FINAL CHECKLIST FOR COORDINATION OF ROADWAY AND STRUCTURE PLANS

TIP NO: 17BP.9.R.83 **COUNTY:** STOKES 286

1. ☒ Beginning and ending stations shown on Roadway Plans for bridge agree with Structure Plans.

2. ☒ Pay items on Structure Plans agree with the pay items on the Roadway Plans (Example – If rip-rap is required, do not show the rip-rap on Structure Plans and dumped stone on Roadway Plans).

3. ☒ Guardrail attachments on structure and roadway plans are attached at the same points and located on the same corners.

4. ☒ Bridge widths on Roadway Plans (if shown) agree with widths on Structure Plans.

5. ☐ Shoulder to shoulder widths beneath the bridge on a grade separation shown on the Structure Plans agree with widths shown on the typical sections in the Roadway Plans.

6. ☐ Drainage Structures shown on the structure plans agree with Drainage Structures shown on Roadway Plans.

7. ☐ Note shown stating that existing pavement shall be scarified in area of end-bent piles.

8 ☒. Pay Items are included in the estimate for bridge approach slabs and Roadway Standard Drawings or details are included in the Roadway Plans for (check one):

   ☒ Type 1 Approach Fill. Select both Type 1 and Type 1A on Sheet 1A. (Standard Drawings 423.01 and 423.02)

   ☐ Type 2 Approach Fill. Select both Type 2 and Type 2A on Sheet 1A. (Standard Drawings 423.03 and 423.04)

9. ☒ Vertical and Horizontal Alignment on Roadway Plans agree with that shown on Structure Plans.

Checked By (Rdy): Paddy Jordan, Mott MacDonald Date: 1-6-2025

Checked By (Str): Mark Averette, WGI Date: 1-6-2025

Rev: November 2024

COST BASED ESTIMATE

Date: 1/22/2025

MEMORANDUM TO: FILE

FROM: Mott MacDonald

SUBJECT: Project No. : 17BP.9.R.83 - Stokes 286

COST BASED ESTIMATE QUANTITY BREAKDOWNS

The breakdown of quantities for the following items have been prepared to assist the Design Services Unit in the preparation of the "Cost Based Estimate".

I Earthwork

The earthwork summary in the plans has been prepared in accordance with the following guidelines:

Yes	No	N/A	
X			a. Summary points do not exceed 3000'.
X			b. Summary points end / begin at each bridge (stream or grade separation).
		X	c. Summary points end / begin near each major at-grade multi-lane intersection or at-grade railroad crossing.
X			d. -Y- Lines are included in their respective summaries.
		X	e. On widening projects separate summaries are provided for right and left sides.
		X	f. On existing divided facilities to be widened separate summaries are provided for right side and median widening.

II. Pavement Quantities

Pavement quantity breakdowns have been prepared in accordance with the following chart:

	Full Lane Width (10' or more width) (any layer of material constructed to a width of 10' or more and along a continuous pull)		Miscellaneous Areas (0 to 10' widening width) (ramps, intersections, tapers, short auxillary lanes median x-over,Rt. & Lt. turn lanes driveways,etc.)		Wedging & Leveling	
ITEM	TONS	Subgrade Contact (sq.yds)	TONS	Subgrade Contact (sq.yds)	TONS	Total (TONS)
B25.0C	1320	5515	705	2915	35	2060
I19.0C	1280		647		213	2140
S9.5B	1375		224		226	1825

Please note that on widening projects where I-2 or like is used 2" deep on the widening portion and 1" deep on the existing pavement the first 1" of material on the widening section (less than 10' wide) should be calculated and included in the miscellaneous area and the second 1" should be included with the resurfacing and included in the full lane width (if 10' wide or greater).

PDN Stage 4 – Contract Standards Checklist

SPOT ID/Project TIP #: 17BP.9.R.83

County: Stokes

4CS1 Complete PS&E Package: Review List for Final Construction Plans

Item #	Review Item	Yes	No	N/A
	General Items			
1	Ensure document sets for correspondence and roadway supporting documents are created on SharePoint according to the PS&E checklist for projects	☒	☐	☐
2	Create a combined PDF copy of all quantity sheets in the same order as the master pay item list. The first page should be the calculation of quantities cover sheet	☒	☐	☐
3	Include the note "Structures Pay Item" for items on the Roadway plans covered by Structures.	☒	☐	☐
4	Remove "PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION" labels from Final Plans sheets	☒	☐	☐
5	The "Document not considered final unless all signatures completed" sticker should appear on the plans sheets to be sealed and design files containing information used to generate them	☒	☐	☐
6	Approved Design Exception package is provided, if applicable	☐	☐	☒
7	Right of Way revision notes removed from the plans	☒	☐	☐
8	TIP number is shown on all sheets	☒	☐	☐
9	Plan sheet numbers for plans from all disciplines are included in the index of sheets for sheet 1A	☒	☐	☐
10	If the sheet numbers have changed for any parcel since the plans were sent for Right of Way acquisition, verify the R/W sheet number appears in the title block	☐	☐	☒
11	Complete and submit signed checklist for coordination of roadway and structure plans	☒	☐	☐
12	Place image of professional engineer seal with Engineer's name and license number. Multiple seals may be required on a single sheet. Electronic signatures may be applied but are not required at the initial turn in to Plans and Standards Management for plan review	☒	☐	☐
13	Verify Pavement Management has reviewed plans for shoulder drain locations	☐	☐	☒
14	If submitting printed plans, submit 34" X 22" cross section sheets if 30 sheets or less. Submit 17" X 11" cross section sheets if 31 sheets or more.	☐	☐	☒
15	Ensure all individual pdf sheets are scaled 34" Wide X 22" High except as noted for cross sections above	☒	☐	☐
16	Ensure plans include any environmental commitments	☒	☐	☐
17	Project documentation contains correspondence from Division Right of Way related to NCDOT Standard Specifications sections 210 or 215	☐	☐	☒
18	Include a parcel index sheet for projects with 2 or more plan sheets starting with sheet number 3P-1	☒	☐	☐
19	Include bridge foundation recommendations in the Correspondence Docu-set on SharePoint	☒	☐	☐
21	Ensure the required roadway supporting documentation from the PS&E checklist is provided. Refer to the Roadway Design Manual Part II, Section 13.10 for further guidance	☒	☐	☐
22	At the time final plans are submitted to r, ensure a PDF of the AWP or PIQ estimate is uploaded on SharePoint following PS&E checklist guidance	☒	☐	☐
23	Verify Geotechnical standard drawings and provisions provided are current. For Standard Drawings, compare drawing date to effective Let date shown here: https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx For Standard Provisions, compare provision date to effective Let date shown here: https://connect.ncdot.gov/resources/Geological/Pages/Geotech_Provisions_Notes.aspx	☒	☐	☐

Item #	Review Item	Yes	No	N/A
24	Verify the Geotechnical Summary Tables produced and approved by Geotechnical Engineering match the recommendation letters	☒	☐	☐
25	Send a PDF of your plans to the Pavement Management and Hydraulic Engineer of Record for review prior to sealing their plans	☐	☐	☐
	Title Sheet			
1	Location of Project is complete and accurate	☒	☐	☐
2	County is shown	☒	☐	☐
3	Type of work includes all items shown on current tentative letting list	☒	☐	☐
4	Graphic scales are shown and accurate for plan and profile sheets	☒	☐	☐
5	Design data is shown	☒	☐	☐
6	Control of access note shown (full or partial)	☐	☐	☒
7	Approved Design Exception note shown, if applicable	☐	☐	☒
8	Vicinity map includes the following:			
A	City name and municipal limits; County names and limits	☐	☐	☒
B	Interstate, US and State Routes	☒	☐	☐
C	North arrow	☒	☐	☐
D	Beginning and end of project or project location, as appropriate	☒	☐	☐
E	Title block	☒	☐	☐
F	Offsite detours with legend as needed.	☐	☐	☒
9	Project layout on numbered superimposed sheets includes the following:			
A	Project alignment for all proposed construction (-L- lines, -Y- lines, service roads, detours, etc.)	☒	☐	☐
B	Existing roads and streets affected by construction but not a part of the project	☒	☐	☐
C	Route numbers, survey line numbers, street names, etc.	☒	☐	☐
D	Symbols for proposed bridges and culverts 20’ and over with beginning and ending stations	☒	☐	☐
E	Streams and rivers	☒	☐	☐
F	Railroads	☐	☐	☒
G	City limits	☐	☐	☒
H	State and County limits	☐	☐	☒
I	Beginning and ending stations for each project	☒	☐	☐
J	Begin and end construction outside project limits. Not needed for y-lines	☐	☐	☒
K	Destination points at beginning and ending of project	☒	☐	☐
L	North arrow	☒	☐	☐
10	Project number includes the following:			
A	Project contract number and TIP number on sheet	☐	☒	☐
B	P.E., R/W, Utility, and Construction F.A. project numbers in project identification block, if federally funded	☐	☐	☒
C	P.E., R/W, Utility, and Construction WBS elements in project identification block	☒	☐	☐
11	Length of project information correct showing Roadway, Structure, and Total Project lengths	☒	☐	☐
12	NCDOT Project Manager’s name and Firm/NCDOT Engineer of Record’s name are shown	☒	☐	☐
13	Design firm’s official name and License number is shown on each sheet where a seal is required	☒	☐	☐
14	Month, day, and year of R/W and Letting shown	☒	☐	☐
15	Areas not part of project noted	☐	☐	☒
16	Remove clearing method note	☒	☐	☐

	Index of Sheets, General Notes, and List of Standards (1A Sheet)			
1	Submit completed 1A Excel spreadsheet with boxes checked under the General Notes and List of Standard Drawings tabs upon first submittal to plan review. An index of sheets can be completed in the Excel file template or submitted as a separate document	☒	☐	☐
2	After initial review, submit a completed 1A sheet including information from the corrected Index of Sheets, General Notes, and List of Standard Drawings in a 34" x 22" PDF format	☒	☐	☐
	Conventional Symbols (1B Sheet)			
1	Add any project specific symbols to the standard 1B sheet or add symbol definitions to each affected plan sheet	☐	☐	☒
2	Verify current standard 1B sheet is included	☒	☐	☐
	Typical Sections			
1	Pavement schedule corresponds with Final Pavement Design Letter	☒	☐	☐
2	Pavement compositions labeled to correspond with pavement schedule	☒	☐	☐
3	Dimensions shown on pavement, subgrades, stabilization, shoulders, ditches, slopes, centerline to centerline, medians, sidewalks, utility strips, curb & gutter, etc.	☒	☐	☐
4	Slopes shown on pavement, shoulders, subgrade, ditches, hinge point, grading, cuts and fills, rumble strips	☒	☐	☐
5	Station to Station shown with correct alignment reference	☒	☐	☐
6	Stations are broken for bridges and equalities	☒	☐	☐
7	"Grade to this Line" label is shown and points to the subgrade	☒	☐	☐
8	Grade point or crown point shown on each typical section as appropriate	☒	☐	☐
9	Detail showing shallow undercut by station range, if applicable	☐	☐	☒
10	Detail(s) showing milling and/or wedging, if applicable	☒	☐	☐
11	Information related to paving or other construction operations which will be covered under a future project is shown	☐	☐	☒
12	Show high and low values for variable slopes and variable widths	☐	☐	☒
13	Necessary notes of explanation shown	☒	☐	☐
14	Temporary pavement typical section and design as needed	☐	☐	☒
15	Typical sections under bridges are removed except in circumstances where needed through coordination with railroads or for construction of greenways or paths	☐	☐	☒
16	Typical sections on bridges are provided	☒	☐	☐
A	Asphalt wearing surface on cored slab and box beam bridges is shown	☒	☐	☐
B	Note to "See structure plans for structure construction details" is included	☒	☐	☐
	Details (as needed)			
1	Intersections and Islands	☐	☐	☒
2	Include Rip Rap on ditch details unless covered by the Roadway Standard Drawings	☒	☐	☐
3	Temporary Shoring	☒	☐	☐
4	Bench Slopes	☐	☐	☒
5	Special Drainage Structure or Endwalls	☐	☐	☒
6	Special Ditches	☒	☐	☐
7	Guardrail not covered by Standards	☒	☐	☐
	Plan Sheets			
1	Begin and end project stations are shown on the first and last plan sheet and agree with title sheet and typical sections	☒	☐	☐
2	Existing pavement width and type is shown	☒	☐	☐
3	Final horizontal alignment and design shown	☒	☐	☐
4	The following are shown on each plan sheet:			
A	North Arrow	☒	☐	☐
B	Bearings	☒	☐	☐

C	Curve data with superelevation and runoff	☒	☐	☐
D	Construction limits (slope stake lines), berm ditches, and lateral ditches	☒	☐	☐
E	Property owners, property lines and parcel numbers	☒	☐	☐
F	Right of Way, Easement, and Control of Access breaks by station and distance	☒	☐	☐
G	Areas to remain undisturbed within the Right of Way are clearly marked	☒	☐	☐
H	Fence and type	☐	☐	☒
I	Streets, Roads, and Driveways	☒	☐	☐
J	Onsite Detour alignments. Details for the detours can be shown on a separate plan sheet or as a roadway detail sheet (2-series) instead.	☐	☐	☒
K	Notes explaining if the roadbed of an existing road to be relocated is left in place or graded to create a natural condition.	☐	☐	☒
L	Information pertaining to bridge layout including lane width, offset to inside of rails, guardrail attachments, begin and end bridge and approach slab stations	☒	☐	☐
M	Proposed pavement and Right of Way widths at the begin and end of each sheet	☒	☐	☐
N	Lane lines at intersection, tapers, auxiliary lanes, etc	☒	☐	☐
O	-Y- lines with begin and end construction stations and station ties with mainline	☒	☐	☐
P	Traffic data diagrams for intersections from most recent traffic forecast showing the let year and the design year traffic	☐	☐	☒
Q	Limits of paved shoulders at intersections	☒	☐	☐
R	Note where sight distance grading is required	☐	☐	☒
S	Borrow and/or waste areas if furnished by NCDOT	☐	☐	☒
T	Cross reference notes on the plan sheets identify the appropriate sheet number for profile sheets, detail sheets and/or sheets from other units	☒	☐	☐
U	Symbol denoting pavement removal for locations outside of slope stake lines	☐	☐	☐
V	Begin and End stations for bridges and culverts	☒	☐	☐
W	False sump detail if not shown on ditch detail series sheets	☐	☐	☒
X	Benchmark symbols and number	☒	☐	☐
Y	Label rip rap, drainage ditch excavation, and geotextile for drainage quantities at each location unless provided on ditch details	☒	☐	☐
Z	Drainage design shown	☒	☐	☐
	1. Proposed pipe	☒	☐	☐
	2. Proposed Drainage Structures	☒	☐	☐
	3. Removal of existing pipes	☒	☐	☐
	4. Pipes to be plugged	☐	☐	☒
AA	Ensure baseline data is shown with point symbol and point name/number. Remove Baseline and Baseline stations	☒	☐	☐
BB	Label wells to be sealed and abandoned	☐	☐	☒
CC	Approved Design Exception note, as needed	☐	☐	☒
	Interchange Sheets			
1	Interchange sheets properly matched with adjacent plan sheet with no overlapping coverage	☐	☐	☒
2	Show traffic data, bar scale, and additional items as listed under plan sheets	☐	☐	☒
3	Proposed contour grading detail shown, if requested by the Division	☐	☐	☒
4	Cross section layout detail/shear point diagram included if part of project scope	☐	☐	☒
5	Approved Design Exception note, as needed	☐	☐	☒

	Intersection Sheets (2-B series)			
1	The detailed information shown on the intersection detail sheets should be restricted to design data only and should not be duplicated on the plan sheets.	☐	☐	☒
2	The following items should be shown unless they do not apply:			
A	Information for constructing three centered curves	☐	☐	☒
B	Island dimensions and details	☐	☐	☒
C	Legend for islands, sidewalks, and curb ramps as needed	☐	☐	☒
D	Alignments	☐	☐	☒
E	Lane markings	☐	☐	☒
F	Bar scale	☐	☐	☒
G	Proposed edges of pavement	☐	☐	☒
H	North arrow	☐	☐	☒
I	Paved shoulder widths	☐	☐	☒
J	Superelevation rates	☐	☐	☒
K	Sufficient dimensions and tie points for construction layout of all items being detailed	☐	☐	☒
	Profile Sheets			
1	Beginning and ending stations are shown on the first and last plan sheet and agree with title sheet and typical sections	☒	☐	☐
2	The following are shown on each profile sheet:			
A	Vertical grade lines and design. Design speed is shown only for vertical curves which do not meet proposed design speed, if applicable.	☒	☐	☐
B	Undercut excavation	☐	☐	☒
C	Hydraulic Data (drainage area, frequency, etc.) for bridges, culverts, and cross pipes	☒	☐	☐
D	Bar scale	☒	☐	☐
E	Proposed grade and existing ground line labeled	☒	☐	☐
F	Ditch profiles with PI and elevation included, as needed	☒	☐	☐
G	Approved Design Exception note, as needed	☐	☐	☒
	Cross Sections			
1	Show existing ground line, stations, and elevations	☒	☐	☐
2	Templates showing labeled cut and fill slopes, guardrail widening, ditches, channel changes, etc.	☒	☐	☐
3	Geotechnical Recommendations for Design and Construction and Geotechnical Recommendations for Pavement and Subgrade reviewed to assure conformity with the plans	☒	☐	☐
4	Undercut Excavation or Shallow Undercut symbology and legend are shown	☐	☐	☒
5	Note on cross section summary sheet should indicate whether or not the embankment column includes backfill for undercut	☒	☐	☐
6	Lump Sum note on cross section summary sheet contains the items that are included in the lump sum grading	☒	☐	☐
7	Confirm the cross section summary, earthwork logs and earthwork balance sheet match	☒	☐	☐
8	Cross section checked to assure adequate sight distances at bridges and intersections	☒	☐	☐
9	Scale shown on each sheet	☒	☐	☐
10	If an alternative pavement design is included, add a note in the cross section summary sheet indicating which alternative is included in the cross sections	☐	☐	☒
	Guardrail/Guiderail Design			
1	Guardrail shown for bridge piers, culverts, large pipe, sign supports, and other fixed objects	☒	☐	☐
2	Guardrail shown for ponds, rivers, and other water related hazards	☐	☐	☒
3	Guardrail/guiderail for median and guardrail for underpass pier, wall, and side slope protection as warranted	☐	☐	☒
4	Special details provided as needed for non-standard connections	☒	☐	☐

5	Ensure the appropriate guardrail anchor is proposed for the specific bridge rail/barrier proposed at each location	☒	☐	☐
6	Ensure adequate space is provided behind guardrail/guiderail	☒	☐	☐
7	Ensure required slopes are utilized in conjunction with guardrail/guiderail	☒	☐	☐
8	Ensure non-gating attenuators are labeled accordingly	☐	☐	☒
9	Ensure the appropriate end units are proposed for the design speed(s) of the roadway	☒	☐	☐
	Summary of Quantities			
1	Computation/Calculation of Quantity sheet totals for each pay item checked against estimate	☒	☐	☐
2	Summary sheets initialed by the person who created them and the person who checked them	☒	☐	☐
3	Earthwork Summary			
A	Complete and provide the Earthwork Balance Sheet to inform the earthwork summary	☒	☐	☐
B	Reference pavement structure volume, when applicable, below earthwork summary	☐	☐	☒
C	Show note related to Geotech data			
4	Drainage Summary included (starts at Sheet 3D-1), if applicable. Verify the summary matches items included in the plan sheets.	☒	☐	☐
5	Guardrail and temporary guardrail summaries checked against plan sheet and/or detail sheet	☒	☐	☐
6	Concrete Barrier Summary included, if applicable	☐	☐	☒
7	Shoulder Drain Summary included, if applicable	☐	☐	☒
8	Pavement Removal and Pavement Breaking summaries include all pavement removed or broken up inside and outside of the slope stake lines on the project	☒	☐	☐
9	Fence Summary included, if applicable	☐	☐	☒
10	Geotechnical Summaries (starts at Sheet 3G-1) included, if applicable. Verify the summary matches the Geotechnical Recommendations Report(s)	☒	☐	☐
11	Miscellaneous summaries included as necessary	☒	☐	☐
	Estimates			
1	Estimate made for each WBS element, Federal project number and other parts as necessary	☒	☐	☐
2	Final construction estimate for PS&E entered into PIQ or AWP is checked against the calculation of quantity sheets and summary of quantities	☒	☐	☐
3	Item number, section, and item description checked against master pay item list	☒	☐	☐
4	Force account items incorporated into the estimate on Federal Aid projects only	☐	☐	☒
5	PDF copy of roadway final construction estimate quantities placed on SharePoint according to PS&E checklist	☒	☐	☐
6	Estimate for the drainage pay items matches the totals on the drainage summary sheet along with drainage items shown in the plan sheets	☒	☐	☐
7	Project roadway length (mainline only) shown on roadway estimate agrees with title sheet. Do not include structure length	☒	☐	☐
8	Cost based estimate quantity breakdown summary sheet completed	☒	☐	☐
9	Include on roadway estimate any structure removal pay items not included on the structure estimate	☐	☐	☒
	Special Provisions			
1	Special provisions written for all pay items and contract implementation items not covered by the current “Standard Specification for Roads and Structures”, project provisions, or standard special provisions	☒	☐	☐
	Items to be completed after initial plan review comments have been addressed			
1	Ensure plans have been electronically signed through the DocuSign process	☐	☐	☐

*For items marked **No** that require further explanation, provide comments or action items in the table below.*

Item #	Comments and Action Items
Click to edit.	Superelevation is labeled on the curve data, but the standard runoff does not apply in most cases since super transitions are tying to existing conditions and shifted for consistent super across the bridge. Runoff is shown in standard situations. Contract Number pending

This checklist may not be comprehensive for every project. It is the responsibility of the designer submitting the plans to ensure all information is included and complete.

Plans Prepared by: Mott MacDonald **Date:** 1-6-2025

(Signature): X

CALCULATION OF QUANTITIES

PROJECT: 17BP.9.R.83 Stokes 286

COUNTY: Stokes **ID NUMBER:** _____

FEDERAL NUMBER: _____

TOTAL LENGTH [USE EXACT THREE (3) FIGURES BEYOND DECIMAL]

STA.	10+50.000	**TO STA.**	36+00.000	=	2550.000	**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**

TOTAL LENGTH * = 2,550.000 **LIN. FT. / 5,280 =** 0.483 **MILES**

STRUCTURE LENGTHS

STA.	23+03.210	**TO STA.**	24+95.800	=	192.590	**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**
STA.		**TO STA.**		=		**LIN. FT.**

LENGTH OF STRUCTURES * = 192.590 **LIN. FT. / 5,280 =** 0.036 **MILES**

ROADWAY LENGTH (LESS STRUCTURES) = 0.447 **MILES**

NOTE: USED 12' **LANE FOR LENGTH**

*** LENGTH SHOWN TO THREE (3) DECIMAL PLACES USING NORMAL ROUNDING.**

Computed by: BLP **Checked by:** PJ

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 505**

UNDERCUT EXCAVATION

As per Geotechnical Report (7/24/24)	=	1600	CY
Total	**=**	**1600**	**CY**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: TJ **SECTION: 226**

SUPPLEMENTARY CLEARING AND GRUBBING

CLEARING AND GRUBBING	=	SUPPLEMENTARY CLEARING AND GRUBBING
0 THRU 10 ACRES	=	1 ACRES
11 THRU 25 ACRES	=	2 ACRES
26 THRU 50 ACRES	=	3 ACRES
51 THRU 80 ACRES	=	4 ACRES
80 ACRES OR MORE	=	5 ACRES

ACRES SUPPLEMENTARY CLEARING AND GRUBBING **1** **ACRES**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: TJ **SECTION: SP**

GRADING (LUMP SUM)

(THIS COMPUTATION SHEET APPLIES ONLY TO PROJECTS WHICH HAVE BEEN PREDETERMINED TO USE THIS PAY ITEM. SEE ROADWAY DESIGN MANUAL, PART I, 11-6)

ITEM	QUANTITIES	UNIT	UNIT PRICE	PRICE
CLEARING AND GRUBBING	4.00	ACRES	$ 15,000.00	$ 60,000.00
UNCLASSIFIED EXCAVATION	* 48,930	YD^3	$ 20.00	$ 978,600.00
BORROW EXCAVATION		YD^3	$ -	$ -
SHOULDER BORROW	1,540	YD^3	$ 20.00	$ 30,800.00
FINE GRADING	8,880	YD^2	$ 5.00	$ 44,400.00
REMOVAL OF EXISTING ASPHALT PAVEMENT	4,675	YD^2	$ 10.00	$ 46,750.00
REMOVAL OF EXISTING CONCRETE PAVEMENT		YD^2	$ 25.00	$ -
BREAKING OF EXISTING ASPHALT PAVEMENT		YD^2	$ 4.00	$ -
BREAKING OF EXISTING CONCRETE PAVEMENT		YD^2	$ 12.00	$ -
			TOTAL	$ 1,160,550.00

IF THE SUMMATION OF THE ITEM AMOUNTS IS $1,000,000.00 OR LESS, THEN THE GRADING MAY BE LET ON A "LUMP SUM" BASIS WITH CONCURRENCE OF THE DIVISION ENGINEER. IF THE COST OF ANY ONE OF THE ITEMS, EXCLUDING CLEARING AND GRUBBING AND FINE GRADING, IS 50% OR MORE OF THE TOTAL COST CALCULATED, THEN THAT ITEM SHALL BE INCLUDED AS AN INDIVIDUAL ITEM WITH THE OTHER ITEMS BEING DONE ON A "LUMP SUM GRADING" BASIS. A SPECIAL PROVISION WILL BE NEEDED IN THIS CASE AND THE PAY ITEM "GRADING" SHOULD BE INDICATED AS A "SP" IN THE ESTIMATE. IF THE SUM OF THE LUMP SUM ITEMS AMOUNTS EXCEEDS $1,000,000.00 OR IS 25% OR MORE OF THE TOTAL COST OF THE PROJECT, THE PROJECT SHALL CONTAIN THE INDIVIDUAL ITEMS, IT WILL BE NECESSARY TO CALCULATE AND SHOW THE PAVEMENT STRUCTURE VOLUME ON THE SUMMARY OF EARTHWORK.

OTHER CONSIDERATIONS FOR LUMP SUM GRADING MAY UTILIZE A DOLLAR LIMIT. FOR EXAMPLE 3R PROJECTS WITH "TRENCHING & WIDENING" AND MINOR GRADING SHOULD BE CONSIDERED WHEN USE OF CROSS-SECTIONS FOR EARTHWORK BY THE RESIDENT ENGINEER IS NOT PRACTICAL. WHEN APPLYING LUMP SUM GRADING TO THESE SPECIAL APPLICATIONS, APPROVAL BY THE ASSISTANT STATE ROADWAY DESIGN ENGINEER AND PROPOSALS AND CONTRACTS SECTION ENGINEER IS REQUIRED ON A PROJECT-BY-PROJECT BASIS.

*** LIST ALL QUANTITIES ON THE CALCULATION SHEET EVEN IF THE PAY ITEM PRICE EXCEEDS 50% OR MORE OF THE TOTAL COST.**

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: SP**

CLEARING AND GRUBBING

LINE	STATION	STATION	LOCATION	AREA FROM CADD OR LENGTH	WIDTH	SQUARE FEET
L	10+50	20+30	LT	48,864.75		48,864.75
L	12+80	13+50	RT	460.96		460.96
L	20+50	23+34	LT	5,939.06		5,939.06
L	20+84	24+07	LT	18,401.15		18,401.15
L	24+32	27+52	LT	15,159.71		15,159.71
L	27+72	33+55	LT	47,194.99		47,194.99
L	29+12	29+73	RT	496.14		496.14
L	30+10	34+14	RT	10,277.90		10,277.90
L	34+35	35+78	RT	1,634.95		1,634.95
Y	10+54	11+15	RT	806.55		806.55
Y	10+90	11+15	LT	55.38		55.38

Total Sq. Feet = **43560 Sq. Feet/ACRE**

Total Sq. Feet	149,291.54
Acres	3.43
SAY	4.00

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**

COMPUTED BY: PJ

CHECKED BY: TJ **SECTION: SP**

SHOULDER BORROW

LINE	SIDE	STATION	STATION	LENGTH (FT)	AVG. AREA (FT^2)	CUBIC YARDS
L (P.S. Rt)	RT	10+50.00	16+10.00	560.00	6.50	134.81
L (P.S. Lt)	LT	10+50.00	16+10.00	560.00	6.46	133.99
L		16+10.00	23+03.21	693.21	22.56	579.22
L		24+95.79	29+70.00	474.21	11.70	205.49
L (P.S. Rt)	RT	29+70.00	36+00.00	630.00	6.49	151.43
L (P.S. Lt)	LT	29+70.00	36+00.00	630.00	6.48	151.20
Y (P.S. Rt)	RT	10+25.00	11+75.00	150.00	5.22	29.00
Y (P.S. Lt)	LT	10+25.00	11+75.00	150.00	4.84	26.89
Y		11+75.00	13+38.00	163.00	10.02	60.49
Y1		10+12.00	11+10.00	98.00	5.89	21.38
Y1 (P.S. Rt)	RT	11+10.00	12+25.00	115.00	4.85	20.66
Y1 (P.S. Lt)	LT	11+10.00	12+25.00	115.00	4.35	18.53
					TOTAL	1533.08
					SAY	**1,540**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: SP**

FINE GRADING

NOTE: THE WIDTH IS MEASURED FROM EOP TO EOP

LINE	STATION	STATION	LOCATION	LENGTH	AREA FROM CADD OR WIDTH	SQUARE FEET
L	16+10.00	23+03.21			23722.17	23,722.17
L	24+95.79	29+70.00			16882.14	16,882.14
L (P.S. Rt)	10+50.00	16+10.00			3771.56	3,771.56
L (P.S. Lt)	10+50.00	16+10.00			8228.26	8,228.26
L (P.S. Rt)	29+70.00	36+00.00			4428.65	4,428.65
L (P.S. Lt)	29+70.00	36+00.00			8510.18	8,510.18
Y	11+75.00	13+38.00			4800.23	4,800.23
Y (P.S. Rt)	10+25.00	11+75.00			208.91	208.91
Y (P.S. Lt)	10+25.00	11+75.00			275.51	275.51
Y1	10+12.00	11+10.00			4225.99	4,225.99
Y1 (P.S. Rt)	11+10.00	12+25.00			533.63	533.63
Y1 (P.S. Lt)	11+10.00	12+25.00			523.81	523.81
					TOTAL IN FT^2	76,111.03
					TOTAL IN YD^2	8,456.78
					SAY YD^2	**8,880**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: TJ **SECTION: SP**

REMOVAL OF EXISTING ASPHALT PAVEMENT

(FILL IN THE BLANK FOR 'ASPHALT' OR 'CONCRETE'PAVEMENT)

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L	11+98	22+91	CL	18792.36		2088.04
L	24+72	32+51	CL	13418.63		1490.96
Y	11+75	13+50	CL	4974.11		552.68
Y1	10+12	11+10	CL	2857.22		317.47
					TOTAL	4,449.15
					SAY	**4,675**

1/3/2025

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: JTJ
CHECKED BY: PJ **SECTION: 240**

DRAINAGE DITCH EXCAVATION

LINE	STATION	SIDE	DISTANCE	AREA	AVERAGE AREA	CUBIC YARDS
-L-	11+73	LT		82.67		
-L-	12+00	LT	27.45	77.11	79.89	81.22
-L-	12+50	LT	50	86.89	82.00	151.85
-L-	13+00	LT	50	51.69	69.29	128.31
-L-	13+22	LT	22	51.69	51.69	42.12
					Total	403.51
				DETAIL 1	**SAY**	**425**
-L-	12+00	RT		58.84		
-L-	12+50	RT	50	32.96	45.90	85.00
-L-	13+00	RT	50	148.53	90.75	168.05
-L-	13+50	RT	50	66.07	107.30	198.70
-L-	13+70	RT	20	20.00	43.04	31.88
					Total	483.63
				DETAIL 1	**SAY**	**510**
-L-	20+68	LT		45.93		
-L-	20+97	LT	29	45.93	45.93	49.33
					Total	49.33
				DETAIL 8	**SAY**	**55**
-L-	20+97	LT		45.93		
-L-	21+00	LT	3	45.93	45.93	5.10
-L-	21+50	LT	50	46.77	46.35	85.83
-L-	22+00	LT	50	76.93	61.85	114.54
-L-	22+50	LT	50	93.08	85.01	157.42
-L-	23+00	LT	50	95.56	94.32	174.67
-L-	23+50	LT	50	101.11	98.34	182.10
-L-	24+00	LT	50	10.00	55.56	102.88
					Total	822.54
				DETAIL 3	**SAY**	**865**
-L-	24+66	LT		10.00		
-L-	25+00	LT	34	133.87	71.94	90.58
-L-	25+50	LT	50	74.26	104.07	192.71
-L-	26+00	LT	50	61.2	67.74	125.44
-L-	26+50	LT	50	57.2	59.21	109.64
-L-	27+00	LT	50	18.3	37.76	69.92
					Total	588.30
				DETAIL 6	**SAY**	**620**
					SAY	**2,475**

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 265**

SELECT GRANULAR MATERIAL

As per Geotechnical Report (7/24/24) = 3,600 CY

Total = 3,600 CY

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 270**

GEOTEXTILE FOR SOIL STABILIZATION

STATION	COMPUTED (SY)	*SAY (SY)
CONTINGENCY [As per Geotechnical Report (7/24/24)		3,600
TOTAL		**3,600**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: TJ **SECTION: SP**

TEMPORARY SHORING

As per Temporary Shoring Recommendations

Location	Begin			End			Average Height	Maximum Height	Location Type	Area (SF)
	Station	Offset	Location	Station	Offset	Offset				
No. 1 -L-	22+75.00	28'	RT	23+25.00	28'	RT	3.00	5.00	Roadway & Structure	150.0
No. 2 -L-	24+75.00	26.5'	RT	25+25.00	26.5'	RT	3.00	6.00	Roadway & Structure	150.0
									Total	300.00
									SAY	**300**

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: STRUCTURES

CHECKED BY: PJJ **SECTION: SP**

TYPE 1 BRIDGE APPROACH FILL

-L- STA. 23+99.50 = 1 LS

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 300**

FOUNDATION CONDITIONING MATERIAL MINOR STRUCTURES

1304	**LIN. FT**	**X**	**0.106**	**=**	138.22	**TONS**
				SAY	**145**	**TONS**

FOUNDATION CONDITIONING GEOTEXTILE

1304	**LIN. FT**	**X**	**6 FT / 18**	**=**	434.67	**SY**
				SAY	**455**	**SY**

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 505**

SHALLOW UNDERCUT

As per Geotechnical Report (7/24/24)	=	100	CY
Total	**=**	**100**	**CY**

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 505**

CLASS IV SUBGRADE STABILIZATION

As per Geotechnical Report (7/24/24) = 200 TON

Total = 200 TON

PROJECT NO.: 17BP.9.R.83 STOKES 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 505**

GEOTEXTILE FOR SUBGRADE STABILIZATION

STATION	COMPUTED (SY)	*SAY (SY)
CONTINGENCY [As per Geotechnical Report (7/24/24)		300
TOTAL		**300**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 545**

INCIDENTAL STONE BASE

FOR DRIVEWAYS

AREA	1847.1	SF
DEPTH	0.5	FT

CALCULATE ABC:

$$ABC = \frac{AREA \times 1.5(D) \times 2700\# / YD^3}{27\ FT^3 / YD^3 \times 2000\# / TON} = \mathbf{69.26}\ TONS$$

CONTINGENCY = **10.00** TONS

80	SAY

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 607**

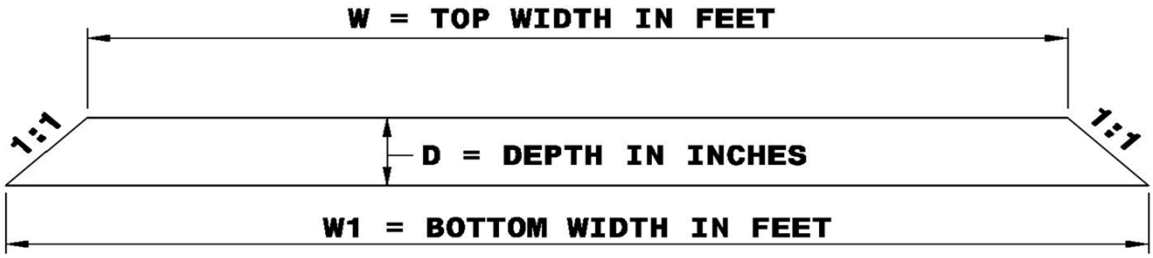
INCIDENTAL MILLING

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH (ft)	SQUARE YARDS
As per Combined Field Inspection from Division						1600
					TOTAL	1,600
					SAY	**1,600**

1/7/2025

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 610**

ASPHALT CONCRETE BASE COURSE
TYPE B25.0C



CALCULATE:

LENGTH X ((W+W1)/2) X D X 114# / YD^2 / IN = 2060 TONS
9 FT^2 / YD^2 X 2000# / TON

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
L	16+10.00	23+03.21	693.210	23722.17		4	600.96
L	24+95.79	29+70.00	474.210	16882.14		4	427.68
L (P.S. Rt)	10+50.00	16+10.00	560.000	3771.56		4	95.55
L (P.S. Lt)	10+50.00	16+10.00	560.000	8228.26		4	208.45
L (P.S. Rt)	29+70.00	36+00.00	630.000	4428.65		4	112.19
L (P.S. Lt)	29+70.00	36+00.00	630.000	8510.18		4	215.59
Y	11+75.00	13+38.00	163.000	4800.228		4	121.61
Y (P.S. Rt)	10+25.00	11+75.00	150.000	208.91		4	5.29
Y (P.S. Lt)	10+25.00	11+75.00	150.000	275.51		4	6.98
Y1	10+12.00	11+10.00	98.000	4225.986		4	107.06
Y1 (P.S. Rt)	11+10.00	12+25.00	115.000	533.63		4	13.52
Y1 (P.S. Lt)	11+10.00	12+25.00	115.000	523.81		4	13.27
WEDGING							32.87
						TOTAL	1961.02
						SAY	**2060**

PROJECT NO.: 17BP.9.R.83 Stokes 286

COMPUTED BY: PJ SHEET ____ OF _____

CHECKED BY: HDC SECTION:

WEDGING CALCULATIONS

BASE COURSE - B 25.0C

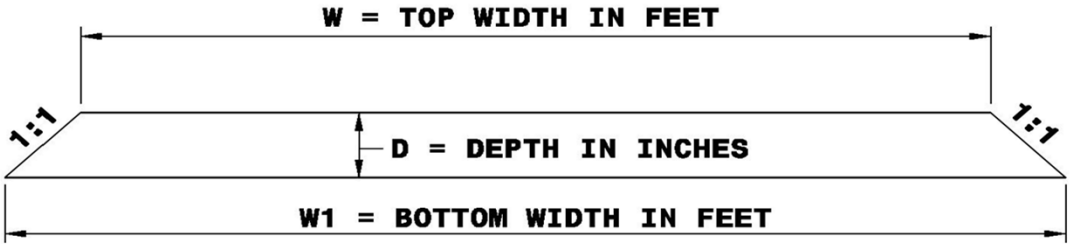
LINE	STATION	AREA (ft^2)	LENGTH (ft)	VOLUME (ft^3)
L	10+50.00	0.000		
L	11+00.00	0.000	50.00	0.00
L	11+50.00	0.000	50.00	0.00
L	12+00.00	0.000	50.00	0.00
L	12+50.00	0.000	50.00	0.00
L	13+00.00	0.000	50.00	0.00
L	13+50.00	0.000	50.00	0.00
L	14+00.00	0.000	50.00	0.00
L	14+50.00	0.000	50.00	0.00
L	15+00.00	0.000	50.00	0.00
L	15+50.00	0.000	50.00	0.00
L	16+00.00	0.000	50.00	0.00
L	16+10.00	0.000	10.00	0.00
L	29+70.00	0.000		
L	30+00.00	0.000	30.00	0.00
L	30+50.00	0.000	50.00	0.00
L	31+00.00	0.000	50.00	0.00
L	31+50.00	0.341	50.00	8.53
L	32+00.00	1.416	50.00	43.93
L	32+50.00	2.586	50.00	100.05
L	33+00.00	2.547	50.00	128.32
L	33+50.00	1.760	50.00	107.68
L	34+00.00	0.000	50.00	44.01
L	34+50.00	0.000	50.00	0.00
L	35+00.00	0.000	50.00	0.00
L	35+50.00	0.000	50.00	0.00
L	36+00.00	0.000	50.00	0.00
			TOTAL	432.52 **(ft^3)**
		CONVERTED TO TONS		32.87 **tons**

VOLUME X 114.00 # / yd^2 / in X 12 in/ft = 32.87 tons

9 ft^2 / yd^2 x 2000# ton

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 610**

ASPHALT CONCRETE INTERMEDIATE COURSE
TYPE I19.0C



CALCULATE:

LENGTH X ((W+W1)/2) X D X 114# / YD^2 / IN = 2140 TONS
9 FT^2 / YD^2 X 2000# / TON

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
L	16+10.00	23+03.21	693.210	22619.52		4	573.03
L	24+95.79	29+70.00	474.210	15681.54		4	397.27
L (P.S. Rt)	10+50.00	16+10.00	560.000	3583.58		4	90.78
L (P.S. Lt)	10+50.00	16+10.00	560.000	8038.14		4	203.63
L (P.S. Rt)	29+70.00	36+00.00	630.000	4217.58		4	106.85
L (P.S. Lt)	29+70.00	36+00.00	630.000	6674.04		4	169.08
Y	11+75.00	13+38.00	163.000	4681.73		4	118.60
Y (P.S. Rt)	10+25.00	11+75.00	150.000	157.54		4	3.99
Y (P.S. Lt)	10+25.00	11+75.00	150.000	225.05		4	5.70
Y1	10+12.00	11+10.00	98.000	4132.52		4	104.69
Y1 (P.S. Rt)	11+10.00	12+25.00	115.000	491.03		4	12.44
Y1 (P.S. Lt)	11+10.00	12+25.00	115.000	485.96		4	12.31
WEDGING							199.08
						TOTAL	1997.45
						SAY	2140

PROJECT NO.: 17BP.9.R.83 Stokes 286 SHEET OF
COMPUTED BY: PJ
CHECKED BY: HDC SECTION: 610

WEDGING CALCULATIONS

INTERMEDIATE COURSE - I19.0C

LINE	STATION	AREA (ft^2)	LENGTH (ft)	VOLUME (ft^3)
L	10+50.00	0.000		
L	11+00.00	0.000	50.00	0.00
L	11+50.00	0.000	50.00	0.00
L	12+00.00	1.588	50.00	39.70
L	12+50.00	6.665	50.00	206.31
L	13+00.00	6.522	50.00	329.65
L	13+50.00	4.446	50.00	274.19
L	14+00.00	4.206	50.00	216.32
L	14+50.00	1.869	50.00	151.88
L	15+00.00	1.237	50.00	77.64
L	15+50.00	0.405	50.00	41.03
L	16+00.00	0.000	50.00	10.12
L	16+10.00	0.000	10.00	0.00
L	29+70.00	0.000		
L	30+00.00	0.000	30.00	0.00
L	30+50.00	0.512	50.00	12.81
L	31+00.00	1.506	50.00	50.47
L	31+50.00	2.146	50.00	91.31
L	32+00.00	2.896	50.00	126.05
L	32+50.00	3.315	50.00	155.27
L	33+00.00	3.531	50.00	171.16
L	33+50.00	5.075	50.00	215.15
L	34+00.00	6.472	50.00	288.66
L	34+50.00	0.000	50.00	161.80
L	35+00.00	0.000	50.00	0.00
L	35+50.00	0.000	50.00	0.00
L	36+00.00	0.000	50.00	0.00
			TOTAL	2619.52 **(ft^3)**
		CONVERTED TO TONS		199.08 **tons**

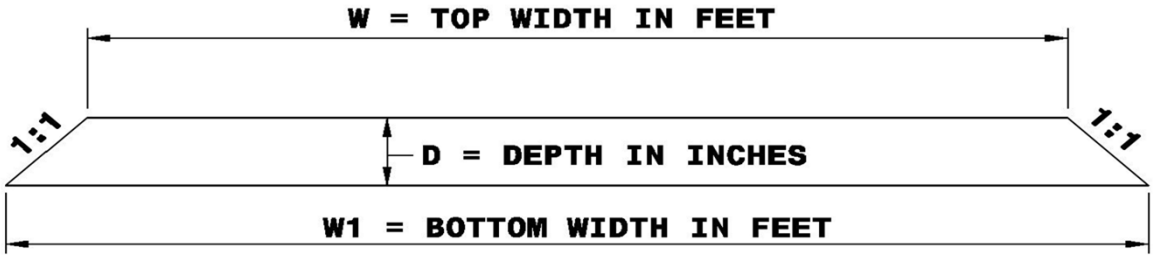
VOLUME X 114.00 # / yd^2 / in X 12 in/ft = 199.08 tons

9 ft^2 / yd^2 x 2000# ton

10/12/2022

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: HDC **SECTION: 610**

ASPHALT CONCRETE SURFACE COURSE
TYPE S9.5C



CALCULATE:

LENGTH X ((W+W1)/2) X D X 112# / YD^2 / IN = 1825 **TONS**

9 FT^2 / YD^2 X 2000# / TON

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
L	10+50.00	16+10.00	560.000	20115.14		1.5	184.39
L	16+10.00	23+03.21	693.210	22410.49		3	410.86
L	24+95.80	29+70.00	474.200	15484.25		3	283.88
L	29+70.00	36+00.00	630.000	22081.58		1.5	202.41
L (P.S. Rt)	10+50.00	16+10.00	560.000	3452.62		1.5	31.65
L (P.S. Lt)	10+50.00	16+10.00	560.000	7914.64		1.5	72.55
L (P.S. Rt)	29+70.00	36+00.00	630.000	4059.16		1.5	37.21
L (P.S. Lt)	29+70.00	36+00.00	630.000	6607.97		1.5	60.57
Y	10+25.00	11+75.00	150.000	2962.77		1.5	27.16
Y	11+75.00	13+38.00	163.000	4588.41		3	84.12
Y (P.S. Rt)	10+25.00	11+75.00	150.000	125.44		1.5	1.15
Y (P.S. Lt)	10+25.00	11+75.00	150.000	187.17		1.5	1.72
Y1	10+12.00	11+10.00	98.000	4091.38		3	75.01
Y1	11+10.00	12+25.00	115.000	3670.54		1.5	33.65
Y1 (P.S. Rt)	11+10.00	12+25.00	115.000	468.42		1.5	4.29
Y1 (P.S. Lt)	11+10.00	12+25.00	115.000	460.65		1.5	4.22
Y	Driveway			253.83		3	4.65
WEDGING							214.80
						TOTAL	1734.29
						SAY	**1825**

PROJECT NO.: 17BP.9.R.83 Stokes 286

COMPUTED BY: PJ SHEET ____ OF _____

CHECKED BY: HDC SECTION:

WEDGING CALCULATIONS

SURFACE COURSE - S 9.5C

LINE	STATION	AREA (ft^2)	LENGTH (ft)	VOLUME (ft^3)
L	10+50.00	0.000		
L	11+00.00	0.222	50.00	5.55
L	11+50.00	3.344	50.00	89.15
L	12+00.00	5.343	50.00	217.17
L	12+50.00	2.671	50.00	200.33
L	13+00.00	2.467	50.00	128.43
L	13+50.00	2.178	50.00	116.12
L	14+00.00	1.815	50.00	99.84
L	14+50.00	2.171	50.00	99.64
L	15+00.00	1.581	50.00	93.80
L	15+50.00	1.060	50.00	66.03
L	16+00.00	0.194	50.00	31.36
L	16+10.00	0.000	10.00	0.97
L	29+70.00	0.000		
L	30+00.00	0.918	30.00	13.77
L	30+50.00	1.943	50.00	71.53
L	31+00.00	2.407	50.00	108.76
L	31+50.00	2.725	50.00	128.30
L	32+00.00	3.098	50.00	145.57
L	32+50.00	3.345	50.00	161.09
L	33+00.00	3.392	50.00	168.44
L	33+50.00	3.607	50.00	175.00
L	34+00.00	3.115	50.00	168.06
L	34+50.00	6.495	50.00	240.25
L	35+00.00	2.944	50.00	235.98
L	35+50.00	0.762	50.00	92.64
L	36+00.00	0.000	50.00	19.04
			TOTAL	2876.82 **(ft^3)**
		CONVERTED TO TONS		214.80 **tons**

VOLUME X 112.00 # / yd^2 / in X 12 in/ft = 214.80 tons

9 ft^2 / yd^2 x 2000# ton

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: PJ
CHECKED BY: TJ **SECTION: 620**

ASPHALT BINDER
FOR PLANT MIX

GRADE PG 64-22

SA-1		TONS	X	0.068	=		TONS
S4.75A		TONS	X	0.070	=		TONS
S9.5B		TONS	X	0.065	=		TONS
S9.5C	1,825	TONS	X	0.059	=	107.68	TONS
I19.0C	2,140	TONS	X	0.048	=	102.72	TONS
B25.0C	2,060	TONS	X	0.045	=	92.70	TONS
PADC, TYPE P-57		TONS	X	0.030	=		TONS
PADC, TYPE P-78M		TONS	X	0.030	=		TONS
PATCHING EXISTING PAVEMENT		TONS	X	0.048	=		TONS

SUBTOTAL TONS ASPHALT BINDER FOR PLANT MIX, GRADE PG 64-22	=	303.10	TONS

TOTAL TONS ASPHALT BINDER FOR PLANT MIX	=	303.10	TONS
	SAY	305	TONS

THIS SHEET IS SHOWING RATES FROM THE 2023 QMS ASPHALT MANUAL

PROJECT NO.: 17BP.9.R.83 Stokes 286
COMPUTED BY: PJ
CHECKED BY: HDC

SHEET OF
SECTION: 654

ASPHALT PLANT MIX PAVEMENT REPAIR

NOTE: USE STANDARD PAVEMENT CALCULATION FOR TYPE PAVEMENT USED FOR TONS

LINE	STA.	PIPE (in)	W (ft)	L (ft)	SURFACE (in)	BASE (in)	SURFACE (ton)	BASE (ton)
-Y-	1096	24	8.50	18.00	2	11	1.9	10.66
						TOTAL	1.90	10.66
						GRAND TOTAL		12.56
						SAY		**15**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**

COMPUTED BY: JTJ

CHECKED BY: PJ **SECTION: 806**

RIGHT-OF-WAY MARKERS

Sheet 4	20
Sheet 5	16
TOTAL (EA)	**36**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**

COMPUTED BY: GEOTECHICAL

CHECKED BY: PJJ **SECTION: 815**

SUBSURFACE DRAINS

As per Geotechnical Report (7/24/24)

SUBDRAIN EXCAVATION	**(USE 6' DEPTH FOR PROOF ROLLING AND 4' DEPTH ELSEWHERE)**	**112.0**	**YD^3**
GEOTEXTILE FOR SUBSURFACE DRAINS	……..…..…..…......…	**500**	**YD^2**
SUBDRAIN COARSE AGGREGATE (USE 3' DEPTH)	……..……..…	**84.0**	**YD^3**
6" PERFORATED SUBDRAIN PIPE	……………......………………..……	**500**	**LIN. FT.**
6" OUTLET PIPE (6 LINEAR FT. PER PIPE OUTLET)	…..…..….....…	**6**	**LIN. FT.**
SUBDRAIN PIPE OUTLET	**(USE 1 PER 500' OF PIPE)** ……….....…	**1**	**EACH**

EXCAVATION	**500**	**LIN. FT. x**	**4**	**DEPTH x 0.056 =**	**112.0**	**YD^3**
AGGREGATE	**500**	**LIN. FT. x**	**3'**	**DEPTH x 0.056 =**	**84.0**	**YD^3**

NOTE: USE 6" SUBDRAIN PIPE UNLESS ANOTHER SIZE IS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL UNIT.

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: JTJ
CHECKED BY: PJ **SECTION: 846**

SHOULDER BERM GUTTER

LOCATION	SIDE	BEG. STA.	END STA.	LENGTH
L	LT	21+50.00	22+84.30	134.30
L	RT	22+00.00	22+74.44	74.44
L	RT	25+14.70	25+30.00	15.30
			TOTAL	224.04
			SAY	**230**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: JTJ
CHECKED BY: PJ **SECTION: 846**

EXPRESSWAY GUTTER

LOCATION	SIDE	BEG. STA.	END STA.	LENGTH
L	LT	27+76.00	33+34.00	558.00
			TOTAL	558.00
			SAY	**570**

10/12/2022

PROJECT NO.: 17BP.9.R.83 Stokes 286 SHEET OF
COMPUTED BY: PJ
CHECKED BY: HDC SECTION: 848

6" CONCRETE DRIVEWAY

EXISTING CONCRETE DRIVEWAYS - NOT DROP TYPE

LINE	STATION	LOCATION	WIDTH	SQUARE YARDS
-L-	10+88.00	RT	DRIVE	52.737
			TOTAL	52.7367
			SAY	**60**

PROJECT NO.: 17BP.9.R.83 Stokes 286 SHEET OF
COMPUTED BY: JTJ
CHECKED BY: PJ SECTION: 876

PLAIN RIP RAP, CLASS I

LINE	STATION TO STATION	LOCATION	LENGTH	TONS PER LIN. FT.	TONS
L	10+50 TO 11+72.55	LT	122.55	1.057	130
L	11+72.55 TO 13+22	RT	149.45	1.057	160
L	12+00 TO 13+70	RT	170	1.057	180
L	16+05	LT			4
				SAY	474

1/3/2023

PROJECT NO.: 17BP.9.R.83 Stokes 286 SHEET OF
COMPUTED BY: JTJ
CHECKED BY: PJ SECTION: 876

PLAIN RIP RAP, CLASS II

LINE	STATION TO STATION	LOCATION	LENGTH	TONS PER LIN. FT.	TONS
L	BANK STABILIZATION	CL			1250
L	BANK STABILIZATION	CL			950
L	23+88 TO 24+08	LT			90
L	24+55 TO 24+82	LT			
				SAY	**2290**

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: JTJ
CHECKED BY: PJ **SECTION: 876**

PLAIN RIP RAP, CLASS B

LINE	STATION TO STATION	LOCATION	LENGTH	TONS PER LIN. FT.	TONS
L	14+00 TO 16+00	LT	200	0.46	95
L	16+50 TO 19+33	LT	283	0.46	135
Y	11+75 TO 13+00	RT	125	0.46	60
L	20+68 TO 20+97	LT	39	0.772	35
L	20+70	LT			3
L	22+88	LT			2
L	25+20	LT			2
L	27+00	LT			2
L	29+55	RT			15
L	34+00 TO 34+60	LT	125	0.46	60
L	34+35	LT			2
Y	11+00	LT			3
				SAY	414

PROJECT NO.: 17BP.9.R.83 Stokes 286 **SHEET OF**
COMPUTED BY: JTJ
CHECKED BY: PJ **SECTION: 876**

GEOTEXTILE FOR DRAINAGE

LINE	BEG. STA.	END STA.	LOCATION	LENGTH	AVERAGE WIDTH	SQUARE YARDS
L	10+50	11+72.55	LT	122.55	19.124	265
L	11+72.55	13+22	LT	149.45	19.124	320
L	12+00	13+70	RT	170	19.124	365
L	14+00	16+00	LT	200	13.652	305
L	16+05		LT			10
L	16+50	19+33	LT	283	13.652	430
Y	11+75	13+00	RT	125	13.652	190
L	20+68	20+97	LT	29	19.888	65
L	20+70		LT			10
L	22+88		LT			7
L	23+88	24+08	LT			150
L	24+55	24+82	LT			
L	25+20		LT			7
L	27+00		LT			7
L	29+55		RT			25
L	34+00	34+60	LT	60	13.652	95
L	34+35		LT			7
Y	11+00		LT			11
	BANK STABILIZATION		CL			800
	BANK STABILIZATION		CL			580
					SAY	**3649**

EARTHWORK BALANCE CARD

Volumes in Cubic Yards

PROJECT: 17BP.9.R.83 Stokes 286 **COUNTY: Stokes** **DATE: January 21, 2025**

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. +15%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
-L-	10+50.00	23+03.21	12233				12233	12458		12458	14327	2094			
-L-	24+95.80	36+00.00	31458				31458	7165		7165	8240		23218		23218
-Y-	10+25.00	13+00.00	2867				2867	322		322	370		2497		2497
-Y1-	10+50.00	12+25.00	32				32	58		58	67	35			
		SUBTOTAL	46590				46590	20003		20003	23004	2129	25715		25715
		WASTE IN LIEU OF BORROW										-2129	-2129		-2129
		TOTAL	46590										23586		23586
		5% TO REPLACE BORROW													
		GRAND TOTAL	46590										23586		23586
		SAY	**48,930**												

EST. DDE = 2,475 CY

EST. SHOULDER BORROW = 1540 CY

EST. SHALLOW UNDERCUT = 100 CY

EST. CLASS IV SUBGRADE STABILIZATION = 200 TONS

PER GEOTECH RECOMMENDATIONS, ESTIMATE 1,600 CY OF UNDERCUT TO BE USED AT THE DISCRETION OF THE RESIDENT ENGINEER

```
Input  File: R:\Roadway\Xsc\Earthwork_L.inp
Output File: Earthwork_L.log
 1     1     1
 1     2     2
 1     3     3   earthwork
 1     4     4
 1     5     5   /* >>> For English, set tolerance to 0.01 <<< */
 1     6     6   Tolerance = 0.001
 1     7     7
 1     8     8      xs dgn = R:\roadway\Xsc\840286_rdy_xsc_L.dgn
 1     9     9
 1    10    10         proposed finish grade
 1    11    11             soil type = a2
 1    12    12             fill multiplication factor = 1.15
 1    13    13             type = line
 1    14    14             lvname = Prop XS Subgrade Earthwork, Prop XS Finish Grade Earthwork
 1    15    15
 1    16    16         existing ground line
 1    17    17             soil type = a2
 1    18    18             type = line,line_string
 1    19    19             lvname = Exist XS Ground Line, Exist XS Void Line
 1    20    20
 1    21    21   write earthwork shapes
 1    22    22         plot parameters
 1    23    23            lvname = Prop XS Earthwork Shape
 1    24    24            stratify shape color
 1    25    25
 1    26    26   process earthwork for baseline = L
 1    27    27                      job number = rdy
 1    28    28                      beginning station = 10+50.00
 1    29    29                      ending station = 36+00.00
 1    30    30
 1    31    31
 0     0    32 END_OF_FILE
COMPUTING EARTHWORKS FOR BASELINE = L
COMPUTING EARTHWORKS FOR JOB = RDY
FORMING LIST OF XSCELLS
BEGINNING EARTHWORKS COMPUTATION
```

Station	Material Name	End Areas (sq. ft.)	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor	Mass Ordinate
10+50.00	A2					
	Common Exc	0.00	0	0	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	0.00	0	0	1.15	0
11+00.00	A2					
	Common Exc	120.60	112	112	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	0.13	0	0	1.15	0
11+50.00	A2					
	Common Exc	32.18	141	141	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	

	Fill	19.53	18	21	1.15	120
11+72.55 A2						
	Common Exc	4.12	15	15	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	98.32	49	57	1.15	78
12+00.00 A2						
	Common Exc	3.82	4	4	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	129.37	116	133	1.15	-51
12+50.00 A2						
	Common Exc	0.62	4	4	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	195.99	301	346	1.15	-314
13+00.00 A2						
	Common Exc	0.68	1	1	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	182.09	350	403	1.15	-541
13+50.00 A2						
	Common Exc	45.48	43	43	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	83.07	246	282	1.15	-654
14+00.00 A2						
	Common Exc	106.94	141	141	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	7.35	84	96	1.15	-636
14+50.00 A2						
	Common Exc	234.26	316	316	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	2.76	9	11	1.15	-333
15+00.00 A2						
	Common Exc	299.53	493	493	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	4.93	7	8	1.15	152
15+50.00 A2						
	Common Exc	194.70	458	458	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	22.24	25	29	1.15	581
16+00.00 A2						
	Common Exc	63.05	239	239	1.00	
	Subgrade Exc	0.00	0	0	1.00	

Subsoil Exc	0.00	0	0	1.00	
Fill	2.33	23	26	1.15	794

16+50.00 A2

Common Exc	144.54	192	192	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.22	4	5	1.15	981

17+00.00 A2

Common Exc	294.28	406	406	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.02	4	5	1.15	1382

17+50.00 A2

Common Exc	494.51	730	730	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.65	4	5	1.15	2107

18+00.00 A2

Common Exc	764.67	1166	1166	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.65	5	6	1.15	3267

18+50.00 A2

Common Exc	943.49	1582	1582	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.19	4	5	1.15	4844

19+00.00 A2

Common Exc	1466.28	2231	2231	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	3.45	5	6	1.15	7069

19+50.00 A2

Common Exc	966.49	2253	2253	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	3.49	6	7	1.15	9315

19+69.00 A2

Common Exc	872.48	647	647	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	4.25	3	3	1.15	9959

20+00.00 A2

Common Exc	369.13	713	713	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	62.29	38	44	1.15	10628

20+50.00 A2

Common Exc	0.09	342	342	1.00	

	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	236.39	277	318	1.15	10652	
21+00.00	A2						
	Common Exc	1.72	2	2	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	1193.11	1324	1522	1.15	9132	
21+50.00	A2						
	Common Exc	0.00	2	2	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	1304.46	2313	2659	1.15	6475	
22+00.00	A2						
	Common Exc	0.00	0	0	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	1189.66	2309	2656	1.15	3819	
22+50.00	A2						
	Common Exc	0.00	0	0	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	1081.37	2103	2418	1.15	1401	
23+00.00	A2						
	Common Exc	0.00	0	0	1.00		12243
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	1271.40	2178	2505	1.15	-1332	13575
23+03.21	A2						
	Common Exc	0.00	0	0	1.00		12243
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	1271.40	212	244	1.15	-1576	13819
23+23.24	A2						
	Common Exc	0.00	0	0	1.00		12243
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	0.00	441	507	1.15	-2083	14326

G R A N D S U M M A R Y T O T A L S

Material Name	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor
A2			
Common Exc	12233	12233	1.00
Subgrade Exc	0	0	1.00
Subsoil Exc	0	0	1.00
Fill	12458	14327	1.15

Station	Material Name	End Areas (sq. ft.)	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor	Mass Ordinate	
24+78.84 A2							
	Common Exc	0.00	0	0	1.00		12243
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	0.00	0	0	1.15	-2083	14326
24+95.80 A2							
	Common Exc	192.00	55	55	1.00		12298
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	748.54	217	250	1.15	-2278	14576
25+00.00 A2							
	Common Exc	192.00	39	39	1.00		12337
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	748.54	152	175	1.15	-2414	14751
25+50.00 A2							
	Common Exc	102.49	272	272	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	700.04	1341	1542	1.15	-10268	
26+00.00 A2							
	Common Exc	113.92	200	200	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	640.20	1241	1427	1.15	-11495	
26+50.00 A2							
	Common Exc	125.07	221	221	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	593.19	1142	1313	1.15	-12587	
27+00.00 A2							
	Common Exc	133.68	240	240	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	607.16	1111	1278	1.15	-13625	
27+50.00 A2							
	Common Exc	190.51	300	300	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	0.00	562	647	1.15	-13972	
27+57.00 A2							
	Common Exc	232.27	55	55	1.00		
	Subgrade Exc	0.00	0	0	1.00		
	Subsoil Exc	0.00	0	0	1.00		
	Fill	0.00	0	0	1.15	-13917	

28+00.00 A2

Common Exc	1115.92	1074	1074	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-12843

28+50.00 A2

Common Exc	1767.94	2670	2670	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-10173

29+00.00 A2

Common Exc	2322.44	3787	3787	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-6386

29+50.00 A2

Common Exc	2061.95	4060	4060	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.60	1	1	1.15	-2327

29+76.00 A2

Common Exc	1776.26	1848	1848	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-479

30+00.00 A2

Common Exc	1649.61	1523	1523	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	1044

30+50.00 A2

Common Exc	1616.11	3024	3024	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	4068

31+00.00 A2

Common Exc	1587.18	2966	2966	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.76	1	1	1.15	7033

31+50.00 A2

Common Exc	1663.84	3010	3010	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	2.76	3	4	1.15	10039

32+00.00 A2

Common Exc	1306.83	2751	2751	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	

	Fill	3.31	6	6	1.15	12784
32+50.00 A2						
	Common Exc	840.24	1988	1988	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	2.07	5	6	1.15	14766
33+00.00 A2						
	Common Exc	309.32	1064	1064	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	4.16	6	7	1.15	15823
33+50.00 A2						
	Common Exc	3.89	290	290	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	81.57	79	91	1.15	16022
33+62.45 A2						
	Common Exc	6.00	2	2	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	93.87	40	47	1.15	15977
34+00.00 A2						
	Common Exc	0.60	5	5	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	183.29	193	222	1.15	15760
34+50.00 A2						
	Common Exc	1.54	2	2	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	160.60	318	366	1.15	15396
35+00.00 A2						
	Common Exc	2.40	4	4	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	159.17	296	340	1.15	15060
35+50.00 A2						
	Common Exc	2.71	5	5	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	164.02	299	344	1.15	14721
36+00.00 A2						
	Common Exc	0.00	3	3	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	0.00	152	174	1.15	14721

Material Name	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor
A2			
Common Exc	31458	31458	1.00
Subgrade Exc	0	0	1.00
Subsoil Exc	0	0	1.00
Fill	7165	8240	1.15

```
Input  File: R:\Roadway\GeoPak\Input\Earthwork_Y.inp
Output File: Earthwork_Y.log
 1     1     1
 1     2     2
 1     3     3   earthwork
 1     4     4
 1     5     5   /* >>> For English, set tolerance to 0.01 <<< */
 1     6     6   Tolerance = 0.001
 1     7     7
 1     8     8      xs dgn = R:\roadway\Xsc\840286_rdy_xsc_Y.dgn
 1     9     9
 1    10    10         proposed finish grade
 1    11    11             soil type = a2
 1    12    12             fill multiplication factor = 1.15
 1    13    13             type = line
 1    14    14             lvname = Prop XS Subgrade Earthwork, Prop XS Finish Grade Earthwork
 1    15    15
 1    16    16         existing ground line
 1    17    17             soil type = a2
 1    18    18             type = line,line_string
 1    19    19             lvname = Exist XS Ground Line, Exist XS Void Line
 1    20    20
 1    21    21   write earthwork shapes
 1    22    22         plot parameters
 1    23    23            lvname = Prop XS Earthwork Shape
 1    24    24            stratify shape color
 1    25    25
 1    26    26   process earthwork for baseline = Y
 1    27    27                       job number = rdy
 1    28    28                       beginning station = 10+00
 1    29    29                       ending station = 13+00
 1    30    30
 1    31    31
 0     0    32 END_OF_FILE
COMPUTING EARTHWORKS FOR BASELINE = Y
COMPUTING EARTHWORKS FOR JOB = RDY
FORMING LIST OF XSCELLS
BEGINNING EARTHWORKS COMPUTATION
```

Station	Material Name	End Areas (sq. ft.)	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor	Mass Ordinate (cu. yd.)	Accum Volumes
10+25.00	A2						
	Common Exc	0.00	0	0	1.00		0
	Subsoil Exc	0.00	0	0	1.00		0
	Subgrade Exc	0.00	0	0	1.00		0
	Fill	0.00	0	0	1.15	0	0
10+50.00	A2						

		Common Exc	8.00	4	4	1.00	7
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	0.00	0	0	1.15	0
10+75.00	A2						
		Common Exc	2.00	4	4	1.00	11
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	2.13	1	1	1.15	1
11+00.00	A2						
		Common Exc	3.00	2	2	1.00	13
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	0.17	1	1	1.15	2
11+25.00	A2						
		Common Exc	34.00	17	17	1.00	30
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	4.14	2	2	1.15	4
11+50.00	A2						
		Common Exc	103.00	63	63	1.00	93
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	0.44	2	2	1.15	6
11+75.00	A2						
		Common Exc	191.00	136	136	1.00	229
		Subsoil Exc	0.00	0	0	1.00	0
		Subgrade Exc	0.00	0	0	1.00	0
		Fill	3.81	2	2	1.15	9

12+00.00 A2

Common Exc	277.00	216	216	1.00		445
Subsoil Exc	0.00	0	0	1.00		0
Subgrade Exc	0.00	0	0	1.00		0
Fill	32.53	17	19	1.15	416	28

12+25.00 A2

Common Exc	426.00	325	325	1.00		770
Subsoil Exc	0.00	0	0	1.00		0
Subgrade Exc	0.00	0	0	1.00		0
Fill	62.85	44	50	1.15	690	79

12+50.00 A2

Common Exc	618.00	483	483	1.00		1253
Subsoil Exc	0.00	0	0	1.00		0
Subgrade Exc	0.00	0	0	1.00		0
Fill	80.84	67	77	1.15	1096	156

12+75.00 A2

Common Exc	852.00	680	680	1.00		1933
Subsoil Exc	0.00	0	0	1.00		0
Subgrade Exc	0.00	0	0	1.00		0
Fill	101.77	85	97	1.15	1678	254

13+00.00 A2

Common Exc	1173.00	937	937	1.00		2870
Subsoil Exc	0.00	0	0	1.00		0
Subgrade Exc	0.00	0	0	1.00		0
Fill	116.92	101	116	1.15	2499	370

G R A N D S U M M A R Y T O T A L S

Material Name	Unadjusted Volumes (cu. ft.)	Adjusted Volumes (cu. ft.)	Multi Factor
A2			
Common Exca	2867	2867	1.00
Excavation	0	0	0.00
Subsoil Exca	0	0	0.00

Subgrade	Exca	0	0	0.00
	Fill	322	370	1.15

```
Input  File: R:\Roadway\Xsc\Earthwork_Y1.inp
Output File: Earthwork_Y1.log
 1     1     1
 1     2     2
 1     3     3   earthwork
 1     4     4
 1     5     5   /* >>> For English, set tolerance to 0.01 <<< */
 1     6     6   Tolerance = 0.001
 1     7     7
 1     8     8      xs dgn = R:\roadway\Xsc\840286_rdy_xsc_Y1.dgn
 1     9     9
 1    10    10         proposed finish grade
 1    11    11             soil type = a2
 1    12    12             fill multiplication factor = 1.15
 1    13    13             type = line
 1    14    14             lvname = Prop XS Subgrade Earthwork, Prop XS Finish Grade Earthwork
 1    15    15
 1    16    16         existing ground line
 1    17    17             soil type = a2
 1    18    18             type = line,line_string
 1    19    19             lvname = Exist XS Ground Line, Exist XS Void Line
 1    20    20
 1    21    21   write earthwork shapes
 1    22    22         plot parameters
 1    23    23            lvname = Prop XS Earthwork Shape
 1    24    24            stratify shape color
 1    25    25
 1    26    26   process earthwork for baseline = Y1
 1    27    27                       job number = rdy
 1    28    28                       beginning station = 10+50.00
 1    29    29                       ending station = 12+25.00
 1    30    30
 1    31    31
 0     0    32 END_OF_FILE
COMPUTING EARTHWORKS FOR BASELINE = Y1
COMPUTING EARTHWORKS FOR JOB = RDY
FORMING LIST OF XSCELLS
BEGINNING EARTHWORKS COMPUTATION
```

Station	Material Name	End Areas (sq. ft.)	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor	Mass Ordinate
10+50.00	A2					
	Common Exc	0.00	0	0	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	42.51	0	0	1.15	0
10+75.00	A2					
	Common Exc	0.00	0	0	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	
	Fill	31.07	34	39	1.15	-39
11+00.00	A2					
	Common Exc	0.00	0	0	1.00	
	Subgrade Exc	0.00	0	0	1.00	
	Subsoil Exc	0.00	0	0	1.00	

Fill	8.65	18	21	1.15	-60
11+25.00 A2					
Common Exc	2.25	1	1	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	1.95	5	6	1.15	-65
11+50.00 A2					
Common Exc	7.62	5	5	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.56	1	1	1.15	-61
11+75.00 A2					
Common Exc	11.27	9	9	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-52
12+00.00 A2					
Common Exc	12.89	11	11	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-41
12+25.00 A2					
Common Exc	0.00	6	6	1.00	
Subgrade Exc	0.00	0	0	1.00	
Subsoil Exc	0.00	0	0	1.00	
Fill	0.00	0	0	1.15	-41

G R A N D S U M M A R Y T O T A L S

Material Name	Unadjusted Volumes (cu. yd.)	Adjusted Volumes (cu. yd.)	Mult Factor
A2			
Common Exc	32	32	1.00
Subgrade Exc	0	0	1.00
Subsoil Exc	0	0	1.00
Fill	58	67	1.15