

SUMMARY OF QUANTITIES

LOCATION OF WORK: FAP 693 (IL.9)
2 LANE RURAL
COUNTY: MCLEAN COUNTY
STA. 1646+93.9 +/-
STA. 1647+47.1 +/-
FUNDING BREAKOUT: 80% FEDERAL
20% STATE
CONSTRUCTION CODE: 0010

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CODE #	ITEM	UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	270.0
20400800	FURNISHED EXCAVATION	CU YD	215.0
20700220	POROUS GRANULAR EMBANKMENT	CU YD	163.0
21301052	EXPLORATION TRENCH 52" DEPTH	FOOT	100.0
25000210	SEEDING, CLASS 2A	ACRE	0.8
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	68.0
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	68.0
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	68.0
25100115	MULCH, METHOD 2	ACRE	1.6
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	100.0
28000305	TEMPORARY DITCH CHECKS	FOOT	72.0
28000400	PERIMETER EROSION BARRIER	FOOT	300.0
28100107	STONE RIPRAP, CLASS A4	SQ YD	231.0
28200200	FILTER FABRIC	SQ YD	231.0

* SPECIALITY ITEM

CODE #	ITEM	UNIT	TOTAL QUANTITY
44200050	WELDED WIRE REINFORCEMENT	SQ YD	162.0
44200964	CLASS B PATCHES TYPE IV, 9 INCH	SQ YD	162.0
44201299	DOWEL BARS 1-1/2"	EACH	44.0
44213200	SAW CUTS	FOOT	55.0
44213204	TIE BARS 3/4"	EACH	25.0
48101500	AGGREGATE SHOULDER, TYPE B, 6"	SQ YD	36.0
48102100	AGGREGATE WEDGE SHOULDER, TYPE B	TON	44.0
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1.0
50200450	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIALS FOR STRUCTURES	CU YD	72.0
51500100	NAME PLATES	EACH	1.0
54001001	BOX CULVERT END SECTIONS CULVERT NO. 1	EACH	2.0
54011204	PRECAST CONCRETE BOX CULVERTS 12' X 4'	FOOT	72.0
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	156.0
61100605	MISCELLANEOUS CONCRETE	CU YD	1.0
61133200	FIELD TILE JUNCTION VAULTS, 3' DIA.	EACH	2.0

* SPECIALITY ITEM

MODEL: SHT_PLAN
FILE NAME: C:\Bentley\CONNECT\1011\Organization-Civil\DOT_Standards\Call\DOT_Sheets.cof

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CODE #	ITEM	UNIT	TOTAL QUANTITY
61140600	STORM SEWERS (SPECIAL), 18"	FOOT	70.0
* 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS	FOOT	325.0
* 63000007	STEEL PLATE BEAM GUARDRAIL, TYPE B, 6 FOOT POSTS	FOOT	100.0
* 63000030	STRONG POST GUARDRAIL ATTACHED TO STRUCTURE	FOOT	60.0
* 63100167	TRAFFIC BARRIER TERMINAL,TYPE 1 (SPECIAL) TANGENT	EACH	4.0
63200310	GUARDRAIL REMOVAL	FOOT	360.0
66600105	FURNISHING AND ERECTING RIGHT OF WAY MARKERS	EACH	8.0
67000500	ENGINEER'S FIELD OFFICE, TYPE B	CAL MO	3.0
67100100	MOBILIZATION	L SUM	1.0
70107025	CHANGEABLE MESSAGE SIGN	CAL DA	14.0
* 72501000	TERMINAL MARKER-DIRECT APPLIED	EACH	4.0
* 78001110	PAINT PAVEMENT MARKINGLINE 4"	FOOT	1238.0
* 78200005	GUARDRAIL REFLECTORS, TYPE A	EACH	14.0
X5810103	MEMBRANE WATERPROOFING SYSTEM FOR BURIED STRUCTURES	SQ YD	156.0

* SPECIALITY ITEM

CODE #	ITEM	UNIT	TOTAL QUANTITY
X7010216	TRAFFIC CONTROL & PROTECTION, (SPECIAL)	L SUM	1.0
X7200203	DETOUR SIGNING	L SUM	1.0
Z0013798	CONSTRUCTION LAYOUT	L SUM	1.0
Z0038700	PERMANENT BENCH MARKS	EACH	1.0
Z0054517	ROCK FILL - FOUNDATION	TON	110.0

* SPECIALITY ITEM

1

MODEL: SHT_PLAN
FILE NAME: C:\Bentley\CONNECT10\11\Organization-Civil\DOT_Standards\Call\DOT_Sheets.cel

	USER NAME = Eric,Thomas	DESIGNED -	REVISED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
		DRAWN -	REVISED -						693	21BR-2	MCLEAN	50	5	
		CHECKED -	REVISED -											
	PLOT DATE = 12/7/2022	DATE -	REVISED -		SCALE:	SHEET 2	OF 2	SHEETS	STA.	TO STA.	CONTRACT NO. 70574			
					ILLINOIS FED.AID PROJECT									

Existing Structure: S.N. 057-0077 was built in 1925 and superstructure replaced in 1979 as SBI Rte. 9, Section 21BR-1 at Sta. 1647+16. Consists of a single span reinforced concrete slab supported by closed abutments on spread footing with timber piles. The existing structure is to be removed and replaced with a double barrel precast concrete box culvert. Traffic will be maintained with road closure.

3" Ø Drain Holes
(See General Notes)

 D.H.E. 829.3

④ Culvert

Drainage Area = 0.3 sq. mi. Low Grade Elev. = 833.1 @ Sta. 1648+00									
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	210	38	50	829.0	0.6	0.1	829.6	829.1
Design	50	364	46	57	829.3	1.2	0.5	830.5	829.8
Base	100	437	48	60	829.4	1.5	0.8	830.9	830.2
Overtopping									
Max. Calc.	500	620	55	67	829.7	2.0	1.4	831.7	831.1

10-year velocity proposed culvert = 5.5 ft/s

The design fill height for this box is 1.3 ft. The precast box culvert sections shall conform to the requirements of ASTM C1577. Drain holes shall be provided on exterior culvert walls for each precast box segment with a clear rise greater than 3 ft. The drain hole shall be located within 1/3 of the clear rise of the box culvert, shall not intercept the haunch, and shall conform to the requirements of Article 503.11 of the Standard Specification.

Nonwoven geotextile fabric shall conform to the requirements of Art. 1080.01 of the Standard Specifications. The minimum weight of the fabric shall be 6 ounces per square yard.

Precast concrete box culverts and box culvert end sections shall be backfilled with Porous Granular Embankment in the required excavation areas on the sides of the box culvert from the top of the box culvert to the bottom of the box culvert. This area of PGE is included in the Porous Granular Embankment pay item. The 6-inch thick layer of porous granular material required under the precast concrete box culvert, according to Section 540.06 of the standard specifications, shall also apply to the end sections. Cost of this porous granular material will not be paid for separately but shall be included in the unit price of the work for which it is required.

Excavation behind the abutment walls shall be performed to balance front and back soil pressure before removing the existing superstructure.

The removal of existing approach slabs (if any) are included in the cost of Removal of Existing Structures.

1. General Plan and Elevation
- 2.-3. Multi-cell Precast Concrete Box Culvert
Apron End Section Details
4. Porous Granular Embankment



Sta. 1647+50.00
Elev. 833.29

-0.32%

Sta. 1646+75.00
Elev. 833.53

Along $\mathbb{Q}$ IL. Rte. 9

ITEM	UNIT	TOTAL
Removal of Existing Structures	Each	1
Name Plates	Each	1
Box Culvert End Sections, Culvert No. 1	Each	2
Precast Concrete Box Culverts 12' x 4'	Foot	72
Porous Granular Embankment	Cu. Yd.	163
Rock Fill - Foundation	Ton	110
Geocomposite Wall Drain	Sq. Yd	156
Membrane Waterproofing System for Buried Structures	Sq. Yd.	156
Removal and Disposal of Unsuitable Material for Structures	Cu. Yd.	72

S.N. 057-2043

(All costs associated with furnishing and constructing the above drain detail will not be measured for payment but shall be included in the contract unit price for the associated work.)

2020 AASHTO LRFD Bridge Design Specifications
Customary U.S. Units, 9th Edition

PRECAST UNITS

FIELD UNITS

$$\begin{aligned} f_c &= 3,500 \text{ psi} \\ f_y &= 65,000 \text{ psi (Welded Wire Reinforcement)} \end{aligned}$$

See Std. 515001

USER NAME = timothy.brandenburg	DESIGNED -	REVISED - TJB 4/3/2025
	DRAWN -	REVISED -
	CHECKED -	REVISED -  TJB 4/2/2026
PLOT DATE = 11/6/2025	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

S.N. 057-2043

SCALE:	SHEET 1	OF 5	SHEETS	STA.	TO STA.
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F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
693	21BR-2	MCLEAN	50	22
		CONTRACT NO. 70574		
ILLINOIS		FED. AID PROJECT		

MODEL: Default
FILE NAME: c:\pw work\brandenburg\id0984963\ID570574-sht-Structure.dgn

