S.
Low superstructure at or above elevation _____
Flowline elevation 1159.00 (INLET), 1158.5 (OUT) Skew angle 0
Water area req'd. below elevation _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 1400 C.F.S. at stage 1168.2 and mean velocity of 6.5 F.P.S. with 1.0 Ft. swellhead. The above recommendation will provide a structure of adequate wayway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEER'S RECOMMENDATION

DATE: _____

Bridge survey sheets made from: SURVEY PERFORMED BY LYON COUNTY

BENCH mark elevation: 1170.94 (NAVD 88)
LOCATION: TOP OF CURB - N.E. CORNER OF BRIDGE

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT _____ ON 190TH AVE.
(T.H., C.S.A.H., C.R. ect.)
PROPOSED BRIDGE LOCATED .26 MILES N OF
JCT 300TH ST.
SEC. 20/21 TWP. T112N RNG. R42W
TOWNSHIP GRANDVIEW COUNTY LYON

EXISTING BRIDGE NO.: L5739
PROPOSED BR. NO.: 42J40

BRIDGE SURVEY SHEET

STATE AID PROJECT NO. 042-599-149

SHEET 07 OF 07 SHEET