

STATE OF ILLINOIS
GRUNDY COUNTY
HIGHWAY DEPARTMENT
**PROPOSED
HIGHWAY PLANS**

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
17-16128-00-BR	GRUNDY	7	1

**WAUPECAN ROAD OVER BILL'S RUN
SECTION 17-16128-00-BR (NON-MFT)
CULVERT REPLACEMENT
GRUNDY COUNTY
VIENNA TOWNSHIP**



INDEX OF SHEETS

- 1 COVER SHEET
- 2 GENERAL NOTES, TYPICAL SECTIONS,
AND TRAFFIC CONTROL PLAN
- 3 SUMMARY OF QUANTITIES AND
SCHEDULE OF QUANTITIES
- 4 PLAN AND PROFILE
- 5-6 GENERAL PLAN AND ELEVATION
- 7 CULVERT DETAILS

HIGHWAY STANDARDS

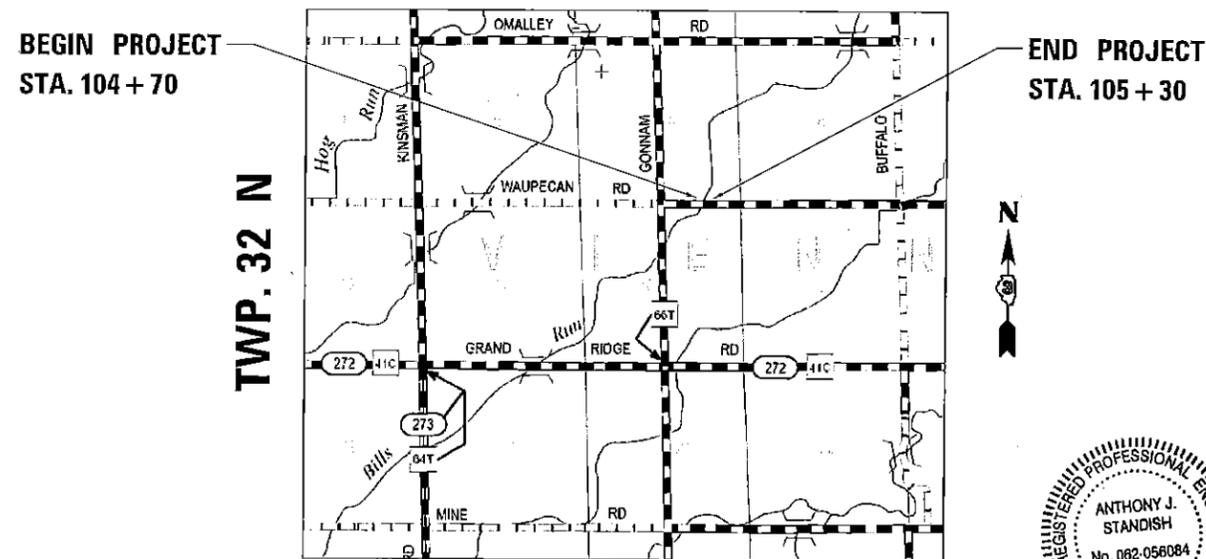
- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 701901-06 TRAFFIC CONTROL DEVICES
- BLR 21-9 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
- BLR 22-7 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
FOR CONSTRUCTION ON RURAL LOCAL HIGHWAYS
(TWO-LANE TWO WAY RURAL TRAFFIC) (ROAD
CLOSED TO THRU TRAFFIC)
- IDOT D3 540-21 SECTION THROUGH CAST-IN-PLACE BOX CULVERT

FUNCTIONAL CLASSIFICATION

RURAL LOCAL
ADT = 50

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

RANGE 6 E, 3rd P.M.



LOCATION SKETCH

NOT TO SCALE

GROSS LENGTH = 60 FT. = 0.011 MILE
NET LENGTH = 60 FT. = 0.011 MILE

REGISTERED PROFESSIONAL ENGINEER
ANTHONY J. STANDISH
No. 082-056084
exp 11/2017

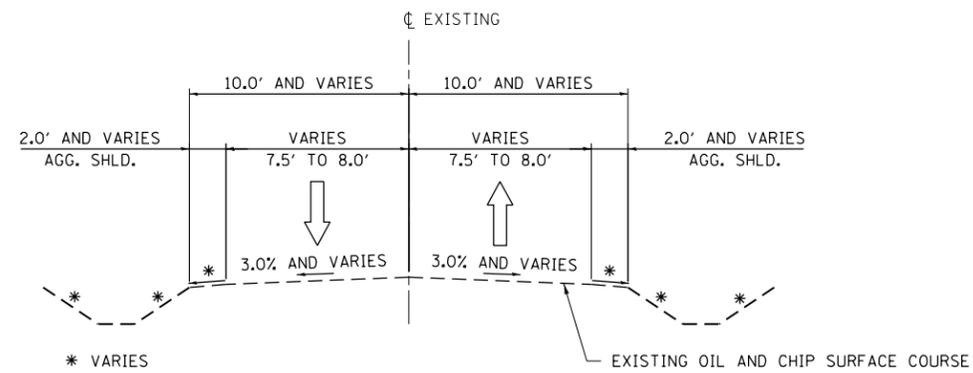
LICENSED STRUCTURAL ENGINEER
ANTHONY J. STANDISH
081-006618
exp 11/30/2018

SA STRAND ASSOCIATES
1170 SOUTH HOBOLT ROAD
JOLIET, ILLINOIS 60431
(815) 744-4200
IDFPR NO. 184-001273

STATE OF ILLINOIS
COUNTY OF GRUNDY
HIGHWAY DEPARTMENT

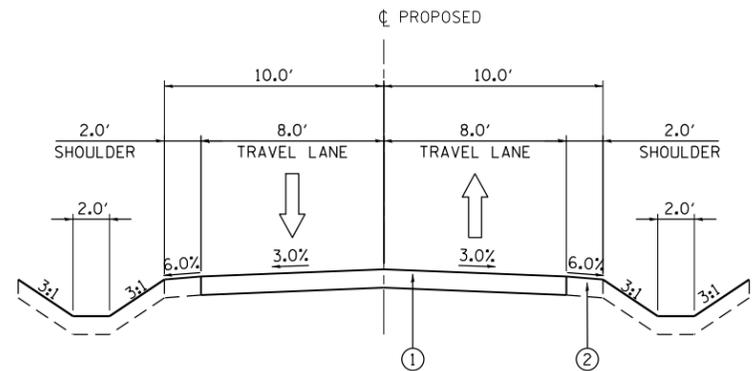
APPROVED *James W. Brown* 20 17
TOWNSHIP COMMISSIONER

APPROVED *11/3* 20 17
Craig Cassen
COUNTY ENGINEER



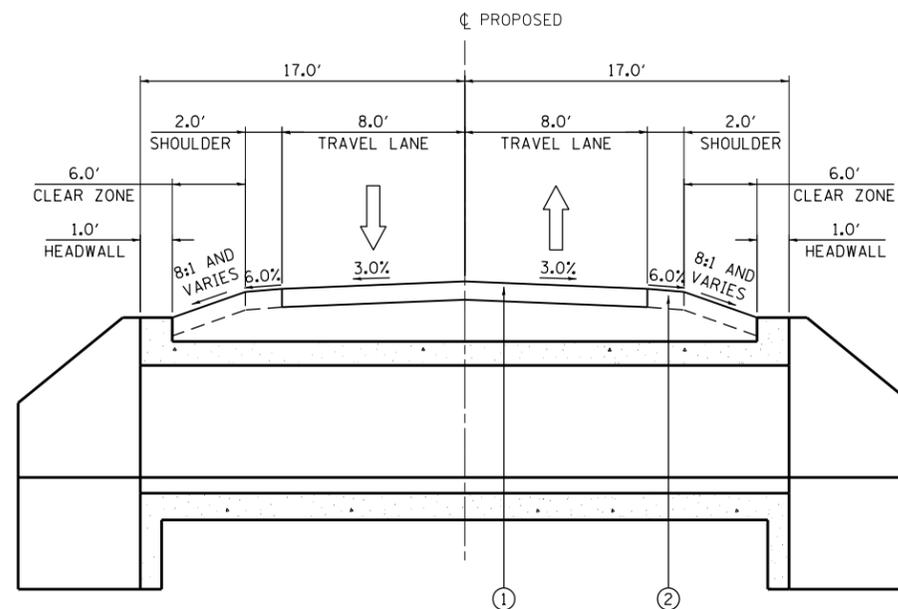
EXISTING TYPICAL SECTION

NOT TO SCALE
 STA. 104+70 TO STA. 105+30
 EXISTING CULVERT AT STA. 105+00 (NOT SHOWN)



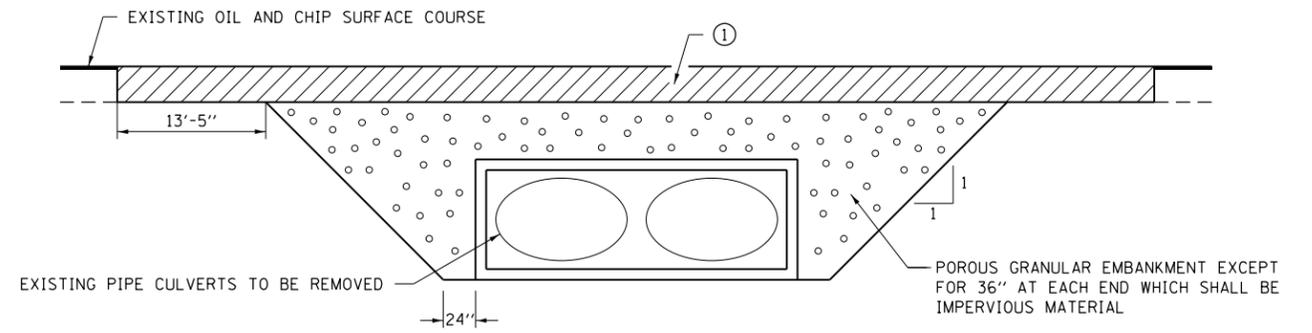
PROPOSED TYPICAL SECTION

NOT TO SCALE
 STA. 104+70 TO STA. 104+93.50
 STA. 105+06.50 TO STA. 105+30



PROPOSED TYPICAL SECTION

NOT TO SCALE
 STA. 104+93.50 TO STA. 105+06.50



SECTION THROUGH CAST-IN-PLACE BOX CULVERT

POROUS GRANULAR EMBANKMENT SHALL BE PLACED IN 6" LIFTS PER ARTICLE 207.03 OF THE STANDARD SPECIFICATIONS

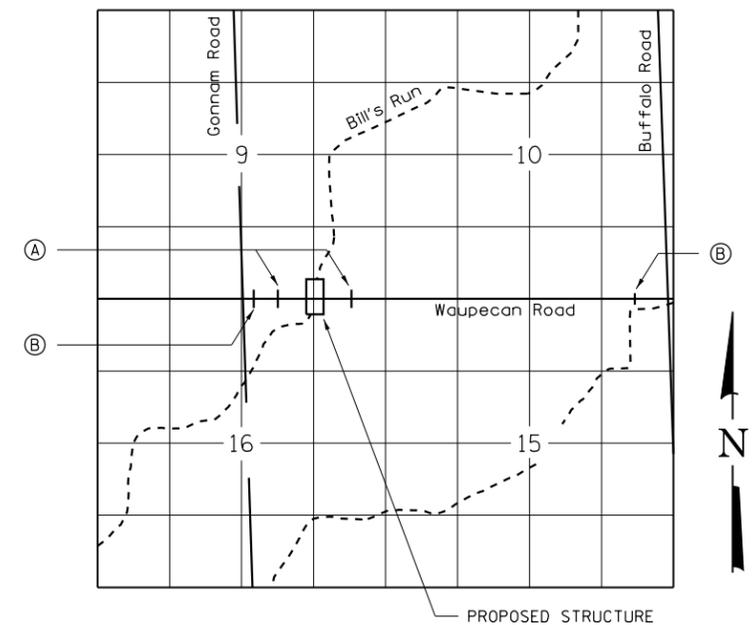
GRANULAR BACKFILL SHALL BE PLACED IN 6" LIFTS AND COMPACTED WITH A VIBRATING PLATE COMPACTOR. COMPACTING WITH A BACKHOE BUCKET WILL NOT BE ACCEPTABLE.

GENERAL NOTES

1. PLAN DIMENSIONS AND DETAILS RELATIVE TO EXISTING PLANS ARE SUBJECT TO NOMINAL CONSTRUCTION VARIATIONS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING DIMENSIONS AND DETAILS AFFECTING NEW CONSTRUCTION AND MAKE NECESSARY APPROVED ADJUSTMENTS PRIOR TO CONSTRUCTION OR ORDERING OF MATERIALS. SUCH VARIATIONS SHALL NOT BE CAUSE FOR ADDITIONAL COMPENSATION FOR A CHANGE IN SCOPE OF THE WORK, HOWEVER, THE CONTRACTOR WILL BE PAID FOR THE QUANTITY ACTUALLY FURNISHED AT THE UNIT PRICE BID FOR THE WORK.
2. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL MONUMENTS UNTIL AN AUTHORIZED SURVEY OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING AN AUTHORIZED SURVEYOR REESTABLISH ANY SECTION OR SUBSECTION MONUMENTS DESTROYED BY HIS OPERATIONS AT NO ADDITIONAL COST.
3. ALL EARTH EXCAVATION AND EARTHWORK REQUIRED BY THE DRAWINGS AND SPECIFICATIONS SHALL BE COMPLETED IN ACCORDANCE WITH SECTIONS 202 AND 203 OF THE STANDARD SPECIFICATIONS. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCLUDED IN THE CONTRACT PRICES FOR CONCRETE BOX CULVERTS.
4. PRECAST OPTION IS ALLOWED PER ARTICLE 540.08 OF THE STANDARD SPECIFICATIONS.

PROPOSED LEGEND

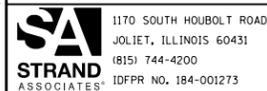
- ① AGGREGATE SURFACE COURSE, TYPE B 10"
- ② TURF SHOULDERS



TRAFFIC CONTROL PLAN

- Ⓐ ERECT TYPE III BARRICADES AT STA. 103+70 AND STA. 106+30 AND "ROAD CLOSED 500 FT" AND "ROAD CLOSED AHEAD" SIGNS IN ACCORDANCE WITH HIGHWAY STD. BLR-21.
- Ⓑ ERECT TYPE III BARRICADES AT THE INTERSECTIONS INDICATED IN ACCORDANCE WITH HIGHWAY STD. BLR-22. ADVANCED WARNING SIGNS SHALL ALSO BE PLACED IN ACCORDANCE WITH HIGHWAY STD. BLR-22.

FILE NAME = SA:\JL\44800--4493\4443\001\Micro\CA00D_Sheets\001-sht-2 - typical-end-rafrc-control.dgn



1170 SOUTH HOUBOLT ROAD
 JOLIET, ILLINOIS 60431
 (815) 744-4200
 IDFPR NO. 184-001273

USER NAME = mattg	DESIGNED - MJG	REVISED
	CHECKED - BRL	REVISED
	DRAWN - MJG	REVISED
PLOT DATE = 9/18/2017	CHECKED - AJS	REVISED

DESIGNED - MJG	REVISED
CHECKED - BRL	REVISED
DRAWN - MJG	REVISED
CHECKED - AJS	REVISED

DESIGNED - MJG	REVISED
CHECKED - BRL	REVISED
DRAWN - MJG	REVISED
CHECKED - AJS	REVISED

GRUNDY COUNTY HIGHWAY DEPARTMENT

GENERAL NOTES, TYPICAL SECTIONS, AND TRAFFIC CONTROL PLAN

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	17-16128-00-BR	GRUNDY	7	2
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

TOTAL BILL OF MATERIAL

ITEM NO.	ITEM	UNIT	TOTAL
20700220	POROUS GRANULAR EMBANKMENT	CU YD	123
25000210	SEEDING, CLASS 2A	ACRE	0.1
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	8
25000500	PHOSPHOROUS FERTILIZER NUTRIENT	POUND	8
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	8
25100115	MULCH, METHOD 2	ACRE	0.1
25100630	EROSION CONTROL BLANKET	SQ YD	398
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	59
28000400	PERIMETER EROSION BARRIER	FOOT	20
28100107	STONE RIPRAP, CLASS A4	SQ YD	32
28200200	FILTER FABRIC	SQ YD	32
40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	61
50105220	PIPE CULVERT REMOVAL	FOOT	60
50800105	REINFORCEMENT BARS	POUND	11,480
54003000	CONCRETE BOX CULVERTS	CU YD	52
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1
Z0013798	CONSTRUCTION LAYOUT	L SUM	1

EROSION CONTROL SCHEDULE

LOCATION		SEEDING, CLASS 2A	NITROGEN FERTILIZER NUTRIENT	PHOSPHOROUS FERTILIZER NUTRIENT	POTASSIUM FERTILIZER NUTRIENT	MULCH, METHOD 2	EROSION CONTROL BLANKET	TEMPORARY EROSION CONTROL SEEDING	PERIMETER EROSION BARRIER
		ACRE	POUND	POUND	POUND	ACRE	SQ YD	POUND	FOOT
STA. 104+70 TO STA. 104+75	RT 25.0' to RT 25.0'	0	0	0	0	0	0	0	5
STA. 104+70 TO STA. 104+75	LT 25.0' to LT 25.0'	0	0	0	0	0	0	0	5
STA. 105+25 TO STA. 105+30	RT 25.0' to RT 25.0'	0	0	0	0	0	0	0	5
STA. 105+25 TO STA. 105+30	LT 25.0' to LT 25.0'	0	0	0	0	0	0	0	5
STA. 104+70 TO STA. 104+93.50	LT 10.0' to LT 25.0'	0.009	0.8	0.8	0.8	0.009	42	6.3	0
STA. 104+93.50 TO STA. 105+06.50	LT 17.0' to LT 25.0'	0.003	0.3	0.3	0.3	0.003	12	2.1	0
STA. 105+06.50 TO STA. 105+30	LT 10.0' to LT 25.0'	0.009	0.8	0.8	0.8	0.009	42	6.3	0
STA. 104+75 TO STA. 105+25	LT 25.0' TO LT 40.0'	0.018	1.6	1.6	1.6	0.018	88	12.6	0
STA. 104+70 TO STA. 104+93.50	RT 10.0' to RT 25.0'	0.009	0.8	0.8	0.8	0.009	42	6.3	0
STA. 104+93.50 TO STA. 105+06.50	RT 17.0' to RT 25.0'	0.003	0.3	0.3	0.3	0.003	12	2.1	0
STA. 105+06.50 TO STA. 105+30	RT 10.0' to RT 25.0'	0.009	0.8	0.8	0.8	0.009	42	6.3	0
STA. 104+75 TO STA. 105+25	RT 25.0' TO RT 40.0'	0.024	2.2	2.2	2.2	0.024	118	16.8	0
TOTAL		0.082	7.6	7.6	7.6	0.082	398	58.8	20

PAVING SCHEDULE

LOCATION	AGGREGATE SURFACE COURSE, TYPE B
	TON
STA. 104+70 TO STA. 105+30	61
TOTAL	61

MISCELLANEOUS REMOVAL SCHEDULE

LOCATION	PIPE CULVERT REMOVAL **
	FOOT
STA. 105+00	60
TOTAL	60

** REPRESENTS QUANTITIES FOR
BOTH EXISTING PIPE REMOVALS

FILE NAME = SA\JUL\44800--4495\4443\001\Micro\CADD_Sheets\001-sht-3 - S00.dgn



1170 SOUTH HOUBOLT ROAD
JOLIET, ILLINOIS 60431
(815) 744-4200
IDFPR NO. 184-001273

USER NAME = mattg
DESIGNED - MJG
CHECKED - BRL
DRAWN - MJG
CHECKED - AJS
PLOT DATE = 9/18/2017

REVISED
REVISED
REVISED
REVISED

**GRUNDY COUNTY
HIGHWAY DEPARTMENT**

**SUMMARY OF QUANTITIES
AND SCHEDULE OF QUANTITIES**

SHEET NO. 1 OF 1 SHEETS

F.A. RTÉ.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	17-16128-00-BR	GRUNDY	7	3
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				

SITE BENCHMARK #1
ELEV=637.729
MAG NAIL IN N. FACE OF 1st
POWER POLE E. OF CREEK ON S. SIDE
OF WAUPECAN ROAD 1' ABOVE GRADE.

SITE BENCHMARK #2
ELEV=637.260
SURVEY SPIKE IN N. FACE OF 1st
POWER POLE W. OF CREEK ON S. SIDE
OF WAUPECAN ROAD 1' ABOVE GRADE.

STONE RIPRAP, CLASS A4- 32 SQ YD TOTAL

PROPOSED 12'x5' CONCRETE BOX CULVERT

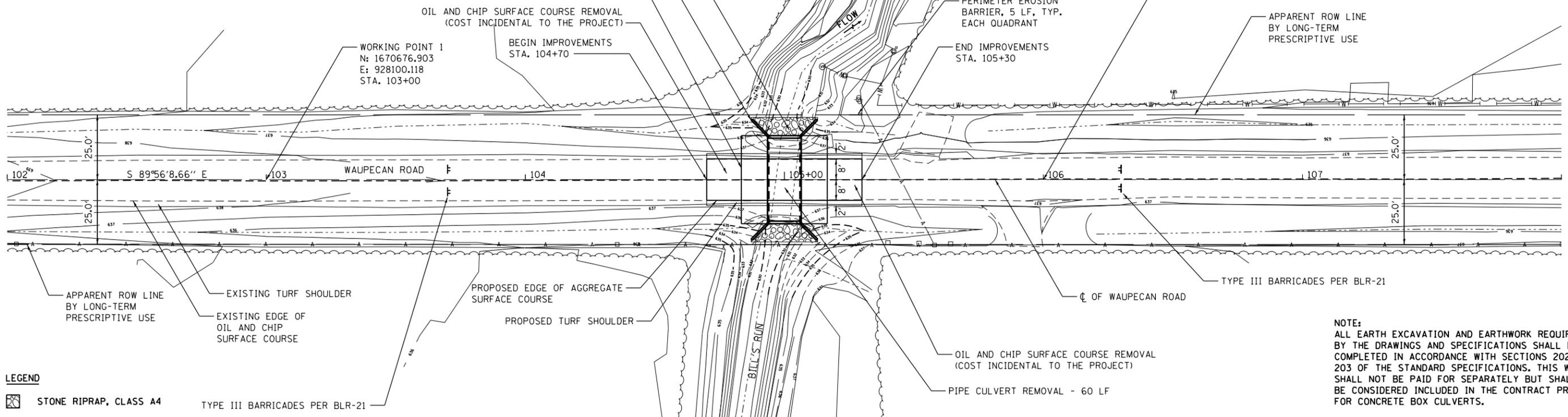
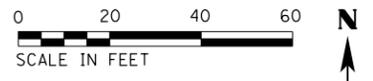
EXCAVATION FOR CONCRETE BOX CULVERT

OIL AND CHIP SURFACE COURSE REMOVAL
(COST INCIDENTAL TO THE PROJECT)

WORKING POINT 1
N: 1670676.903
E: 928100.118
STA. 103+00

BEGIN IMPROVEMENTS
STA. 104+70

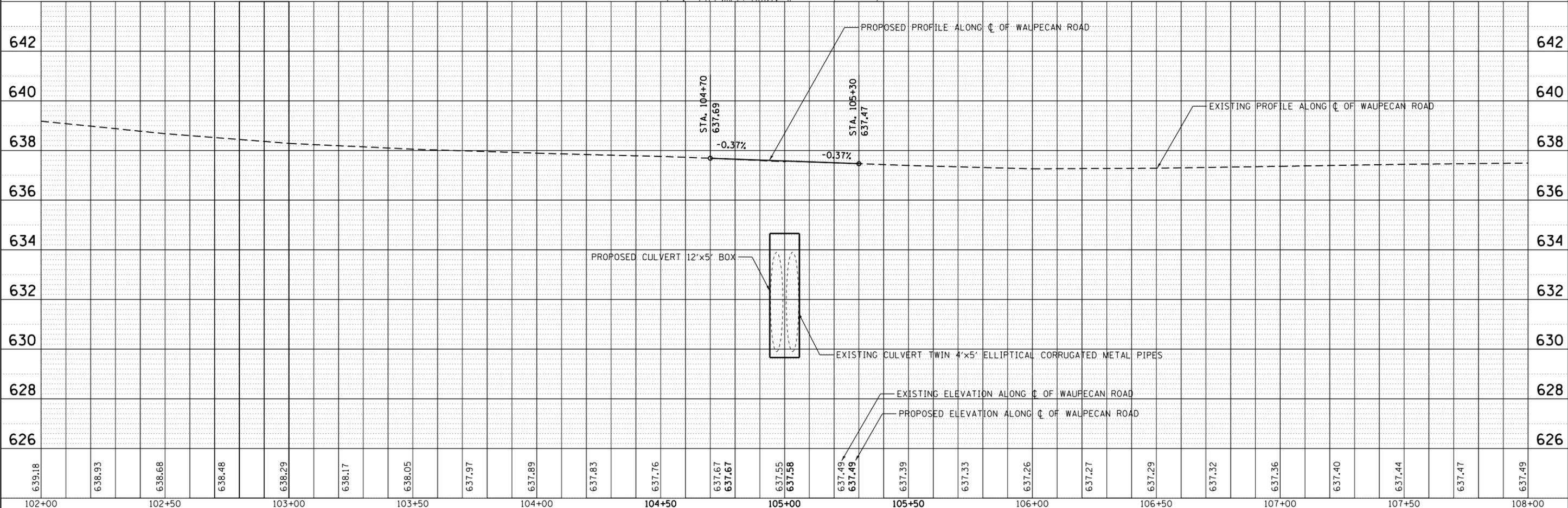
WORKING POINT 2
N: 1670676.566
E: 928400.118
STA. 106+00



NOTE:
ALL EARTH EXCAVATION AND EARTHWORK REQUIRED BY THE DRAWINGS AND SPECIFICATIONS SHALL BE COMPLETED IN ACCORDANCE WITH SECTIONS 202 AND 203 OF THE STANDARD SPECIFICATIONS. THIS WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCLUDED IN THE CONTRACT PRICES FOR CONCRETE BOX CULVERTS.

LEGEND

- STONE RIPRAP, CLASS A4
- TYPE III BARRICADES PER BLR-21



PLAN	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NOTE BOOK NO.	
	FILE NAME	

PROFILE	SURVEYED	DATE
	PLOTTED	
	GRADES CHECKED	
	STRUCTURE NOTATIONS CHECKED	
	NOTE BOOK NO.	
	FILE NAME	

STRAND ASSOCIATES*
1170 SOUTH HOUBOLT ROAD
JOLIET, ILLINOIS 60431
(815) 744-4200

USER NAME = mattg	DESIGNED - MJG	REVISED -
MODEL NAME = Default	DRAWN - MJG	REVISED -
PLOT SCALE = 40.0000' / in.	CHECKED - AJG	REVISED -
PLOT DATE = 9/18/2017	DATE - 9/18/2017	REVISED -

GRUNDY COUNTY
HIGHWAY DEPARTMENT

PLAN AND PROFILE
WAUPECAN ROAD

SCALE: SHEET 1 OF 1 SHEETS STA. 102+00 TO STA. 108+00

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	17-16128-00-BR	GRUNDY	7	4
CONTRACT NO.				

ILLINOIS FED. AID PROJECT

Benchmarks: Mag nail in the north face of the 1st power pole to the east of the creek on the south side of the road, 1'-0" above grade. Elev. 637.729. Survey spike in the north face of the 1st power pole to the west of the creek on the south side of the road, 1'-0" above grade. Elev. 637.260.

Existing Structure: 60"x48" twin elliptical corrugated metal pipes (CMPs), 30'-0" in length. Existing structure currently carries Waupacan Road over Bill's Run. Existing CMP inverts are backpitched, with the downstream invert elevation higher than the upstream invert elevation.

Road closed. Traffic will be detoured.

No salvage.

BILL OF MATERIAL

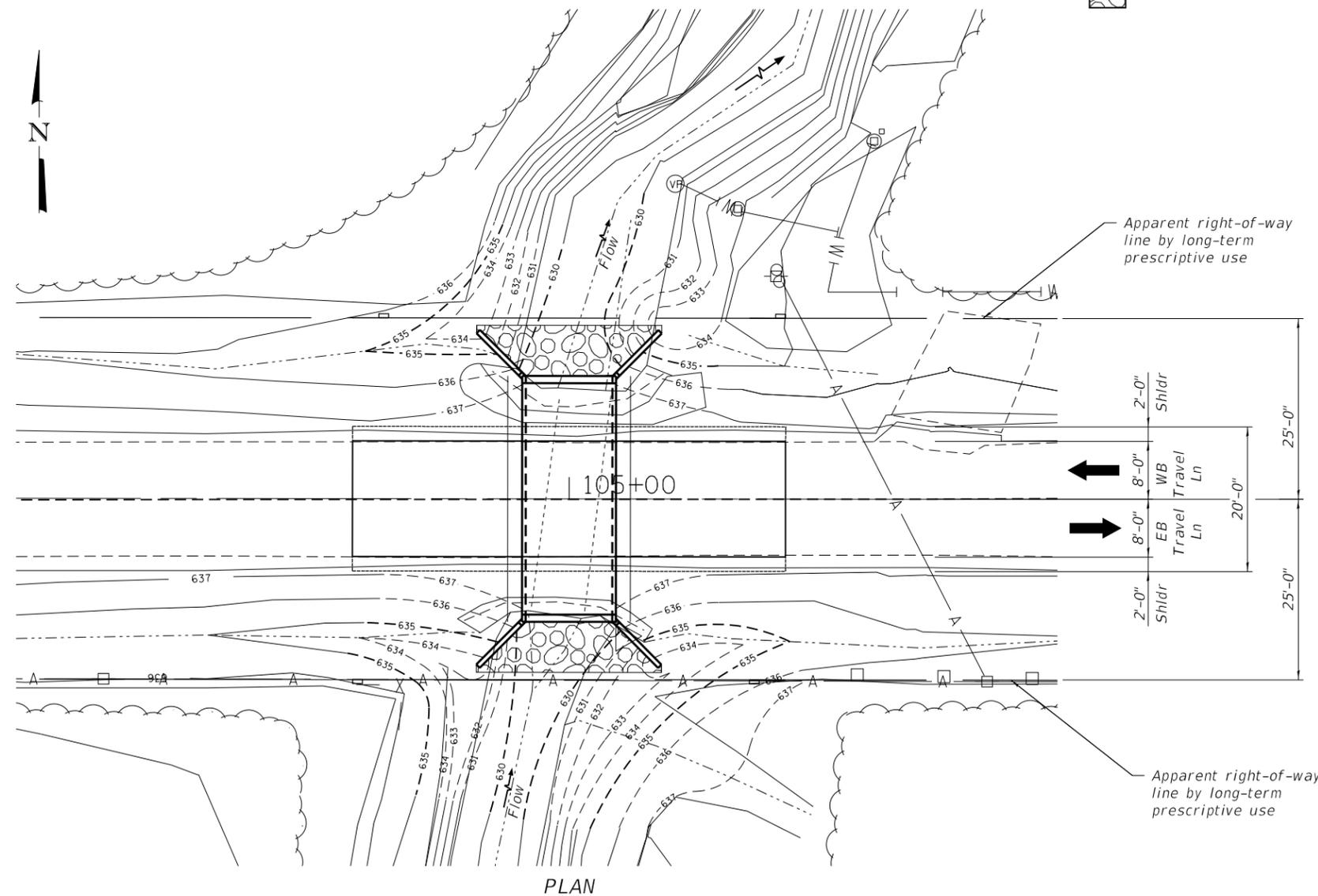
ITEM	UNIT	TOTAL
Porous Granular Embankment	CU YD	123
Stone Riprap, Class A4	SQ YD	32
Filter Fabric	SQ YD	32
Pipe Culvert Removal	FOOT	60
Reinforcement Bars	POUND	11,480
Concrete Box Culverts	CU YD	52

WATERWAY INFORMATION

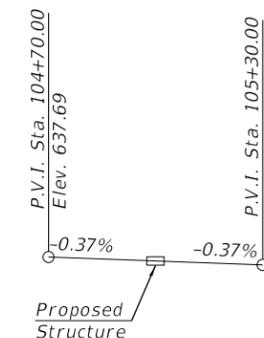
Drainage Area = 4.31 square miles
 Existing Low Grade Elevation = 637.27 ft at Sta. 106+00
 Proposed Low Grade Elevation = 637.27 ft at Sta. 106+00
 10-Year Velocity Through Existing Culvert = 3.30 fps
 10-Year Velocity Through Proposed Culvert = 3.30 fps

Flood	Frequency Year	Discharge (cfs)	Headwater Elevation (ft)		
			Natural	Existing	Proposed
Ten-Year	10	278	634.3	635.7	634.7
Design	15	314	634.6	636.6	635.1
Base	100	478	635.7	637.9	636.9
Overtopping	150	515	635.9	638.0	637.3
Max. Calc.	500	618	636.5	638.1	637.7

LEGEND



PLAN



PROFILE GRADE

(Along ϕ of Waupacan Road)

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2014 AASHTO LRFD Bridge Design Specifications, 7th Edition with 2016 Interims

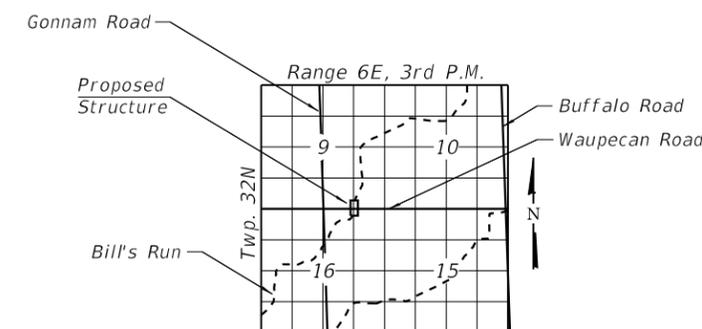
DESIGN STRESSES

FIELD UNITS

$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

HIGHWAY CLASSIFICATION

Functional Class: Rural Local
 ADT: 50
 Design Speed: 30 m.p.h.
 No Posted Speed
 2-Way Traffic
 Directional Distribution: 50:50



LOCATION SKETCH

NOTES

See Plan Layout and Longitudinal Section on sheet 6.
 See culvert details on sheet 7.
 Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

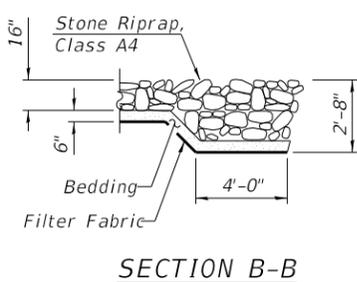
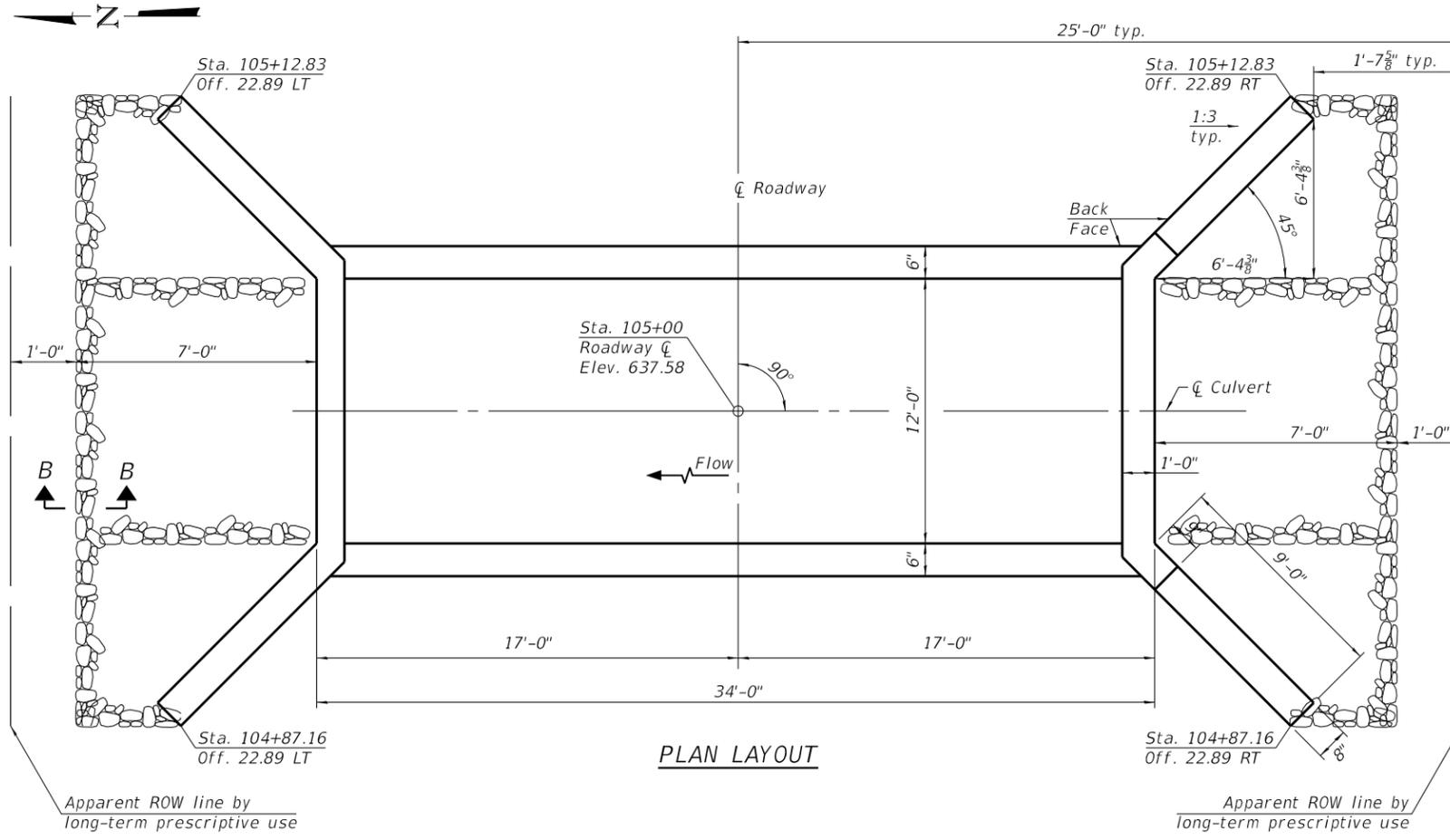
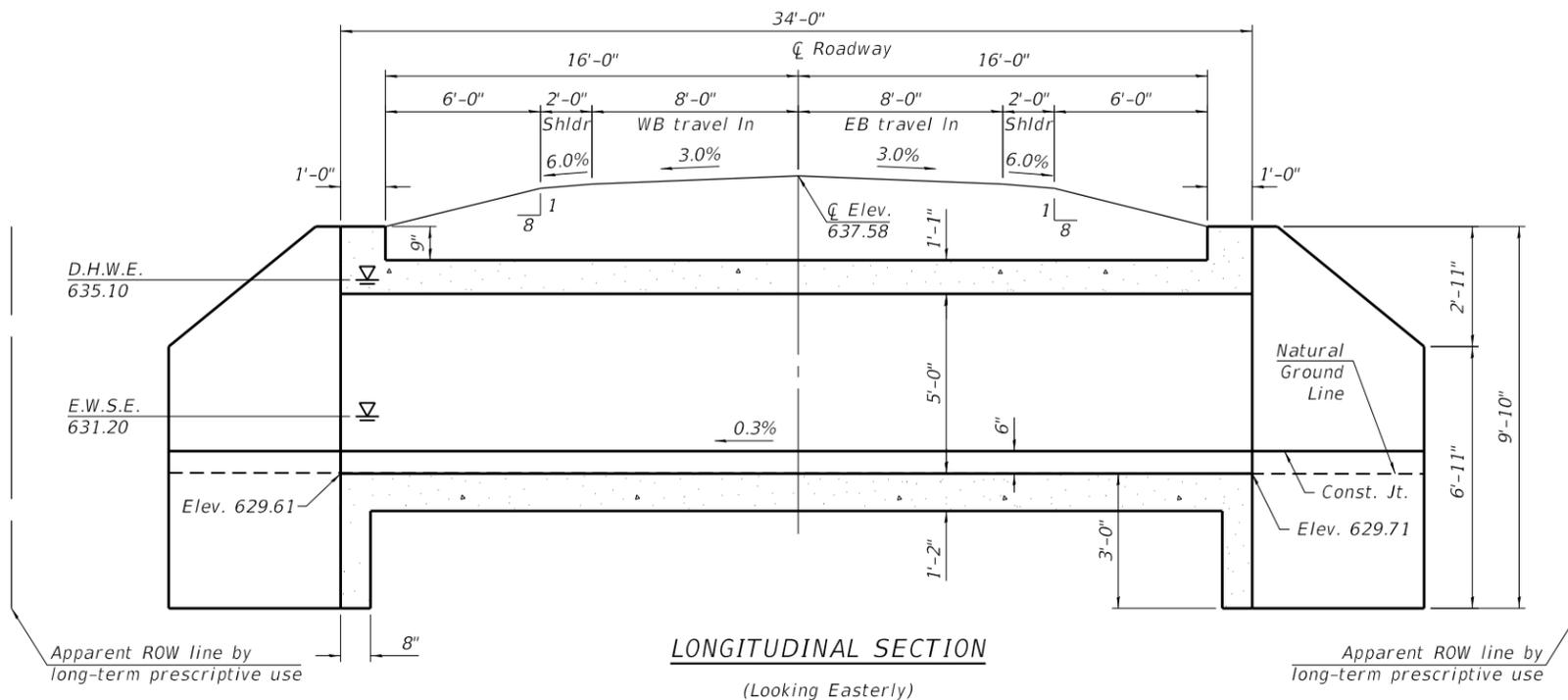


GENERAL PLAN & ELEVATION

WAUPECAN ROAD
 OVER BILL'S RUN
 SECTION 17-16128-00-BR
 GRUNDY COUNTY
 STA. 105+00.00

FILE NAME = SA:\JL\44800-4491\4443\001\Micro\CAD\Drawings\001-sht-5 - GPE-1.dgn

1170 SOUTH HOUBOLT ROAD JOLIET, ILLINOIS 60431 (815) 744-4200 IDFPR NO. 184-001273	USER NAME = mattg	DESIGNED - MJG	REVISED	GRUNDY COUNTY HIGHWAY DEPARTMENT	GENERAL PLAN AND ELEVATION 1 STA. 105 + 00.00	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT DATE = 9/18/2017	CHECKED - BRL	REVISED			17-16128-00-BR	GRUNDY	7	5	
		DRAWN - MJG	REVISED			CONTRACT NO.				
		CHECKED - AJS	REVISED			ILLINOIS FED. AID PROJECT				



FILE NAME = SA\JUL144800-4493\4443\001\Micro\CA00D_Sheets\001-sh1-6 - CPE-2.dgn

SA STRAND ASSOCIATES
 1170 SOUTH HOUBOLT ROAD
 JOLIET, ILLINOIS 60431
 (815) 744-4200
 IDFPR NO. 184-001273

USER NAME = mottg
 DESIGNED - MJG
 CHECKED - BRL
 DRAWN - MJG
 CHECKED - AJS
 PLOT DATE = 9/18/2017

DESIGNED - MJG
 CHECKED - BRL
 DRAWN - MJG
 CHECKED - AJS

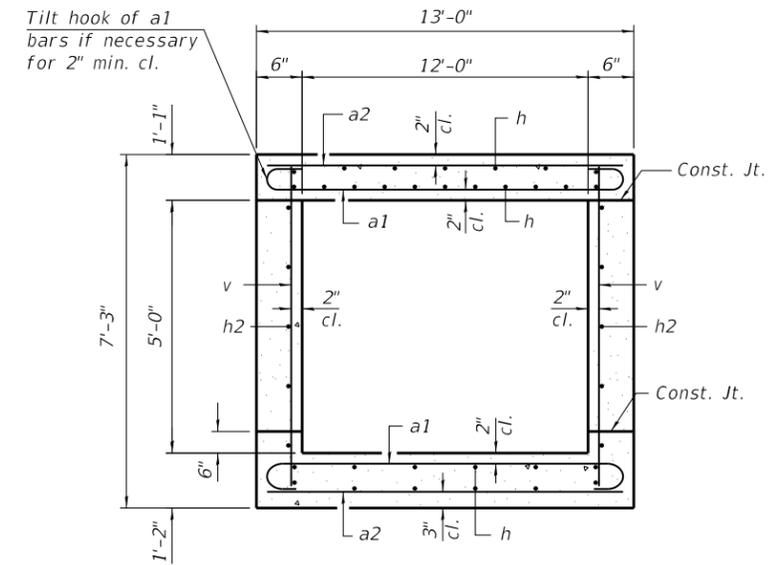
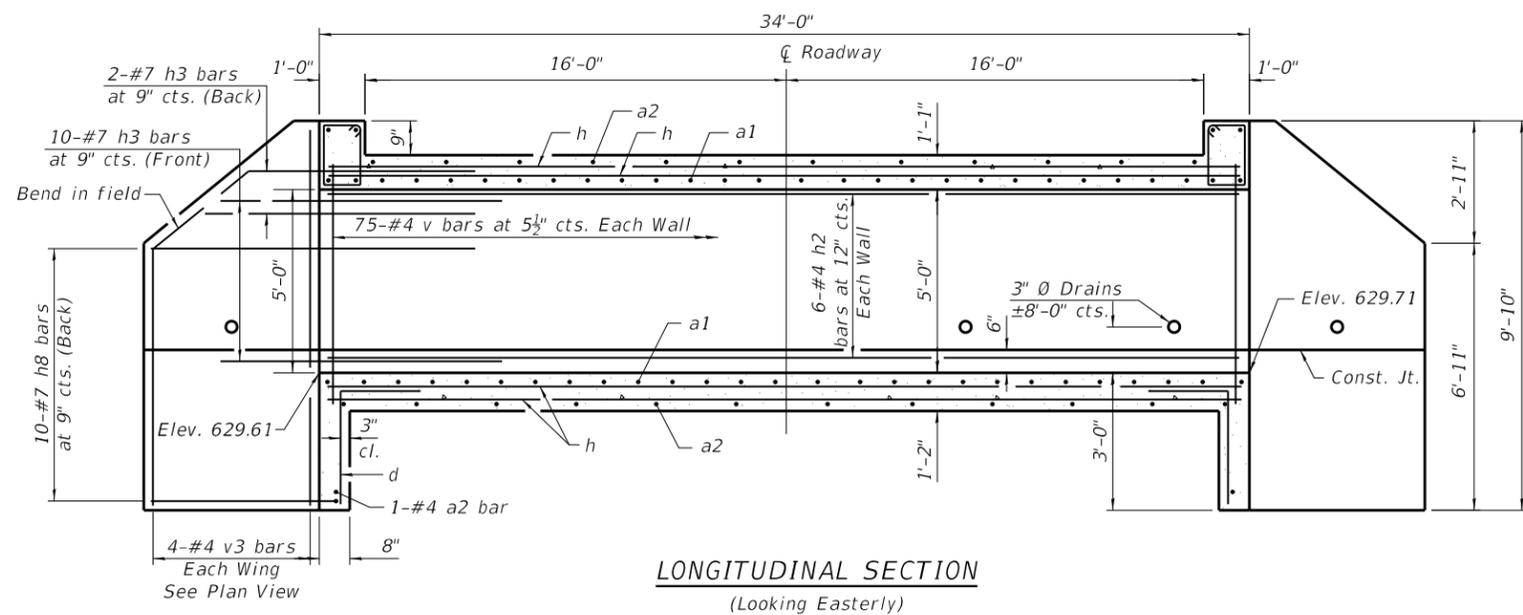
REVISED
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 REVISED
 REVISED

**GRUNDY COUNTY
 HIGHWAY DEPARTMENT**

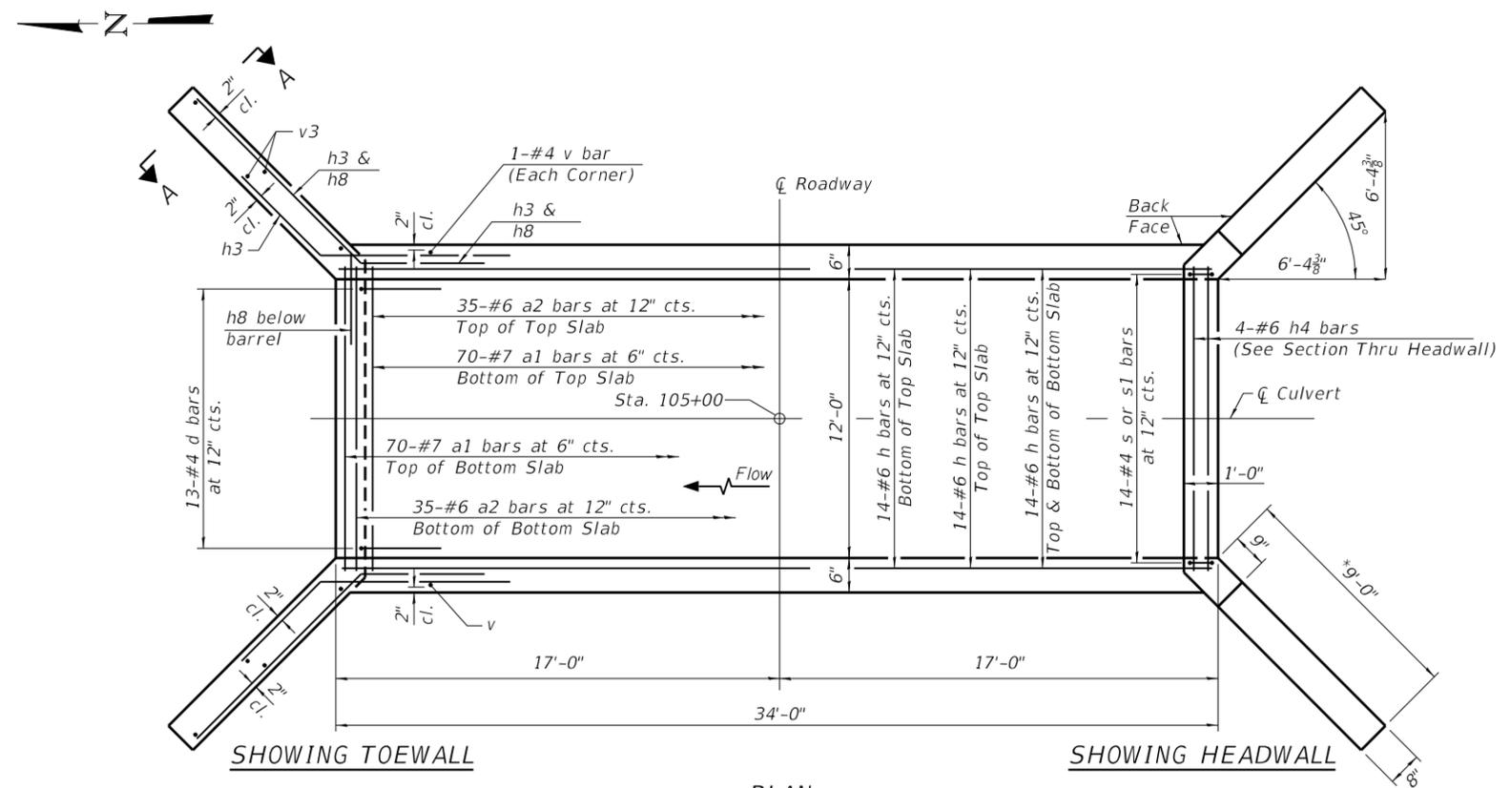
**GENERAL PLAN AND ELEVATION 2
 STA. 105 + 00.00**
 SHEET NO. 2 OF 2 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	17-16128-00-BR	GRUNDY	7	6
CONTRACT NO.				

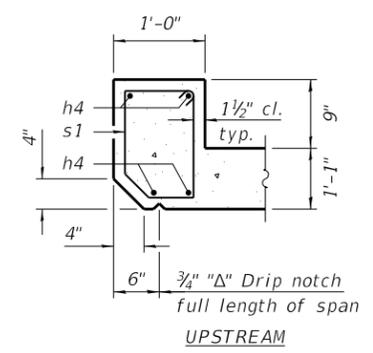
ILLINOIS FED. AID PROJECT



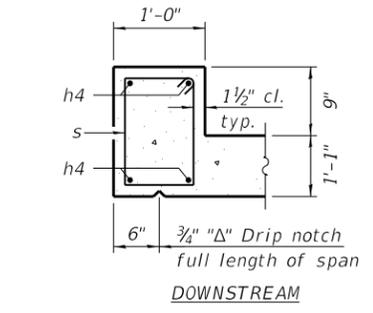
SECTION THRU BARREL



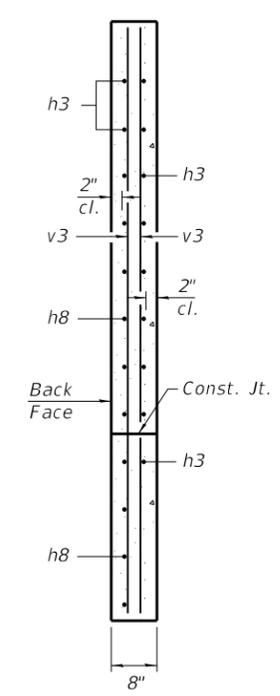
PLAN



SECTION THRU HEADWALL UPSTREAM



SECTION THRU HEADWALL DOWNSTREAM



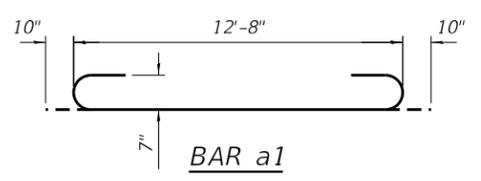
SECTION A-A

BILL OF MATERIAL

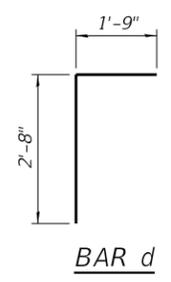
Bar	No.	Size	Length	Shape
a1	140	#7	14'-4"	
a2	72	#6	12'-8"	
d	26	#4	4'-5"	
h	56	#6	33'-8"	
h2	12	#4	33'-8"	
h3	48	#7	8'-0"	
h4	8	#6	12'-8"	
h8	40	#7	12'-0"	
s	14	#4	5'-5"	
s1	14	#4	5'-3"	
v	154	#4	6'-10"	
v3	16	#4	9'-6"	
Porous Granular Embankment			Cu. Yd.	123
Concrete Box Culverts			Cu. Yd.	52
Reinforcement Bars			Pound	11,480

NOTES

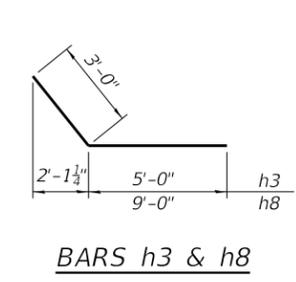
*A distance of half the length of the wingwall but not less than six feet of the barrel shall be poured monolithically with the wingwalls.



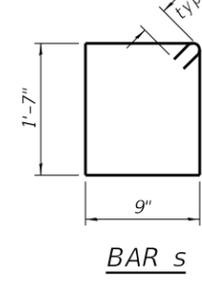
BAR a1



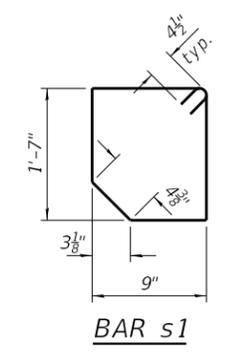
BAR d



BARS h3 & h8



BAR s



BAR s1

FILE NAME = SA\10144800-449514443\001\Micro\CA00D_Sheets\001-sht-7 - culvert.tbl.dwg

TSA-SB-HC-ZS

2-17-2017



USER NAME = mattg	DESIGNED - MJG	REVISD
	CHECKED - BRL	REVISD
	DRAWN - MJG	REVISD
	CHECKED - AJS	REVISD
PLOT DATE = 9/18/2017		

GRUNDY COUNTY
HIGHWAY DEPARTMENT

CULVERT DETAILS
STA. 105 + 00.00

SHEET NO. 1 OF 1 SHEETS

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	17-16128-00-BR	GRUNDY	7	7
CONTRACT NO.				
ILLINOIS FED. AID PROJECT				