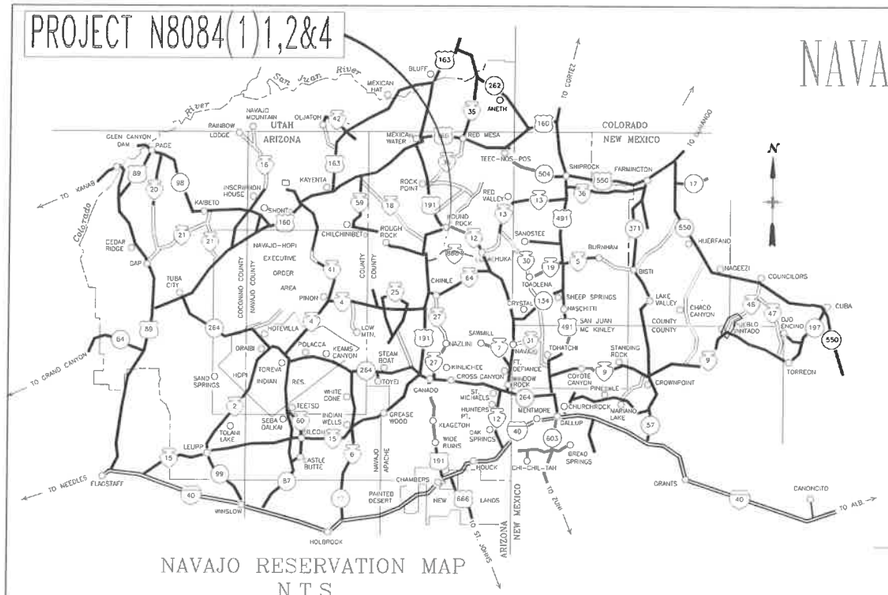
PROJECT N8084(1)1,2&4

NAVAJO NATION DIVISION OF TRANSPORTATION

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	1	109



NAVAJO RESERVATION MAP
N.T.S.

ROUTE 8084

5.750 km

I.D. No. N35243

PROJECT: N8084(1)1,2&4

GRADE, DRAIN, AGGREGATE BASE COURSE,
TWO BRIDGES, ASPHALT PAVING
AND MISCELLANEOUS CONSTRUCTION

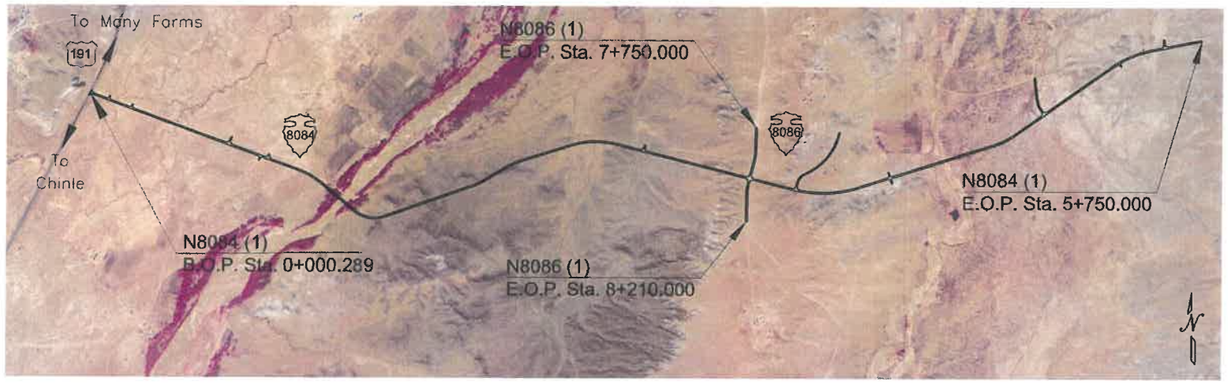
INDEX TO SHEETS		
SHT No	DWG No	DESCRIPTION
1	G1	TITLE SHEET
2	G2	GENERAL NOTES
3	G3	TYPICAL ROADWAY SECTION
4	G4	SUMMARY OF QUANTITIES
5-6	G5-G6	QUANTITY TABLES
7	G7	SUPER ELEVATION DATA
8-16	C1-C9	ROADWAY DETAILS
17-25	P1-P9	N8084 PLAN AND PROFILE
26	P10	N8084 & N8086 INTESECTION PLAN AND PROFILE
27-28	P11-P12	TURNOUT PROFILES
29	D1	DRAINAGE QUANTITIES
30-38	D2-D9A	DRAINAGE DETAILS
39-43	D10-D14	CULVERT CROSS SECTIONS
44-55	S1-S12	CBC DETAILS
56-80	B4-B30	CHINLE WASH BRIDGE PLANS
81-100	B31-B50	SHEEP DIP WASH BRIDGE PLANS
101-106	T1-T6	TRAFFIC PLANS
107-108	E1-E2	STORMWATER POLLUTION PREVENTION PLANS
109	U1	UTILITY DETAIL

LEGEND

RESERVATION LINE
COUNTY LINE
TOWNSHIP or RANGE LINE
SECTION LINE
FURROW DITCH — FD
HIGHWAY RIGHT-OF-WAY LINE
CUT LIMITS — c — c — c — c —
FILL LIMITS — f — f — f — f —
SECTION CORNER and 1/4 CORNER
POWER LINE and POLES
TELEPHONE LINE and POLES — T — o — T — o — T — T —
TELEVISION LINE — TV — TV — TV — TV —
WATER LINE
POLE GUY and ANCHOR
MILEPOST
TRAFFIC SIGN
GUARDRAIL — PLANNED / EXISTING
DELINEATOR
BARBED WIRE FENCE — ONE WAY-TYPE 1a / TWO WAY-TYPE 1b / GATE
WOVEN WIRE FENCE
CATTLE GUARD — 2-UNIT / 3-UNIT / 4-UNIT / 6-UNIT
CULVERTS — PLANNED / EXISTING
CONCRETE BOX CULVERTS — PLANNED / EXISTING
GROUND LINE - EARTH
GROUND LINE - ROCK
EXISTING ROAD — WIDTH & TYPE
SIDE ROAD TURNOUT — PLANNED / EXISTING
TREES and SHRUBS
CHANNEL or DITCH
DIKE or DITCH BLOCK
PLACED OR GROUTED RIPRAP
ROLLED EROSION CONTROL PRODUCT
WIRE ENCLOSED RIPRAP
GAS LINE — G — G — G —
SANITARY SEWER LINE — S — S — S —
WELL
DWELLING
SCHOOL
TEMPORARY BENCH MARK — TBM-#
WINDMILL
RIGHT-OF-WAY MONUMENT — PLANNED / EXISTING
CONTROL POINT — CP #
BORING LOCATION
OBJECT MARKERS — TYPE II / TYPE III
WATER VALVE — WV
WATER METER
ROADWAY OBLITERATION
PLASTIC SAFETY FENCE

INDIAN SERVICE | COUNTY | STATE | FEDERAL

PAVED | GRADED | UNIMPROVED



LENGTH OF PROJECT

STATION TO STATION	LIN. METERS	KILOMETERS
B.O.P. N8084 Station 0+000.000		
B.O.B. Chinle Station 1+311.143	1,311.143	1.311
E.O.B. Chinle Station 1+369.357	58.214	0.058
EQN 2+853.318 Bk = 2+850.000 Ahd	1,483.961	1.484
B.O.B Sheep Dip Station 4+348.243	1,498.243	1.498
E.O.B Sheep Dip Station 4+423.157	74.914	0.075
E.O.P. End of Project 5+750.000	1,326.843	1.327
N8086		
B.O.P. N8086 Station 7+750.000		
E.O.P. N8086 Station 8+210.000	460.000	0.460
TOTAL	6,213.318	6.213

RIGHT-OF-WAY

LEFT OF CENTERLINE				RIGHT OF CENTERLINE			
STATION	TO	STATION	WIDTH	STATION	TO	STATION	WIDTH
0+026.352	to	1+280.000	23	0+020.335	to	1+280.000	23
1+280.000	to	1+416.288	50	1+280.000	to	1+416.288	50
1+416.288	to	2+544.869	30	1+416.288	to	2+853.318	30
2+544.869	to	2+853.318	45	Equation			
Equation				2+850.000		4+280.000	30
2+850.000	to	4+280.000	30	4+280.000		4+480.000	50
4+280.000	to	4+480.000	50	4+480.000		5+750.000	23
4+480.000	to	5+750.000	23				

DESIGN CRITERA - N8084(1)1,2&3

2021 ADT 125 vpd — 2041 Projected ADT 186 vpd
MAX. Superelevation 4%

N8084: 0+000.289 to 1+900.000 N8086: 7+750.000 to 8+210.000	N8084: 1+900.000 to 5+750.000
Design Speed 50 km/h	Design Speed 80 km/h
Minimum Radius 86 m	Minimum Radius 280 m
Maximum Gradient 7%	Maximum Gradient 8%
MIN. Stopping Sight Distance 65 m	MIN. Stopping Sight Distance 130 m
MIN. Passing Sight Distance 160 m	MIN. Passing Sight Distance 245 m

DIBBLE
3020 EAST CAMELBACK ROAD
SUITE 201
PHOENIX, AZ 85016
(602) 957-1155

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

RECOMMENDED:

PRINCIPAL ENGINEER
NAVAJO DIVISION OF TRANSPORTATION

DATE: 5/4/26

APPROVED:

DIRECTOR
NAVAJO DIVISION OF TRANSPORTATION

DATE: 5/5/2026

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-G01.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	2	109

GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-14), AND THE SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT. THE METRIC UNITS OF MEASURE SHALL BE USED.
2. ALL PERMANENT AND TEMPORARY ROADSIDE SIGNS, AND PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) FOR STREETS AND HIGHWAYS (LATEST EDITION) AND IN ACCORDANCE WITH THE DETAILS ON THESE PLANS. PLACEMENT OF "STOP" BAR, PERMANENT TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL BE FIELD ADJUSTED AS DIRECTED BY THE COR/COTR, AS INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.
3. THE TEMPORARY TRAFFIC CONTROL DETAILS SHOWN REFLECT GENERAL REQUIREMENTS FOR THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR PREPARING AND SUBMITTING A TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THESE DETAILS, TAKING INTO ACCOUNT THE CONTRACTOR'S CONSTRUCTION SEQUENCING PLAN, MUTCD, AND THE SUPPLEMENTAL SPECIFICATIONS FOR SECTION 635-TEMPORARY TRAFFIC CONTROL.
4. THE DESIGN FEATURES INCLUDING HORIZONTAL AND VERTICAL ALIGNMENTS, TYPICAL SECTIONS, AND OTHER DESIGN DETAILS SHOWN SHALL NOT BE ALTERED OR MODIFIED IN ANY WAY DURING CONSTRUCTION WITHOUT THE EXPRESSED, WRITTEN DIRECTION AND WRITTEN APPROVAL OF THE (BIA-NRDOT) OWNER THROUGH THE COR/COTR, UNLESS OTHERWISE NOTED IN THESE PLANS OR SPECIFICATIONS. DRAINAGE STRUCTURES AND TURNOUTS SHALL BE INSTALLED AS SHOWN WITH ONLY MINOR CORRECTIONS IN LOCATION, SKEW, AND/OR INVERT ELEVATIONS AS NEEDED TO FIT FIELD CONDITIONS. TURNOUTS MAY NOT BE SHIFTED MORE THAN 5.0 METERS FROM THE LOCATIONS SHOWN ON THE PLANS WITHOUT THE WRITTEN APPROVAL OF THE BIA-NRDOT (OWNER) THROUGH THE COR/COTR.
5. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY AND EXPENSE FOR DISPOSAL OF TRASH AND/OR CONSTRUCTION DEBRIS IN ACCORDANCE WITH SECTIONS 107 AND 203 OF THE FP-14 AS WELL AS ANY AND ALL PERMIT REQUIREMENTS. THIS WORK SHALL BE AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.
6. THE BIDDER SHALL READ AND MAKE CAREFUL EXAMINATION OF THE PLANS, SPECIFICATIONS, QUANTITIES, MATERIAL, SURVEYING REQUIREMENTS, AND VISIT THE SITE OF THE PROPOSED CONSTRUCTION TO BECOME FAMILIAR WITH THE SITE CONDITIONS AND LIMITATIONS BEFORE MAKING A PROPOSAL. IN ACCORDANCE WITH SPECIAL CLAUSE NN 52.236-03, THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL ERRORS RESULTING FROM THE FAILURE TO MAKE SUCH AN EXAMINATION OR ANY INFORMATION DERIVED FROM THE MAPS, PLANS, SPECIFICATIONS, PROFILES, DRAWINGS OR THE GOVERNMENT PERSONNEL, SHALL NOT RELIEVE THE CONTRACTOR FROM ANY RISK OR FROM FULFILLING THE TERMS OF THE CONTRACT. THERE ARE SEVERAL AREAS WITH LIMITED WORKING ROOM WITHIN THE PROJECT RIGHT-OF-WAY, AND/OR WITH EXISTING FEATURES WITHIN OR NEAR THE PROJECT RIGHT-OF-WAY, THAT WILL REQUIRE 'SPECIAL' CONSTRUCTION METHODS.
7. THE CONTRACTOR IS REQUIRED TO SUBMIT A REVISED DRAINAGE STRUCTURE LIST TO THE COR/COTR, BASED ON THE STRUCTURE FIELD STAKING IN ACCORDANCE WITH SECTION 152 OF THE CONTRACT SUPPLEMENTAL SPECIFICATIONS. THE APPROVAL OF ANY AND ALL REVISED DRAINAGE STRUCTURE LISTS WITH ACCOMPANYING DRAWINGS IS RENDERED AS A SERVICE ONLY AND IS NOT CONSIDERED A GUARANTEE OF MEASUREMENTS, QUANTITIES, INSTALLATION PROCEDURES, AND/OR DIMENSIONS, NOR SHALL IT BE CONSIDERED AS RELIEVING THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT SPECIFICATIONS AND DESIGN PLANS. THE CONTRACTOR IS HEREBY NOTIFIED THAT UNDER NO CIRCUMSTANCE SHALL ANY DRAINAGE STRUCTURE(S) BE INSTALLED BELOW THE NATURAL FLOW LINE OF THE WASH, CHANNEL, ARROYO, OR DITCH LINE.
8. NO WORK SHALL BE PERFORMED OR GROUND DISTURBED OUTSIDE OF THE DESIGNATED CONSTRUCTION LIMITS IN ACCORDANCE WITH SECTION 107.02 OF THE FP-14 WITHOUT WRITTEN APPROVAL BY THE BIA-NRDOT (OWNER), UNLESS SPECIFICALLY NOTED/LABLED ON THE PLANS AS "CONSTRUCTION WORK AREA". UNLESS NOTED OTHERWISE, THE CONSTRUCTION LIMITS ARE THE EARTHWORK CUT / FILL LIMITS PLUS 3 METERS, NOT TO EXCEED THE R.O.W. LIMITS. WORK LIMITS AT DRAINAGE STRUCTURES, CATTLE GUARDS, FENCING, R.O.W. MARKERS, ETC, WILL BE APPROVED BY THE COR/COTR.
9. THE DETAILS SHOWN ON THE STORM WATER POLLUTION AND EROSION/SEDIMENT CONTROL DETAILS ARE GENERAL REQUIREMENTS TO BE USED BY THE CONTRACTOR IN PREPARING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) ALONG WITH THE REQUIREMENTS IN SECTION 157 OF THE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL CONTRACT REQUIREMENTS. THE CONTRACTOR IS REQUIRED TO SUBMIT COURTESY COPY OF THE APPROVED SWPPP TO THE NAVAJO NATION WATER QUALITY EPA OFFICE IF THE PROJECT IS ON TRIBAL TRUST LANDS AND POST A SET AT THE PROJECT SITE.
10. THE QUANTITIES SHOWN ARE FOR ESTIMATING PURPOSES ONLY AND TO COMPARE AND CANVAS BIDS. ACTUAL PAY QUANTITIES WILL BE DETERMINED IN THE FIELD FOR AUTHORIZED CHANGES THAT AFFECT THE QUANTITIES.
11. ALL TURNOUTS/DRIVEWAYS, AS CALLED FOR ON THESE PLANS, SHALL EITHER BE CONSTRUCTED, REBUILT, RESHAPED AND/OR REMOVED UP TO THE RIGHT-OF-WAY LIMITS. ALL TURNOUTS SHALL BE PAVED TO THE CATTLE GUARD, THEN FROM THE BACK OF CATTLE GUARD TO THE R.O.W. LINE, PLACE AGGREGATE BASE FOR ALL 4.5m WIDE TURNOUTS; PLACE AGGREGATE BASE AND HOT ASPHALTIC CONCRETE FOR TURNOUTS WIDER THAN 4.5m TO MATCH THE STRUCTURAL SECTION. REQUIRED GRADING, SHAPING, AND EARTH COMPACTION OUTSIDE OF THE RIGHT-OF-WAY TO CONNECT NEW TURNOUTS TO THE EXISTING ROADWAY/DRIVEWAY (AS SHOWN ON THE PLANS OR AS DIRECTED BY THE COR/COTR) SHALL BE INCIDENTAL TO BID ITEM 20401-0000. ANY REQUIRED AGGREGATE BASE AND/OR ASPHALT MATERIAL SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THIS WORK AS SHOWN IN THE BID SCHEDULE.
12. THE CONTRACTOR SHALL BE REQUIRED TO OBLITERATE ALL EXISTING ABANDONED TURNOUTS AND ROADWAY WITHIN THE RIGHT-OF-WAY LIMITS, AND ANY EXISTING TURNOUTS/ROADWAY OUTSIDE OF THE RIGHT-OF-WAY THAT ARE DESIGNATED ON THE PLANS FOR OBLITERATION. OBLITERATION SHALL BE AS PER FP-14, METHOD 2. SCARIFICATION SHALL BE TO A DEPTH OF 300mm. THE SCARIFIED SURFACE SHALL BE LEFT ROUGH, WITH 100mm TO 300mm HIGH RIDGES PERPENDICULAR TO THE EXISTING ROAD CENTERLINE. ROADWAY OBLITERATION INCLUDES GRADING DRAINAGE CHANNELS ACROSS THE OLD ROAD BED, TO RE-ESTABLISH NATURAL DRAINAGE CHANNELS AND/OR TO OPEN CHANNELS FOR THE NEWLY INSTALLED (IN NEW ROADWAY) DRAINAGE STRUCTURES. THIS WORK TO BE INCLUDED IN THE BID ITEM 21101-2000. PERMANENT SEEDING AND STRAW MULCHING SHALL BE APPLIED TO ALL OBLITERATED AREAS. SEEDING AND MULCHING TO BE PAID UNDER ITEMS 62510-1000 AND 15708-1000.
13. STRUCTURAL EXCAVATION AND BEDDING/BACKFILL OF ALL DRAINAGE STRUCTURES SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF STRUCTURES. BEDDING AND BACKFILL MATERIAL SHALL MEET ALL REQUIREMENTS OF FP-14, SECTIONS 209 AND 704. APPROVED EXCESS EXCAVATION MATERIAL MAY BE USED TO REBUILD TURNOUTS, EARTHEN DITCH BLOCKS, AND/OR PLACED ALONG ROADWAY SHOULDERS AS EMBANKMENT IN AREAS ADJACENT TO THE REMOVAL AND AS DIRECTED BY THE COR/COTR.
14. ALL FURROW AND DRAINAGE DITCHES SHALL BE STAKED AND GRADED TO DRAIN TO THE RIGHT-OF-WAY LIMITS. EARTHEN DITCH BLOCKS, DIKES AND DITCHES SHALL BE CONSTRUCTED AS SHOWN ON THESE PLANS AND/OR ADDED AT LOCATIONS DESIGNATED BY THE COR/COTR. ALL DITCH BLOCKS, DIKES AND FURROW DITCHES SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEMS FOR THIS WORK AS SHOWN IN THE BID SCHEDULE. AT ALL DRAINAGE PIPE INSTALLATIONS AND IN-PLACE PIPE CLEANING LOCATIONS, THE CONTRACTOR SHALL CLEAN, REGRADE, AND RESHAPE THE INLET AND OUTLET CHANNELS TO THE RIGHT-OF-WAY LINE AS DIRECTED BY THE COR/COTR. THIS WORK SHALL BE INCIDENTAL TO BID ITEMS UNDER SECTIONS 602, 603, AND 607.
15. IMMEDIATELY PRIOR TO PLACING EMBANKMENT AND AGGREGATE BASE, THE TOP 152 mm OF THE ORIGINAL GROUND, OR FINISHED SUBGRADE (INCLUDING TURNOUTS) SHALL BE CHECKED FOR COMPACTION AND GRADE. IF COMPACTION DOES NOT MEET THE MINIMUM SPECIFIED COMPACTION AND TOLERANCE REQUIREMENTS, THEN THE ORIGINAL GROUND AND/OR SUBGRADE SHALL BE RE-WATERED AND/OR SCARIFIED AS NEEDED AND RE-COMPACTED TO THE REQUIRED DENSITY AND TOLERANCE, AT THE CONTRACTOR'S EXPENSE. IN NO CASE SHALL ANY EMBANKMENT OR SURFACING MATERIAL BE PLACED ON FROZEN, MUDDY OR UNSTABLE NATURAL GROUND OR SUBGRADE. AS PER FP-14 SECTION 204.09, BENCHING MAY BE REQUIRED UNDER SOME EMBANKMENTS. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR.
16. THE EARTHWORK TABLE SHOWN IS TO ASSIST THE CONTRACTOR IN ESTABLISHING A BID UNDER THE EARTHWORK ITEMS SHOWN IN THE BID SCHEDULE. ALL EXCAVATION, WASTE AND EMBANKMENT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 20401-0000 AND 20403-0000. IF MATERIAL IS APPROVED, THE WASTE MATERIAL SHOWN ON THESE PLANS SHALL BE USED AS NECESSARY TO CONSTRUCT TURNOUTS, DITCH BLOCKS, AND/OR BE PLACED AS EMBANKMENT IN AREAS AS DIRECTED BY THE COR/COTR OUTSIDE THE CONSTRUCTION STAKED LIMITS. ANY REMAINING WASTE MATERIAL NOT USED WITHIN THE PROJECT LIMITS SHALL BE DISPOSED OF AS PER FP-14, SECTION 204.14 IF A BORROW PIT IS NOT USED ON THIS PROJECT; OTHERWISE THE WASTE MATERIAL SHALL BE PLACED BACK INTO THE BORROW PIT PRIOR TO TAKING FINAL CROSS SECTION MEASUREMENTS OF THE PIT, OR SPREAD/ STOCKPILED AT A LOCATION WITHIN THE PROJECT ROW AND OUTSIDE THE ROADWAY CONSTRUCTION LIMITS WHEN WASTE IS CALLED FOR IN THE EATHWORK TABLES AS DIRECTED BY THE COR/COTR FOR MEASUREMENT AS REQUIRED.
17. AT ALL TOP EDGES OF CUT SLOPES THE CONTRACTOR SHALL REMOVE ALL LOOSE AND UNSTABLE ROCK OR ROCK THAT AS DETERMINED BY THE COR/COTR, MAY BECOME LOOSE WITHIN 5.0 METER OF THE TOP CUT SLOPE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO BID ITEM 20401-0000, AND NO ADDITIONAL PAYMENT WILL BE MADE.
18. THE LOCATION OF UTILITIES AS SHOWN IN THESE PLANS ARE APPROXIMATE AND ARE ONLY TO ASSIST THE CONTRACTOR IN COMPLETING THE WORK. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONTACT THE NEW MEXICO ONE-CALL AT (800)-321-2537, NAVAJO TRIBAL UTILITY AUTHORITY (NTUA) AT (928)-729-5721, AND NAVAJO NATION DIVISION OF NATURAL RESOURCES AT (928)-729-4003, FRONTIER COMMUNICATIONS (928)871-3745, ARIZONA BLUE STAKE AT (811) PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND THEIR LOCATIONS WITH THE UTILITY OWNERS PRIOR TO CONSTRUCTION. ANY UTILITIES DAMAGED DUE TO NEGLIGENCE OF THE CONTRACTOR SHALL BE RESTORED TO CODE REQUIREMENTS AT THE CONTRACTOR'S EXPENSE.
19. THE CONTRACTOR SHALL REMOVE, CLEAN, AND STOCKPILE ALL SALVAGEABLE EXISTING CULVERTS, CATTLE GUARDS, AND FENCING MATERIALS, ETC, AS CALLED FOR ON THESE PLANS AND SECTIONS 203 AND 607. ALL SALVAGEABLE MATERIALS, AS DETERMINED BY THE COR/COTR, SHALL BE TAKEN TO THE GANADO MAINTENANCE YARD AND STOCKPILED IN A DESIGNATED AREA. ANY MATERIALS DETERMINED TO BE UNUSEABLE BY THE COR/COTR SHALL BE DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH SECTIONS 107, 109.02 (m), AND 203. THE SALVAGE WORK SHALL BE INCLUDED IN THE APPROPRIATE UNIT PRICE BID ITEMS FOR SECTIONS 203 AND/OR 607.
20. THE ROADWAY TYPICAL SECTION SHOWN IS THE BASIC TEMPLATE TO WHICH THE PROJECT IS TO BE STAKED AND BUILT. HOWEVER, THERE WILL BE LOCATIONS WHERE, DUE TO EXISTING GROUND CONDITIONS, TURNOUTS, CULVERTS OR OTHER STRUCTURES, ETC., THE SHOWN TYPICAL SLOPES CANNOT BE CONSTRUCTED. IN THIS CASE, THE BIA-NRDOT (ENGINEER OF RECORD), THROUGH THE COR/COTR, SHALL BE CONSULTED FOR CHANGES IN THE TYPICAL SECTIONS, DESIGN SLOPES, AND/OR OTHER ADJUSTMENTS BEFORE PROCEEDING WITH THE WORK UNLESS NOTED OTHERWISE ON THE PLANS. THE FINAL CONSTRUCTED ROAD SECTION SHALL BE BASED ON THE GOVERNMENT FURNISHED COMPUTERIZED STAKING REPORT AS ADJUSTED TO FIT FIELD CONDITIONS. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION, UNLESS OTHERWISE APPROVED. IN NO CASE SHALL THE CUT AND FILL BACK SLOPES BE BUILT STEEPER THAN THE MAXIMUM ALLOWED IN THE ROADWAY TYPICAL SECTION SHOWN. THE CONTRACTOR IS REQUIRED TO BRING STAKING ISSUES TO THE IMMEDIATE ATTENTION OF THE COR/COTR FOR FURTHER DIRECTION. FAILURE TO DO SO WILL RESULT IN THE COST OF THE CORRETIVE WORK TO BE BORNE ENTIRELY BY THE CONTRACTOR.
21. THE CONTRACTOR SHALL SAW CUT (FULL DEPTH) THE EXISTING ASPHALT PAVEMENT WHERE NEW ASPHALT IS TO TIE INTO THE OLD ASPHALT PAVEMENT. THE CONTRACTOR SHALL MATCH THE NEW ASPHALTIC CONCRETE PAVEMENT SURFACE TO EXISTING PAVEMENT SECTION AT TIE-IN POINTS AND PROVIDE FOR A SMOOTH TRANSITION AS DIRECTED BY THE COR/COTR. ALL SAWED PAVEMENT EDGES TO RECEIVE ASPHALT TACK COAT. THIS WORK SHALL BE INCIDENTAL TO BID ITEM 40201-0500 AS SHOWN IN THE BID SCHEDULE.
22. ANY EXISTING, OR NEW ROADSIDE FEATURES OR OTHER IMPROVEMENTS NEGLIGENTLY DAMAGED BY THE CONTRACTOR DURING CONSTRUCTION SHALL BE RESTORED/REPLACED TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S ENTIRE EXPENSE.
23. THE CONTRACTOR SHALL REMOVE EXISTING ROADSIDE SIGNS THAT INTERFERE WITH ROAD CONSTRUCTION AND/OR CONTRADICT THE CONTRACTOR'S TEMPORARY TRAFFIC CONTROL PLAN, AT THE START OF THE CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE COR/COTR AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF SUCH SIGN REMOVAL. SIGNS NEEDED FOR SAFETY/INFORMATION SHALL BE TEMPORARILY RESET AS DIRECTED BY THE COR/COTR. AT THE COMPLETION OF THE PROJECT, ALL REMAINING ROADWAY SIGNS NOT SPECIFICALLY DESIGNATED ON THE PLANS TO REMAIN, SHALL BE REMOVED, UNLESS DIRECTED OTHERWISE BY THE COR/COTR. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATION OF THE CONTRACTOR UNDER THE TRAFFIC CONTROL BID ITEMS.
24. GRADE AND SHAPE THE SHOULDER AND DITCHES (AS DIRECTED BY COR/COTR) FROM THE SUBGRADE HINGE POINTS TO AND INCLUDING THE EXISTING DITCH LINE AREAS FOR THE CONSTRUCTION OF RIPRAP DITCH LININGS, SLOPE PROTECTION AND RIPRAP RUNDOWNS. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RIPRAP ITEMS SHOWN IN THE BID SCHEDULE.
25. ALL RIGHT-OF-WAY REFERENCE MARKERS SHALL BE LABELED IN THE METRIC UNITS OF MEASURE. ALL EXISTING AND NEW BRASS CAPS SHALL BE STAMPED WITH BOTH ALIGNMENT STATIONING AND ELEVATIONS IN METRIC, UNLESS SPECIFIED OTHERWISE BY THE COR/COTR. ANY MISSING OR DAMAGED MARKERS SHALL BE RE-SURVEYED AND REPLACED. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 62101-0000 AND 62102-0000.
26. THE GEOTECHNICAL REPORT FOR THIS PROJECT SHALL BE PROVIDED UPON WRITTEN REQUEST FROM THE CONTRACTOR, TO THE CO.
27. THE ROADWAY AND PIPE CROSS SECTION DRAWINGS WILL BE PROVIDED IN EITHER HARD COPY OR ELECTRONIC FORMAT UPON WRITTEN REQUEST FROM THE CONTRACTOR, THROUGH THE COR/COTR TO THE CO AFTER AWARD OF CONTRACT.
28. ANY EXISTING MAIL BOXES OR HOUSE ADDRESS SIGNS LOCATED ALONG THE ROADWAY PRISM SHALL BE REMOVED AND RE-INSTALLED OUTSIDE OF THE RIGHT-OF-WAY LIMIT OR AS DIRECTED BY THE COR/COTR. THIS WORK SHALL BE INCIDENTAL TO BID ITEM 20304-1000.
29. AT THE COMPLETION OF THE CONSTRUCTION, THE CONTRACTOR SHALL INSPECT THE INTERIOR OF ALL NEWLY INSTALLED AND EXISTING DRAINAGE STRUCTURES, CATTLE GUARDS. THESE STRUCTURES SHALL BE MAINTAINED IN A CLEAN CONDITION, AND FREE OF SILT AND OTHER DEBRIS UNTIL FINAL ACCEPTANCE OF THE PROJECT. THIS WORK SHALL BE CONSIDERED AN INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER THE APPROPRIATE BID ITEMS, FOR SECTIONS 602, 603, AND 607.
30. AT MAJOR DRAINAGE STRUCTURES AND LIVESTOCK PASS LOCATIONS THAT SPECIFY INSTALLING WING FENCES, THE CONTRACTOR SHALL EITHER TIE WING FENCES TO THE STRUCTURES OR INSTALL FENCE OVER THE STRUCTURE IN ACCORDANCE WITH THE DETAILS ON THESE PLANS. IF NO CORNER FENCE POST/BRACE/STRAIN EXISTS AT TIE-IN TO R.O.W. FENCE, THE CONTRACTOR SHALL INSTALL A STRAIN POST ASSEMBLY. THIS WORK SHALL BE INCIDENTAL TO BID ITEMS 61921-1000 AND NO ADDITIONAL PAYMENT WILL BE MADE.
31. THERE ARE A NUMBER OF LOCATIONS WHERE RIPRAP, CHANNEL FLOWLINE GRADING, TURNOUTS, ETC., WILL REQUIRE WORK AND IMPROVEMENTS PLACED THROUGH AND BEYOND THE R.O.W. FENCING LOCATIONS. IN THESE LOCATIONS, THE R.O.W. FENCING SHALL BE ADJUSTED (POST SPACING, VERTICAL ALIGNMENT, POST INSTALLATIONS UP AND AROUND RIPRAP, R.O.W. MONUMENT/MARKER ADJUSTMENT, ETC.) AS DIRECTED BY THE COR/COTR. THIS ADJUSTMENT WORK SHALL BE INCIDENTAL TO BID ITEMS 61921-1000 AND NO ADDITI ONAL PAYMENT WILL BE MADE.
32. THE CONTRACTOR SHALL NOTIFY THE NDOT ENVIRONMENTAL OFFICE AS REQUIRED IN THE SPECIAL CONTRACT REQUIREMENT'S SECTION OF THE CONTRACT, NOTES ON THESE PLANS PRIOR TO STARTING CONSTRUCTION ACTIVITIES AT LOCATIONS WHERE ARCHAEOLOGICAL SITES ARE PRESENT ON THIS PROJECT (505-371-8394). TEMPORARY STAFETY FENCING MAY BE CALLED FOR TO PROTECT ARCHAEOLOGICAL OR OTHER SITES/LOCATIONS BEFORE CONSTRUCTION. THIS FENCE SHALL BE SQUARE LINK, ORANGE, HI-DENSITY HDPE TYPE, AS PER SECTION 710.11 OF THE FP-14. TEMPORARY FENCING TO BE CONSIDERED INCIDENTAL OBLIGATIONS UNDER BID ITEM 20401-0000 IF NO SPECIFIC BID ITEM FOR SUCH WORK IS SHOWN IN THE BID SCHEDULE.
33. EXISTING CATTLE GUARD AND FENCING AT TURNOUTS SHALL BE ADJUSTED TO MEET THE NEW GRADE AND TURNOUT LOCATIONS. CATTLE GUARD ADJUSTMENT WILL BE PAID UNDER BID ITEM 61920-3000. FENCING ADJUSTMENTS WILL BE PAID UNDER BID ITEM 61921-1000.
34. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL CONSTRUCTION STAKING FOR THE PROJECT. THE CONSTRUCTION STAKING SHALL BE PERFORMED BY A PROFESSIONAL SURVEYOR, REGISTERED WITH THE STATE OF ARIZONA.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

GENERAL NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G2	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

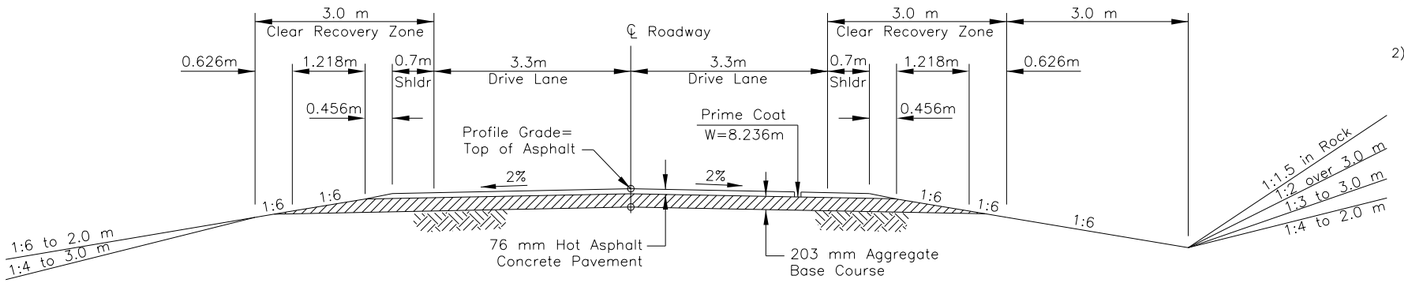
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	3	109

NOTES:

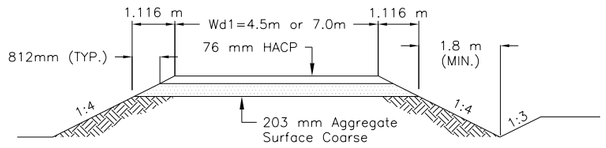
1) Within the area between the hinges, the foreslopes are relative to the subgrade. Outside of the hinges, the slopes are relative to the horizontal.

2) The limites of disturbance is 3m outside of the cut/fill slope intercept line, or the R/W or TCE line, whichever is more restrictive. Pay limits for Clear and Grub, Seeding, and Mulching are set to these limits. Contractor shall mark limits in the field with slope stakes and provide means to maintain the disturbance limits. Disturbance outside the limits will be scarified, seeded and mulched at no additional cost to NDOT.



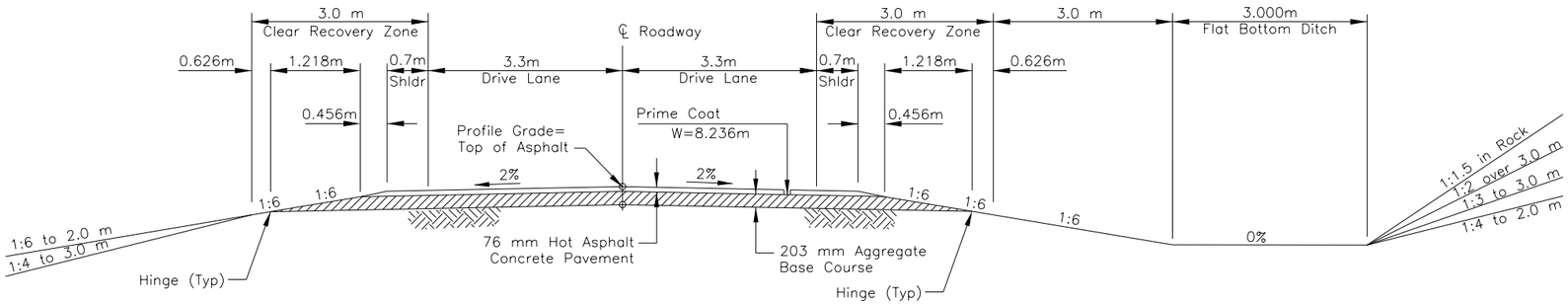
N8084 TYPICAL ROADWAY SECTION

N8084 Sta. 0+000.000 to Sta. 3+180.000
N8084 Sta. 4+160.000 to Sta. 5+750.000



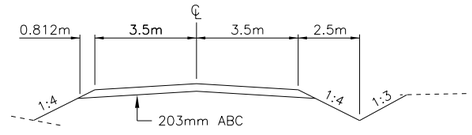
SECTION A-A

Typical Turnout Dimensions and Structural Section Unless Noted Otherwise on the Plans.



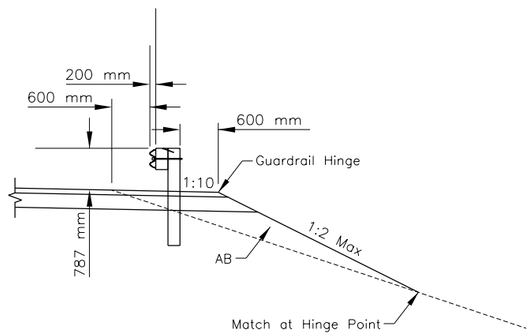
N8084/N8086 TYPICAL ROADWAY SECTION

N8084 Sta. 3+180.000 to Sta. 4+160.000
N8086 Sta. 5+750.000 to Sta. 8+210.000

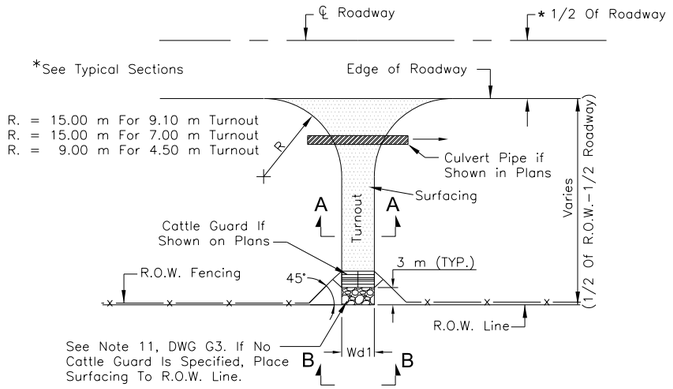


SECTION B-B

Grader Road



TYPICAL GUARDRAIL INSTALLATION



TYPICAL TURNOUT

TURNOUT EXTENSION NOTE:

The Turnouts Listed Below Will Require Earthwork And Grading Outside The Road Right-Of-Way. This Work Is Necessary To Obtain Acceptable Turnout Grades of ±8.0% Maximum Or To Create Smooth Tie-ins To Existing Turnouts. The Specific Length Of Extensions Required To Meet Acceptable Grades Shall Be Determined By the AOTR/COR. The Width Of Extensions Shall Match The New Driveway Width Given On The Plans. The Cost Of The Extensions Shall Be Incidental To Earthwork Related Road Construction Items. No Earthwork Or Other Measurements Shall Be Taken. Specified Aggregate Or Other Related Structural Material Will Be Measured And Paid Under The Corresponding Bid Items.

TURNOUT LOCATIONS	CONSTRUCTION ZONE DIMENSIONS
Sta. 0+720.000 Lt.	25 m wide x 20 m long
Sta. 2+900.000 Lt.	25 m wide x 8 m long
Sta. 3+660.000 Lt.	25 m wide x 13 m long
Sta. 4+130.000 Lt.	20 m wide x 5 m long

BASIS OF ESTIMATED QUANTITIES

ITEM No.	DESCRIPTION	GRADE	UNIT WT.	APPLICATION
21301-0000	Subgrade Stabilization	N/A	N/A	Mix Ration 1:200; EN-1:Water
30103-2000	Untreated Aggregate Base Course	"D"	2268 kg/m³	Main Roadway: 203 mm and Turnouts, N8086 100 mm.
40301-0100	Asphaltic Concrete Pavement, Type 1	"B"	2324 kg/m³	Main Roadway and Turnouts: 76 mm (2-38 mm Lifts), Turnouts 76 mm
40504-0000	Asphalt Binder	PG 64-22		6.0% By Weight of Total Weight of Mixture
41101-5000	Prime Coat - Penetrating Emulsified Prime, Grade PEP	PEP	1056 L/t	Unit Weight: 1.36 L/sq m Apply on top of ABC
41201-1000	Asphalt Emulsion Tack Coat	SS-1	1.001 L/kg	0.23 L/m² Application Rate

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

TYPICAL ROADWAY SECTIONS & TURNOUT LAYOUT

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G3	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	4	109

AMEND	LINE ITEM NO.	PAY ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT	SHEET AND DESCRIPTION					ESTIMATED QUANTITIES	REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITIES
					P1-P22	B1-B5	B6-B29	B30-B47			
					ROADWAY SUMMARY	RCB STA 0+477	CHINLE BRIDGE SUMMARY	SHEEP DIP BRIDGE SUMMARY	ALLOWANCE	BID SCHEDULE	
	1	10901-0000	Extra & Miscellaneous Work - authorized under Suppl.Spec. 109.02(s) of Exhib	LPSM	1					1	
	2	15101-0000	Mobilization	LPSM	1					1	
	3	15201-0000	Construction Survey And Staking	LPSM	1					1	
	4	15701-0000	Soil Erosion Control	LPSM	1					1	
	5	15703-2500	Soil Erosion Control, Mulching, Hydraulic Method	ha	22					22	
	6	20101-0000	Clearing And Grubbing	ha	27					27	
	7	20302-0700	Removal Of Fence	m	384				56	440	
	8	20304-1000	Removal Of Structures And Obstructions	LPSM	1					1	
	9	20401-0000	Roadway Excavation	m3	117325				5675	123000	
	10	20401-2000	Drainage Excavation	m3	2294				206	2500	
	11	20410-0000	Select Borrow	m3	10511				489	11000	
	12	20443-0000	Berms	m	19					19	
	13	20801-0000	Structure Excavation	m3		120	50	50		220	
	14	20803-0000	Structural Backfill	m3		250	600	500		1350	
	15	21101-2000	Roadway Obliteration, Method 2	m2	23216				784	24000	
	16	21301-0000	Subgrade Stabilization	m2	70421				4579	75000	
	17	25101-2100	Placed Riprap, Method B, Class 1	m3	1999				168	2167	
	18	25101-2200	Placed Riprap, Method B, Class 2	m3	1009				100	1109	
	19	25303-1000	Wire-Enclosed Riprap	m3	779		4236	2502		7517	
	20	30101-2000	Aggregate Base Grading D	metric ton	30724				1276	32000	
	21	40301-0100	Asphalt Concrete Pavement, Type 1	t	9808				192	10000	
	22	40504-0000	Asphalt Binder	metric ton	589					589	
	23	41101-0000	Prime Coat	metric ton	80					80	
	24	55101-2000	Steel H-Pile, 360 X 152, In Place	m			260	309		569	
	25	55120-0000	Test Pile	m			58	56		114	
	26	55201-0200	Structural Concrete, Class A (Ae)	m3			351	414		765	
	27	55302-3300	Precast, prestressed concrete AASHTO girder, Type II	m			240			240	
	28	55302-3300	Precast, prestressed concrete AASHTO girder, Type III	m				300		300	
	29	55401-1000	Reinforcing Steel	kg	846		8174	8445		17465	
	30	55401-2000	Reinforcing Steel, Epoxy Coated	kg			28233	35424		63657	
	31	55502-0000	Structural Steel, Furnished, Fabricated, And Erected	kg			1450	1740		3190	
	32	55601-0500	Bridge Railing, Concrete	m			140	170		310	
	33	55803-0100	High performance concrete, for approach slab, type 1	m2			66	70		136	
	34	60101-0000	Concrete	m3	37				14	51	
	35	60103-0185	Concrete Headwall for 900 mm Pipe Culvert, MAG Det 501-4	Each	6					6	
	36	60103-2300	Inlet Wingwalls for 4-3048 mm x 1524 mm RCBC	Each		1				1	
	37	60103-2302	Outlet Wingwalls for 4-3048 mm x 1524 mm RCBC	Each		1				1	
	38	60103-4300	Reinforced Concrete Box Outlet Apron	Each		1				1	
	39	60201-0800	600mm pipe culvert	m	99					99	
	40	60201-1000	900mm pipe culvert	m	569					569	
	41	60201-2000	2400mm pipe culvert	m	49					49	
	42	60202-0600	900mm equivalent diameter arch or elliptical pipe culvert	m	101					101	
	43	60210-0800	End section for 600mm pipe culvert	Each	12					12	
	44	60210-1000	End section for 900mm pipe culvert	Each	20					20	
	45	60210-1030	End section fot Triple 900mm pipe culvert	Each	1					1	
	46	60211-1100	End section for 1050mm equivalent diameter arch or elliptical pipe culvert	Each	5					5	

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

SUMMARY OF QUANTITIES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G4	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	5	109

AMEND	LINE ITEM NO.	PAY ITEM NUMBER	PAY ITEM DESCRIPTION	UNIT	SHEET AND DESCRIPTION					ESTIMATED QUANTITIES	REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITIES
					P1-P22	B1-B5	B6-B29	B30-B47			
					ROADWAY SUMMARY	RCB STA 0+477	CHINLE BRIDGE SUMMARY	SHEEP DIP BRIDGE SUMMARY	ALLOWANCE	BID SCHEDULE	
	47	60225-1740	3000mm span, 1500mm rise reinforced concrete box culvert, quad barrel	m		16.153				16.153	
	48	60701-1000	Removing, Cleaning, And Stockpiling Culvert	m	117				33	150	
	49	61102-1700	50Mm Waterline, Polyvinyl Chloride (Pvc)	m	41				9	50	
	50	61103-0700	200Mm Encasement Pipe, Galvanized Steel	m	30				6	36	
	51	61103-1100	305mm Encasement Pipe, Galvanized Steel	m	25				5	30	
	52	61104-0600	Valve, Gate, 50Mm	Each	2					2	
	53	61701-5000	Guardrail system MGS, type 3, class B wood posts	m	461					461	
	54	61702-1500	Terminal section, type MGS tangent	Each	8					8	
	55	61707-4000	Structure transition railing, MGS system	m	8					8	
	56	61901-1000	Fence, Barbed Wire, 5 Strand	m	11223				777	12000	
	57	61902-5000	Gate, Woven Wire, 4200Mm Width	Each	11					11	
	58	61903-0300	Cattle Guard, 4800Mm	Each	3					3	
	59	61903-0700	Cattle Guard, 7200Mm	Each	6					6	
	60	61903-0900	Cattle Guard, 8400Mm	Each	3					3	
	61	61903-1010	Cattle Guard, 5-Unit, ADOT Std Det C-11.11	#N/A	1					1	
	62	62101-0000	Monument	Each	58					58	
	63	62102-0000	Marker	Each	58					58	
	64	62102-0100	Marker, Waterline, (Utility Provided, Contractor Installed)	Each	4					4	
	65	62510-1000	Seeding, Dry Method	ha	24					24	
	66	62901-1100	Rolled Erosion Control Product, Type 4	m2	26579				1421	28000	
	67	63301-0000	Sign System	Each	84				6	90	
	68	63308-2000	Object Marker, Type 2	Each	52					52	
	69	63308-3000	Object Marker, Type 3	Each	20					20	
	70	63309-0100	Delineator, Type 1	Each	114					114	
	71	63318-1020	Milepost Marker, 51 mm x 51 mm Square Tube Steel	Each	6					6	
	72	63401-0300	Pavement Markings, Type B, Solid	m	20439					20439	
	73	63401-0400	Pavement Markings, Type B, Broken	m	2560					2560	
	74	63401-0700	Pavement Markings, Type D, Solid	m	20439					20439	
	75	63401-0800	Pavement Markings, Type D, Broken	m	2560					2560	
	76	63401-1500	Pavement Markings, Type H, Solid	m	93				7	100	
	77	63501-0000	Temporary Traffic Control	LPSM	1					1	
	78	63509-1000	Temporary Traffic Control, Flagger	Fxhr	14530				470	15000	
	79	64503-1000	Utility Company Compensation	Ctsm	1					1	

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

SUMMARY OF QUANTITIES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G4A	

Registered Professional Engineer, (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	6	109

Station From	Station to	ITEM 30101-2000 UNTREATED AGGREGATE BASE GRADING D		ITEM 40301-0100 ASPHALTIC CONCRETE PAVEMENT, TYPE 1		ITEM 40504-0000 ASPHALT BINDER	ITEM 41101-5000 ASPHALT PRIME COAT GRADE PEP
		VOLUME (m^3)	WEIGHT (t)	VOLUME (m^3)	WEIGHT (t)	WEIGHT (t)	WEIGHT (t)
Roadway							
N8084							
0+003.800	1+306.100	2698	6119	844	1,961	117.66	15.0
1+374.400	4+343.200	6105	13846	1908	4,434	266.04	34.0
4+428.200	5+750.000	2718	6164	849	1,973	118.38	15.0
N8086							
7+750.000	7+996.000	525	1191	165	383	22.98	3.0
8+004.000	8+210.000	443	1005	140	325	19.50	2.0
Guardrail Paving		297	674	111	258	15.48	3.0
Turnouts							
0+100.000	Lt.	33	75	10	23	1.38	0.2
0+217.000	Lt.	33	75	10	23	1.38	0.2
0+720.000	Lt. (1)	63	143	19	44	2.64	0.5
0+883.000	Rt.	55	125	18	42	2.52	0.3
0+920.000	Lt.	55	125	18	42	2.52	0.3
2+900.000	Lt.	68	154	22	51	3.06	0.4
3+660.000	Lt. (1)	137	311	25	58	3.48	2.3
4+130.000	Rt.	42	95	12	28	1.68	0.2
4+130.000	Lt.	42	95	12	28	1.68	0.2
4+940.000	Lt. (2)	144	327	30	70	4.20	2.0
5+380.000	Rt.	33	75	10	23	1.38	0.2
5+617.000	Lt. (1)	55	125	18	42	2.52	0.3
TOTAL		13,546	30,724	4,221	9,808	588	79

Notes: 1) Pave to R/W only, AB surface with prime coat to limit of graded road
2) Pave 30.95m only, AB surface with prime coat to limit of graded road

ESTIMATED EARTHWORK QUANTITIES

LOCATIONS		ITEM 20401-0000: ROADWAY EXCAVATION	
STATION	**To STATION**	**CUT (m^3)**	**FILL (m^3)**
N8084			
0+005.00	5+750.000	70,247	97,278
N8086			
7+750.000	8+210.000	47,078	2
Ditch Excavation		2,294	
Total Excavation		119,619	
Shrink (10%)		11,962	
Swell			
Available Excavation		107,657	
Ground Compaction			2,392
Total Embankment Required			99,672
Waste			17,046
Percent of Excavation			14.2%

ITEM 21101-2000: ROAD OBLITERATION, METHOD 2

STATION TO STATION			LOCATION	AREA (m^2)	REMARKS
0+459	to	0+678	Lt.	1,147	Existing Roadway
0+688	to	0+707	Lt.	123	Existing Roadway
0+726	to	0+913	Lt.	1,156	Existing Roadway
0+927	to	1+023	Lt.	512	Existing Roadway
1+230	to	2+680	Lt.	11,587	Existing Roadway
2+741	to	2+833	Lt.	312	Existing Roadway
2+843	to	2+893	Lt.	278	Existing Roadway
2+911	to	3+409	Lt.	3,344	Existing Roadway
3+451	to	3+659	Lt.	1,235	Existing Roadway
5+006	to	5+471	Lt.	3,370	Existing Roadway
Turnouts					
0+504.6			Lt.	36	Exsiting Turnouts
0+862	to	0+868	Rt.	81	Existing Turnouts
0+891	to	0+898	Rt.	11	Existing Turnouts
1+073	to	1+086	Rt.	24	Existing Turnouts
			TOTAL	**23,216**	m^2

ITEM 20304-1000: REMOVAL OF STRUCTURES AND OBSTRUCTIONS

STATION	LOCATION	REMARKS
0+024	CL	Remove and Salvage 3-Unit Cattle Guard
± 0+085	Rt.	Remove and Salvage County Road Sign
± 0+185	Rt.	Remove and Salvage R2-1 (25) Sign
1+044 to 1+154	Lt.	Remove Steel Fence Posts & Stockpile Near House as Directed by the Homesite Lease Holder
1+095 to 1+140	Rt.	Remove wood posts within ROW
3+397	Lt.	Remove and Salvage Signs from Existing Road
3+449	Lt.	Remove and Salvage Signs from Existing Road

ITEM 62101-0000: RIGHT OF WAY MONUMENT
ITEM 62102-0000: REFERENCE MARKER

Station	Description	Location	Monument	Marker
0+020.335	Begin R.O.W. Rt.	23m Rt.	1	1
0+026.352	Begin R.O.W. Lt.	23m Lt.	1	1
1+074.444	PC1	23m Lt. & Rt.	2	2
1+212.865	PT1	23m Lt. & Rt.	2	2
1+280.000	POT	23m & 50m Lt.	2	2
1+280.000	POT	23m & 50m Rt.	2	2
1+416.288	PC2	30m & 50m Lt.	2	2
1+416.288	PC2	30m & 50m Rt.	2	2
1+571.491	PT2	30m Lt. & Rt.	2	2
2+017.437	PC3	30m Lt. & Rt.	2	2
2+101.115	PT3	30m Lt. & Rt.	2	2
2+191.013	PC4	30m Lt. & Rt.	2	2
2+312.444	PT4	30m Lt. & Rt.	2	2
2+544.869	PC5	30m & 45m Lt.	2	2
2+544.869	PC5	30m Rt.	1	1
2+764.780	PT5	45m Lt. & 30m Rt.	2	2
2+853.318	EQN Back	45m & 30m Lt.	2	2
2+853.318	EQN Back	30m Rt.	1	1
2+850.000	EQN Ahead			
3+399.000	POT	30m Lt.	1	1
3+399.068	POT	30m Rt.	1	1
3+459.000	POT	30m Lt.	1	1
3+459.091	POT	30m Rt.	1	1
3+643.190	PC6	30m Lt. & Rt.	2	2
3+975.135	PT6	30m Lt. & Rt.	2	2
4+280.000	POT	30m & 50m Lt.	2	2
4+280.000	POT	30m & 50m Rt.	2	2
4+480.000	POT	23m & 50m Lt.	2	2
4+480.000	POT	23m & 50m Rt.	2	2
4+646.794	PC7	23m Lt. & Rt.	2	2
4+771.365	PT7	23m Lt. & Rt.	2	2
5+336.766	PC8	23m Lt. & Rt.	2	2
5+547.052	PT8	23m Lt. & Rt.	2	2
5+750.000	POT	23m Lt. & Rt.	2	2
		SUBTOTAL	58	58

TURNOUT AND OTHER LOCATIONS W/CATTLE GUARDS AND GATES

STATION	LOCATION	TURNOUT SIZE	CATTLE GUARD ITEM: 61903-0300 4800 mm	CATTLE GUARD ITEM: 61903-0700 7200 mm	CATTLE GUARD ITEM: 61903-0900 8400 mm	CATTLE GUARD ITEM: 61903-1010 ADOT 5-UNIT	* TYPE I GATE (EA)	* TYPE II GATE (EA)	REMARKS
N8084 STATIONING									
0+024.000	CL	8.0 m				1	X		US 191 R/W
0+100.000	Lt.	4.5 m x 19.0 m	1				X		Drainage CG
0+217.000	Lt.	4.5 m x 19.0 m	1				X		
0+430.000	Lt.						1		RCBC Access
0+463.000	Rt.						1		RCBC Access
0+720.000	Lt.	7.0 m x 38.5 m		1			X		TCE
0+883.000	Rt.	4.5 m x 19.0 m	1				X		
0+920.000	Lt.	7.0 m x 19.0 m		1			X		
1+290.000	Rt.						1		Bridge Access
1+392.000	Lt.						1		Bridge Access
2+900.000	Lt.	7.0 m x 26.0 m		1			X		
3+429.000	Lt.	8.0 m			1		X		N8086
3+429.000	Rt.	8.0 m			1		X		N8086
3+660.000	Lt.	7.0 m x 210 m		1			X		TCE
4+130.000	Rt.	4.5 m x 26.0 m					1		
4+130.000	Lt.	4.5 m x 26.0 m					1		
4+300.000	Lt. & Rt.						2		Bridge Access
4+460.000	Lt. & Rt.						2		Bridge Access
4+940.000	Lt.	7.0 m x 187.0 m		1			X		TCE
5+380.000	Rt.	4.5 m x 19.0 m					1		
5+617.000	Lt.	7.0 m x 19.0 m		1			X		
5+750.000	CL	8.0 m			1		X		EOP
		TOTAL	**3**	**6**	**3**	**1**	**11**	**0**	

* Type I and Type II gates associated with a cattle guard are included in the cost of the cattle guard. No separate payment will be made. Gates not associated with cattle guards will be paid under appropriate items listed in the Bid Schedule.

ITEM 61901-1000: FENCE, BARBED WIRE, 5-STRAND
ESTIMATED FENCING QUANTITIES

STATION TO STATION			LOCATION	61901-1000 FENCE, BARBED WIRE, 5-STRAND (m)	20302-0700 REMOVAL OF FENCE (m)
N8084 LEFT SIDE					
BOP 0+026.651	to	Turnout 0+100	Lt.	89	39
Turnout 0+100	to	Turnout 0+217	Lt.	113	
Turnout 0+217	to	CBC 0+447	Lt.	224	
CBC 0+447	to	Turnout 0+720	Lt.	123	
Turnout 0+720	to	Turnout 0+920	Lt.	194	
Turnout 0+920	to	Chinle Wash	Lt.	397	157
Chinle Wash	to	Turnout 2+900	Lt.	1474	
Turnout 2+900	to	N8086	Lt.	541	
N8086	to	Turnout 3+660	Lt.	214	
Turnout 3+660	to	Sheep Dip Wash	Lt.	673	
Sheep Dip Wash	to	Turnout 4+940	Lt.	512	
Turnout 4+940	to	Turnout 5+615	Lt.	681	
Turnout 5+615	to	EOP 5+750	Lt.	148	
N8084 RIGHT SIDE					
BOP 0+020	to	CBC 0+447	Rt.	442	20
CBC 0+447	to	Turnout 0+883	Rt.	431	
Turnout 0+883	to	Chinle Wash	Rt.	421	144
Chinle Wash	to	N8086	Rt.	1919	
Chinle Wash	to	Sheep Dip Wash	Rt.	934	
Sheep Dip Wash	to	Culvert 5+520	Rt.	1101	
Culvert 5+520	to	EOP 5+750	Rt.	246	
			Lt.		
Farm					
1+207	to	1+226	Lt.	19	24
			TOTAL	10,896	384
			+3% FOR TERRAIN	327	
			TOTAL	11,223	

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

QUANTITY TABLES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G5	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Not Signed 5/4/26 Arizona U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	7	109

EXISTING UTILITY CROSSINGS

STATION	DESCRIPTION	LOCATION	ELEVATION	SKEW NO.	OWNER	REMARKS
N8084						
0+882	Water Line Crossing, 2" PVC in 6" Ductile Iron Casing	CL	New Top of Casing Elevation=1626.860	106	NTUA	Relocate and Encase
0+906	Overhead Power Line Crossing	CL		106	NTUA	Protect In Place
1+280 to 1+360	Parallel Power Line in R.O.W.	Lt.		N/A	NTUA	Protect In Place
2+955	Water Line Crossing, Future 152mm PVC in 305mm Steel Casing	CL	New Top of Casing Elevation=1629.140	0	IHS	WL by IHS, NDOT to Const 304 mm Casing with Temp Plugs
3+547	Overhead Power Line Crossing	CL		84	NTUA	Protect In Place
N8086					NTUA	
7+790.9	Overhead Power Line Crossing	CL		99	NTUA	Protect In Place

EXISTING POWER POLE RELOCATIONS

STATION	DESCIPTION	LOCATION			OWNER	REMARKS
N8084						
0+904.1	POWER POLE	5.3 m Rt.			NTUA	Power Pole to be Relocated by NTUA
3+548.3	POWER POLE	16.4 m Rt.			NTUA	Power Pole to be Relocated by NTUA
3+648	POWER POLE	30.1 m Lt.			NTUA	Power Pole to be Relocated by NTUA
N8086						
7+793.1	POWER POLE	13 m Lt.			NTUA	Power Pole to be Relocated by NTUA

Note: The Power Poles listed for relocations are based on NDOT observations. The utility owner may modify/revise this list based on their requirements. Power pole relocations by others.

Waterline Sta 0+868

Item No.	Description	Quantity	Unit
NPI	Thrustblock for 2"	4	Each
NPI	45°Elbow, PVC	4	Each
62102-2000	Install Waterline Markers (Utility Furnished)	2	Each
61102-2950	50 mm Waterline, polyvinyl chloride (PVC)	41.0	m
61103-0700	200 mm Encasement Pipe, Galvanized Steel	30.5	m
61104-0400	2" Valve, Gate w/ Box	2	Each

Waterline Sta 2+955 Casing Only, Future IHS Waterline

Item No.	Description	Quantity	Unit
62102-2000	Install Waterline Markers (Utility Furnished)	2	Each
61103-1100	300 mm Encasement Pipe, Galvanized Steel	24.38	Each

ITEM 61701-5000: GUARDRAIL SYSTEM, MGS

STATION TO STATION			LOCATION	LENGTH (m)	LENGTH (m)
1+263.718	to	1+307.533	Rt.	76.200	Includes Two ET-Plus End Terminals
1+278.958	to	1+307.533	Lt.	76.200	Includes Two ET-Plus End Terminals
1+372.967	to	1+428.212	Rt.	43.815	Includes One Guardrail Transition & One ET-Plus End Terminal
1+372.967	to	1+416.728	Lt.	28.575	Includes One Guardrail Transition & One ET-Plus End Terminal
4+270.388	to	4+344.633	Rt.	74.295	Includes One Guardrail Transition & One ET-Plus End Terminal
4+308.438	to	4+344.633	Lt.	36.195	Includes One Guardrail Transition & One ET-Plus End Terminal
4+426.767	to	4+478.202	Rt.	51.435	Includes One Guardrail Transition & One ET-Plus End Terminal
4+426.767	to	4+492.928	Lt.	74.295	Includes One Guardrail Transition & One ET-Plus End Terminal
			TOTAL	**461.010**	

Note: Guardrail Includes use of Anchor Bolts per ADOT Std. Det. C-10.07.
Layout is based on ADOT Asysmmetric Thrie-Beam Transition using 12.1m from terminal connector to MGS GR.

ITEM 61702-1500: TERMINAL SECTION, TYPE MGS TANGENT

STATION			LOCATION	QUANTITY (ea)
1+263.718			Rt.	1
1+278.958			Lt.	1
1+428.212			Rt.	1
1+416.728			Lt.	1
4+270.388			Rt.	1
4+308.438			Lt.	1
4+478.202			Rt.	1
4+492.928			Lt.	1
		TOTAL		**8**

ITEM 61707-4000: STRUCTURE TRANSITION RAILING, MGS SYSTEM

STATION			LOCATION	QUANTITY (ea)
1+307.533			Rt.	1
1+307.533			Lt.	1
1+372.967			Rt.	1
1+372.967			Lt.	1
4+344.633			Rt.	1
4+344.633			Lt.	1
4+426.767			Rt.	1
4+426.767			Lt.	1
		TOTAL		**8**

ITEM 62901-1100: ROLLED EROSION CONTROL PRODUCT, TYPE 4

LOCATION				PLAN AREA (1) (m^2)	SLOPE AREA (2) (m^2)	TOTAL AREA (m^2)	SLOPE (1:x)	SLOPE CORR FACTOR
0+417	to	0+493	Lt.	495	510	636	4	1.031
0+402	to	0+485	Rt.	483	498	635	4	1.031
1+259	to	1+305	Rt.	397	409	485	4	1.031
1+276	to	1+308	Lt.	423	436	489	4	1.031
1+375	to	1+422	Lt.	637	657	735	4	1.031
1+375	to	1+433	Rt.	1,345	654	750	4	1.031
1+750	to	1+830	Rt.	704	787	919	2	1.118
1+753	to	1+798	Lt.	580	648	723	2	1.118
1+985	to	2+057	Lt.	625	699	818	2	1.118
2+156	to	2+266	Rt.	1,345	1,504	1,686	2	1.118
3+229	to	7+790	Lt.	4,051	4,529	5,146	2	1.118
3+264	to	8+146	Rt.	2,858	3,195	3,649	2	1.118
7+788	to	3+517	Lt.	2,825	3,158	3,590	2	1.118
8+152	to	3+597	Rt.	2,659	2,973	3,438	2	1.118
5+148	to	5+170	Lt.	166	186	222	2	1.118
5+193	to	5+361	Lt.	1,370	1,532	1,810	2	1.118
5+286	to	5+353	Rt.	591	661	772	2	1.118
			TOTAL	**20,576**	**23,036**	**26,503**		

(1) Plan area is the planar plan area of the blankets, scaled from the Microstation drawing.
(2) Sloped Area equals Plan Area times the slope factor, to account for the slopes.
(3) Total Area equals Sloped Area + 25%, to account for overlaps in the blankets. (Assumes 2.438 m (8 foot) wide blankets with 61 cm (24") overlap on each longitudinal side.)
(4) At cut slopes specified in plans to be covered with erosion matting protection, the COR/COTR shall inspect the slopes for existing and stable rock material. If in the opion of the COR/COTR, the cut slopes are sufficiently stable due to the natural rock, the COR/COTR may delete the matting these areas.

ITEM 62510-1000: SEEDING, DRY METHOD

Roadway/Drain Disturbed Area (from CAD) =	266,751	m^2
- Roadway Area =	51,903	m^2
+ Areas of Existing Roadway Obliteration =	20,576	m^2
Total Area to Seed	235,424	m^2
Total Area to Seed	**23.5**	**ha**

ITEM 15708-1000: TEMPORARY STRAW MULCHING

Total Disturbed Area (from InRoads) =	266,751.0	m^2
- Roadway Area =	51,903.0	m^2
- RECP Blanket Area within roadway prism =	20,576.00	m^2
+ Areas of Existing Roadway Obliteration =	20576.00	m^2
Total Area to Mulch	214,848.00	m^2
Total Area to Mulch	**21.5**	**ha**

ITEM 60101-1000: MINOR CONCRETE CLASS A(AE)*
CONCRETE SLOPE BLANKET LOCATIONS

LOCATION	PIPE DIAMETER D (mm)	NUMBER OF PIPES	SKEW NO.	A (m)	B (m)	C (m)	S (m)	VOLUME OF CONCRETE, CLASS A(AE)	WEIGHT OF REINFORCING BARS (kg)	WEIGHT OF WWF @ 2 kg/m2 (KG)	AREA OF ROLLED EROSION CONTROL PRODUCT, TYPE 4 (m2)
N8084											
3+165.000 (Inlet)	2348	1	90	4.696	7.044	2.043	6.461	9.039	144.07	65.53275	19.02744
3+165.000 (Outlet)	2348	1	90	4.696	7.044	2.043	6.461	9.039	144.07	65.53275	19.02744
5+512.400 (Inlet)	2348	1	90	4.696	7.044	2.043	6.461	9.039	144.07	65.53275	19.02744
5+512.400 (Outlet)	2348	1	90	4.696	7.044	2.043	6.461	9.039	144.07	65.53275	19.02744
							TOTAL:	36.156	576.28	262.131	76.10976

See Detail DWG D9

REBAR SCHEDULE
CONCRETE SLOPE BLANKET LOCATIONS

STATION	MARK	NO. OF BARS	LENGTH EACH (m)	SIZE	kg/m	TOTAL WT. (kg)	REMARKS
N35							
3+165.000 (Inlet)	h1	6	7.163	13 mm	0.994	42.72	Front & Back Horizontal Straight Bars
	h2	4	2.792	13 mm	0.994	11.1	Front & Back Horizontal Straight Bars
	h3	4	3.161	13 mm	0.994	12.57	Front & Back Horizontal Straight Bars
	vf1	20	2.007	13 mm	0.994	39.9	Front Vertical Bent Bars
	v1	4	0.771	13 mm	0.994	3.07	Front & Back Vertical Straight Bars
	v2	4	0.848	13 mm	0.994	3.37	Front & Back Vertical Straight Bars
	v3	4	1.021	13 mm	0.994	4.06	Front & Back Vertical Straight Bars
	vb	20	1.372	13 mm	0.994	27.28	Back Vertical Straight Bars
SUBTOTAL						144.07	
3+165.000 (Outlet)	h1	6	7.163	13 mm	0.994	42.72	Front & Back Horizontal Straight Bars
	h2	4	2.792	13 mm	0.994	11.1	Front & Back Horizontal Straight Bars
	h3	4	3.161	13 mm	0.994	12.57	Front & Back Horizontal Straight Bars
	vf1	20	2.007	13 mm	0.994	39.9	Front Vertical Bent Bars
	v1	4	0.771	13 mm	0.994	3.07	Front & Back Vertical Straight Bars
	v2	4	0.848	13 mm	0.994	3.37	Front & Back Vertical Straight Bars
	v3	4	1.021	13 mm	0.994	4.06	Front & Back Vertical Straight Bars
	vb	20	1.372	13 mm	0.994	27.28	Back Vertical Straight Bars
SUBTOTAL						144.07	
5+512.400 (Inlet)	h1	6	7.163	13 mm	0.994	42.72	Front & Back Horizontal Straight Bars
	h2	4	2.792	13 mm	0.994	11.1	Front & Back Horizontal Straight Bars
	h3	4	3.161	13 mm	0.994	12.57	Front & Back Horizontal Straight Bars
	vf1	20	2.007	13 mm	0.994	39.9	Front Vertical Bent Bars
	v1	4	0.771	13 mm	0.994	3.07	Front & Back Vertical Straight Bars
	v2	4	0.848	13 mm	0.994	3.37	Front & Back Vertical Straight Bars
	v3	4	1.021	13 mm	0.994	4.06	Front & Back Vertical Straight Bars
	vb	20	1.372	13 mm	0.994	27.28	Back Vertical Straight Bars
SUBTOTAL						144.07	
5+512.400 (Outlet)	h1	6	7.163	13 mm	0.994	42.72	Front & Back Horizontal Straight Bars
	h2	4	2.792	13 mm	0.994	11.1	Front & Back Horizontal Straight Bars
	h3	4	3.161	13 mm	0.994	12.57	Front & Back Horizontal Straight Bars
	vf1	20	2.007	13 mm	0.994	39.9	Front Vertical Bent Bars
	v1	4	0.771	13 mm	0.994	3.07	Front & Back Vertical Straight Bars
	v2	4	0.848	13 mm	0.994	3.37	Front & Back Vertical Straight Bars
	v3	4	1.021	13 mm	0.994	4.06	Front & Back Vertical Straight Bars
	vb	20	1.372	13 mm	0.994	27.28	Back Vertical Straight Bars
SUBTOTAL						144.07	

See Detail DWG D9

ITEM NO. 20101-0000: CLEARING AND GRUBBING

Area of Disturbance		
Roadway	222,947	m^2
TCE	43,804	m^2
TOTAL	26.6751	ha

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

QUANTITY TABLES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G6	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	8	109

N8084(1) and N8086(1) SUPERELEVATION TABLULATION

Alignment: N8084(1) and N8086(1) — **Normal Crow** 2.00% — **Max Super** 4.00% — **Design Speed** 50 kph Design Speed Sta 0+000.000 to 1+900.000 and N8086; 80 kph Design Speed Sta 1+900.000 to 24+100.000

General Curve Data (Design Speed = 80kph)						Station Information			"e" Information					Super Elevation Placement								
														ENTERING CURVE					EXITING CURVE			
CURVE NO.	R Curve (m)	Delta deg-min-sec	Tan (m)	Length (m)	Norm. Crown LT,RT,NC	PC (Sta)	PT (Sta)	Turn (LT or RT)	Super Table Emax=4%	e (%)	Tangent Runout Lc (ft)	Super Runoff Lr (ft)	Portion of Lr Prior to Curve	A (NC) (Sta)	B (0%) (Sta)	C (RC) (Sta)	D PC (Sta)	E (FS) (Sta)	E (FS) (Sta)	D PT (Sta)	C (RC) (Sta)	B (0%) (Sta)	A (NC) (Sta)
N8084																						
1	400.00	19-49-39	69.910	138.422	NC	1+074.444	1+212.865	RT	GB 3.8	2.5	11.2	14.0	9.8	1+053.444	1+064.644	1+075.844	1+074.444	1+078.644	1+208.665	1+212.865	1+211.465	1+222.665	1+233.865
2	150.00	59-17-01	85.356	155.204	NC	1+416.288	1+571.491	LT	GB 3.8	3.6	11.1	20.0	14.0	1+391.177	1+402.288	1+413.399	1+416.288	1+422.288	1+565.491	1+571.491	1+574.380	1+585.491	1+596.602
3	400.00	11-59-10	41.992	83.678	NC	2+017.437	2+101.115	LT	GB 3.8	3.7	10.8	20.0	14.0	1+992.626	2+003.437	2+014.248	2+017.437	2+023.437	2+095.115	2+101.115	2+104.304	2+115.115	2+125.926
4	500.00	13-54-54	61.016	121.431	NC	2+191.013	2+312.444	RT	GB 3.8	3.4	11.8	20.0	14.0	2+165.248	2+177.013	2+188.778	2+191.013	2+197.013	2+306.444	2+312.444	2+314.679	2+326.444	2+338.209
5	400.00	31-30-00	112.811	219.911	NC	2+530.374	2+774.832	RT	GB 3.8	3.7	14.6	27.0	18.9	2+496.879	2+511.474	2+526.069	2+530.374	2+538.474	2+766.732	2+774.832	2+779.137	2+793.732	2+808.327
6	600.00	31-41-54	170.340	331.945	NC	3+643.190	3+975.135	LT	GB 3.8	3.2	14.4	23.0	16.1	3+612.715	3+627.090	3+641.465	3+643.190	3+650.090	3+968.235	3+975.135	3+976.860	3+991.235	4+005.610
7	400.00	17-50-36	62.793	124.570	NC	4+646.795	4+771.365	LT	GB 3.8	3.7	14.6	27.0	18.9	4+613.300	4+627.895	4+642.490	4+646.795	4+654.895	4+763.265	4+771.365	4+775.670	4+790.265	4+804.860
8	500.00	24-05-49	106.721	210.286	NC	5+336.766	5+547.052	RT	GB 3.8	3.4	14.1	24.0	16.8	5+305.848	5+319.966	5+334.084	5+336.766	5+343.966	5+539.852	5+547.052	5+549.734	5+563.852	5+577.970
N8086																						
1	200.00	13-40-21	23.977	47.726	NC	7+857.586	7+905.312	RT	GB 3.8	3.2	11.3	18.0	12.6	7+833.736	7+844.986	7+856.236	7+857.586	7+862.986	7+899.912	7+905.312	7+906.662	7+917.912	7+929.162
2	200.00	13-37-45	23.900	47.575	NC	8+024.429	8+072.004	LT	GB 3.8	3.2	11.3	18.0	12.6	8+000.579	8+011.829	8+023.079	8+024.429	8+029.829	8+066.604	8+072.004	8+073.354	8+084.604	8+095.854

ALIGNMENT DATA N8084				
ALIGN POINT	STATION	BEARING	NORTHING	EASTING
BOP	0+000.000	N 70^40'29" E	588809.799	263559.052
PC 1	1+074.444	N 70^40'29" E	589165.364	264572.957
PI 1	1+144.354	S 89^29'52" E	589188.499	264638.927
PT 1	1+212.866	S 89^29'52" E	589187.886	264708.835
PC 2	1+416.288	S 89^29'52" E	589186.103	264912.249
PI 2	1+501.645	N 31^13'07" E	589185.355	264997.602
PT 2	1+571.492	N 31^13'07" E	589258.351	265041.843
PC 3	2+017.437	N 31^13'07" E	589639.722	265272.979
PI 3	2+059.430	N 19^13'58" E	589675.634	265294.744
PT 3	2+101.116	N 19^13'58" E	589715.283	265308.577
PC 4	2+191.013	N 19^13'58" E	589800.163	265338.190
PI 4	2+252.029	N 64^38'51" E	589857.773	265358.288
PT 4	2+312.444	N 64^38'51" E	589908.860	265391.652
PC 5	2+544.869	N 64^38'51" E	590103.461	265518.741
PI 5	2+657.681	N 32^56'57" E	590197.914	265580.426
PT 5	2+764.780	N 32^56'57" E	590246.218	265682.373
EQN	2+583.813 BK	N 32^56'57" E	590284.129	265762.384
EQN	2+850.000 AHD	N 32^56'57" E	590284.129	265762.384
PC 6	3+643.190	N 32^56'57" E	590623.761	266479.183
PI 6	3+813.529	N 15^06'21" E	590696.698	266633.117
PT 6	3+975.134	N 15^06'21" E	590839.639	266725.764
PC 7	4+646.794	N 15^06'21" E	591403.265	267091.075
PI 7	4+709.587	N 39^12'10" E	591455.958	267125.228
PT 7	4+771.364	N 39^12'10" E	591516.582	267141.592
PC 8	5+336.766	N 39^12'10" E	592062.446	267288.936
PI 8	5+443.486	N 24^49'41" E	592165.479	267316.748
PT 8	5+547.052	N 24^49'41" E	592248.179	267384.203
EOP	5+750.000	N 24^49'41" E	592405.446	267512.479

ALIGNMENT DATA -N8086				
ALIGN POINT	STATION	BEARING	NORTHING	EASTING
BOP	7+750.000	S 39^01'30" E	590741.492	266151.971
PC 9	7+857.586	S 39^01'30" E	590657.911	266219.713
PI 9	7+881.563	S 25^21'09" E	590639.284	266234.811
PT 9	7+905.312	S 25^21'09" E	590617.616	266245.077
PC 10	8+024.429	S 25^21'09" E	590509.971	266296.081
PI 10	8+048.330	S 38^58'54" E	590488.373	266306.315
PT 10	8+072.004	S 38^58'54" E	590469.794	266321.350
EOP	0+082.390	S 38^58'54" E	590362.523	266408.159

T8M DATA					
NUMBER	NORTHING	EASTING	ELEVATION	STATION	OFFSET
TBM-98	589587.042	265034.031	1627.338	1+855.422	172.912 Lt.
TBM-99	591746.684	267111.291	1628.158	4+985.620	89.219 Lt.
TBM-100	588863.348	263766.714	1627.245	0+213.683	18.190 Rt.
TBM-101	588967.012	263919.908	1626.893	0+392.550	28.937 Lt.
TBM-102	588967.79	264060.558	1627.075	0+ 525.533	16.874 Rl.
TBM-103	589082.591	264208.61	1626.653	0+703.235	42.464 Lt.
TBM-104	589146.802	264388.87	1627.576	0+894.587	43.404 Lt.
TBM-105	589184.306	264577.608	1627.359	1+084.680	16.472 Lt.
TBM-106	589248.054	264946.696	1627.463	1+469.516	57.317 Lt.
TBM-107	589411.491	265027.549	1631.416	1+699.624	91.750 Lt.
TBM-108	589,568,377	265096.039	1629.87	1+869.856	109.785 Lt.
TBM-109	589694.658	265160.638	1626.46	2+011.561	116.070 Lt.
TBM-110	589879.724	265214.916	1626.705	2+199.261	160.390 Lt.
TBM-111	589979.826	265,356,827	1627.315	2+356.436	86.531 Lt.
TBM-112	590137.004	.265401.057	1630.28	2+514.927	125.797 Lt.
TBM-113	590153.169	265560.186	1627.685	2+607.567	2.951 Lt.
TBM-114	590267.393	265644.772	1627.852	2+739.739	36.916 Lt.
TBM-115	590297.52	265778.196	1629.584	2+870.023	5.331 Lt.
TBM-116	590414.865	265891.075	1633.386	3+022.276	63.042 Lt.
TBM-117	590490.302	266013.487	1641.25	3+165.200	78.799 Lt.
TBM-118	590530.909	266167.78	1648.796	3+322.021	49.429 Lt.
TBM-119	590,640,804	266273.45	1654.698	3+464.569	103.493 Lt.
TBM-120	590701.83	266385.08	1651.323	3+591.578	110.844 Lt.
TBM-121	590717.583	266554.161	1640.87	3+760.010	42.141 Lt.
TBM-122	590798.903	266693.535	1637.453	3+923.128	2.646 Lt.
TBM-123	590952.934	266757.694	1634.832	4+087.574	34.826 Lt.
TBM-124	591026.817	266900.998	1635.004	4+227.515	45.244 Rt.
TBM-125	591151.996	267000.529	1628.521	4+386.694	60.681 Lt.
TBM-126	591324.308	267057.41	1632.23	4+562 228	14.694 Rt.
TBM-127	591444.081	267021.99	1629.627	4+643.471	80.172 Lt.
TBM-128	591635.608	267020.753	1630.897	4+854.788	147.682 Lt.
TBM-129	591725.052	26741.412	1628.197	4+972.585	54.502 Lt.
TBM-130	591879.839	267140.563	1628.447	5+121.802	95.659 Lt.
TBM-131	591975.931	267210.857	1634.989	5+232.892	52.836 Lt.
TBM-132	592165.716	267253.781	1632.071	5+416.792	68.114 Lt.
TBM-133	592267.225	267358.928	1626.859	5+547.052	31.647 Lt.
TBM-134	592406.717	267546.949	1631.825	5+772.772	25.908 Rt.

Coordinates are Modified State Plane NAD83 AZ East. Grid to Ground GAF = 1.0003353.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

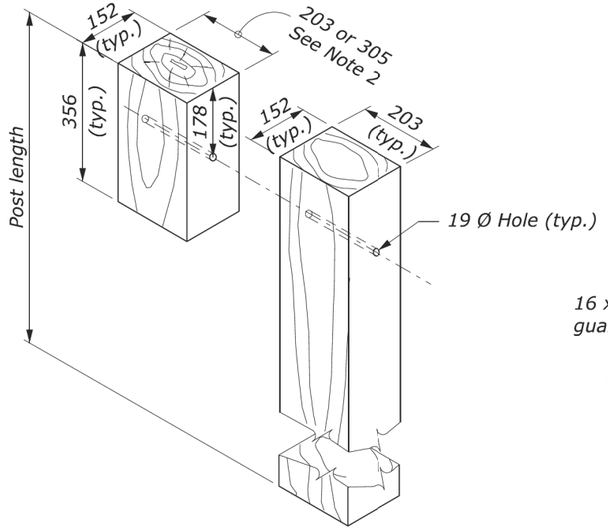
ALIGNMENT, SURVEY & SUPERELEVATION DATA

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: G7	

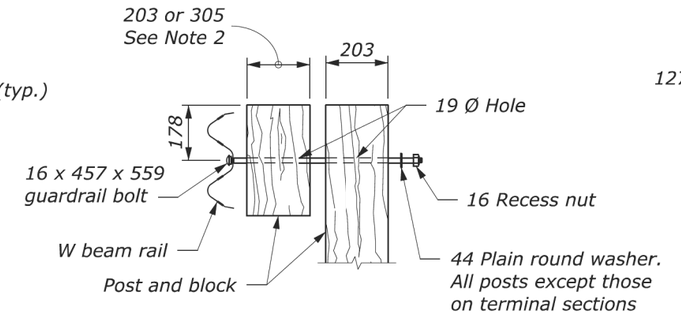
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-G09.dgn

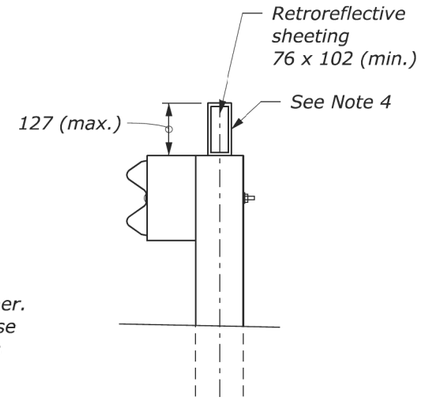
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	9	109



POST AND BLOCK



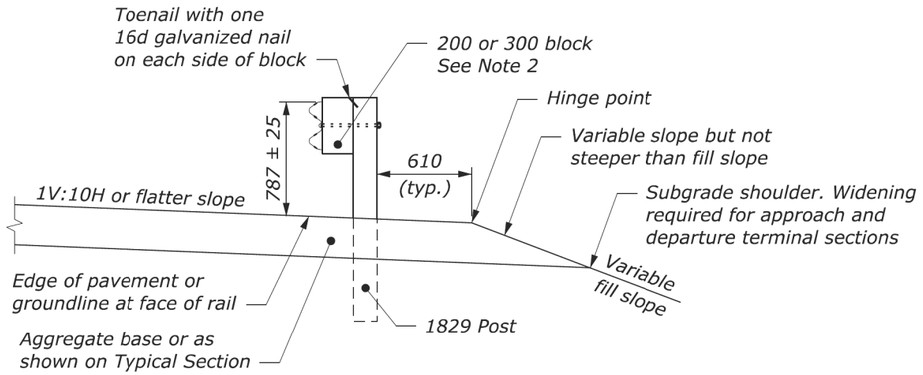
POST BOLT ASSEMBLY



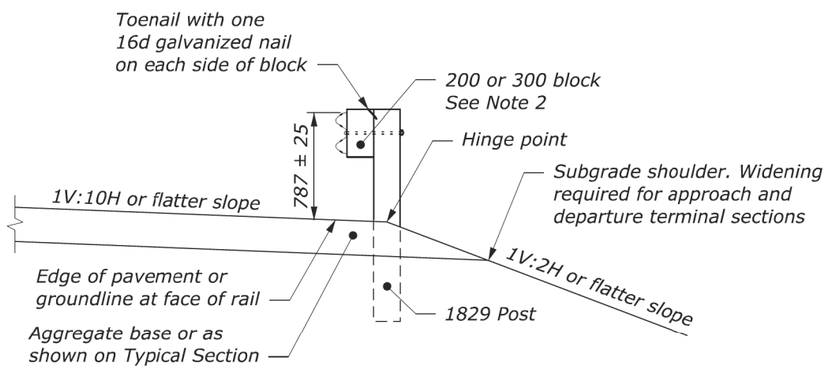
FLEXIBLE DELINEATOR GUARDRAIL MOUNT

NOTE:

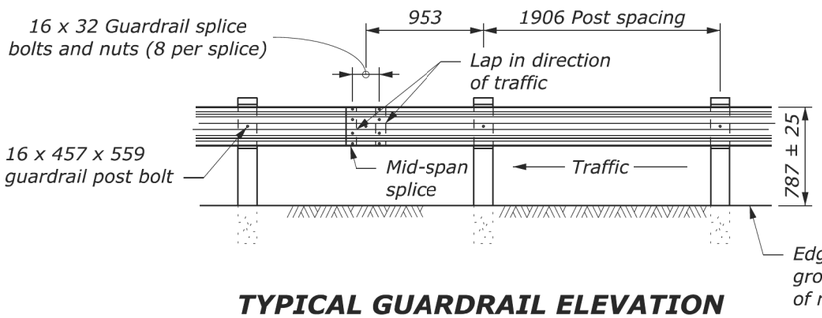
1. *When encountering impenetrable material, one post may be omitted in locations where the typical guardrail cross section includes 610 mm (min.) between the back of the guardrail post and the hinge point. For all other locations, see Section 617 and Standard M617-13 or M617-37.*
2. *Size of block shown elsewhere on the plans. Use a single block or combination of blocks (no more than two) to achieve the actual 200 or 300 mm offset secure qood blocks to the posts with anti-rotation nails. If combination blocks are used, toenail the adjacent blocks with two 16d galvanized nails to prevent block rotation.*
3. *Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.*
4. *Install a flexible hinged delineator every fourth post. Fasten delineator to the top of the wood post using either an adhesive or mechanical means according to the manufacturer's recommendations.*
5. *Dimensions without units are millimeters.*



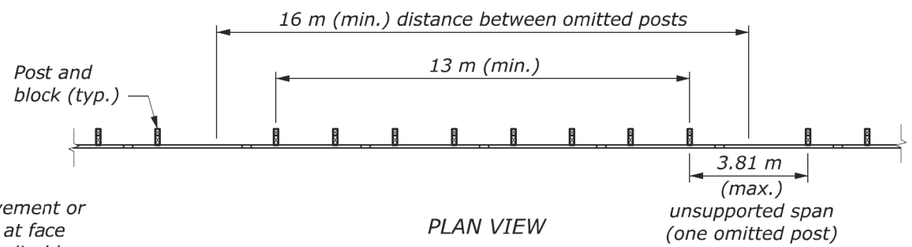
TYPICAL GUARDRAIL CROSS SECTION
1830 POST, 200 OR 300 BLOCK



TYPICAL GUARDRAIL CROSS SECTION
1830 POST CENTERED ON HINGE, 200 OR 300 BLOCK



TYPICAL GUARDRAIL ELEVATION



PLAN VIEW

OMITTED POST DETAIL

See Note 1

NO SCALE

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

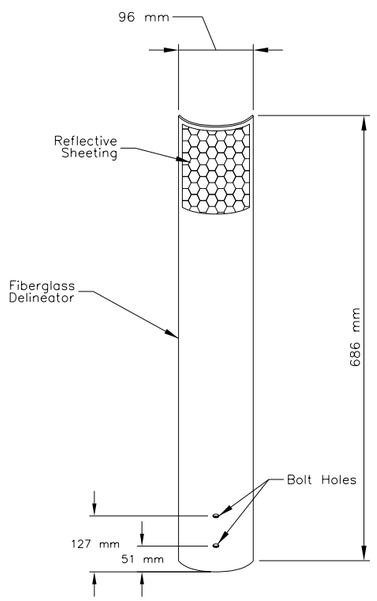
MGS W-BEAM GUARDRAIL, WOOD POSTS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C1	

Registered Professional Engineer CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

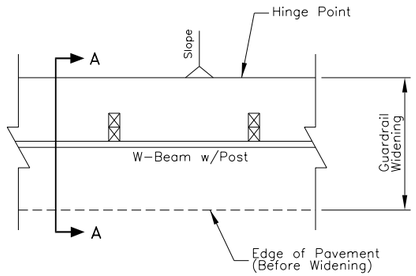
J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D01.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	10	109

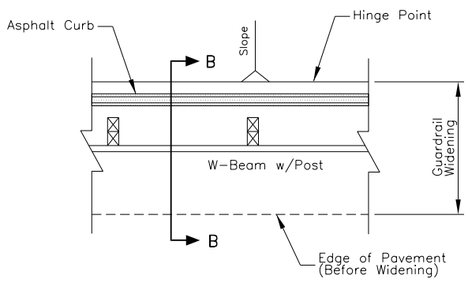


DELINEATOR DETAIL BRIDGE LOCATIONS

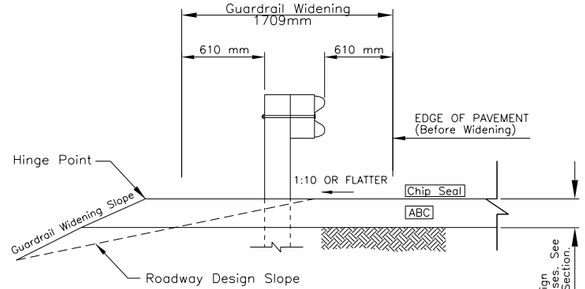
(Reflective Sheeting Shall Face Traffic)



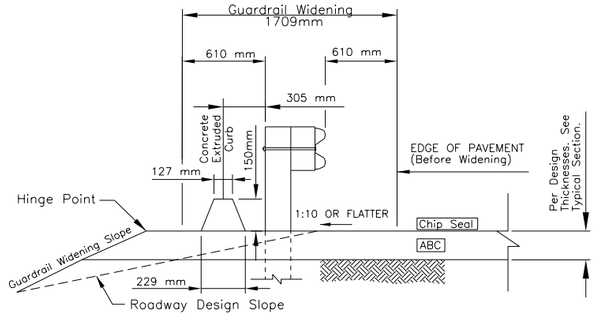
PLAN VIEW
w/NO CURBING



PLAN VIEW
w/CURBING



SECTION A–A
w/No Curbing

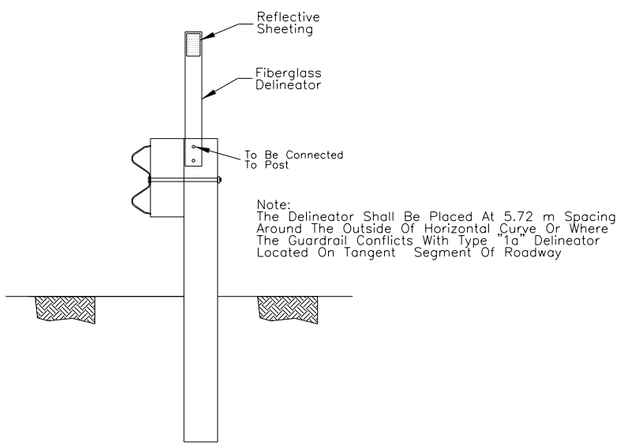


SECTION B–B
w/CURBING

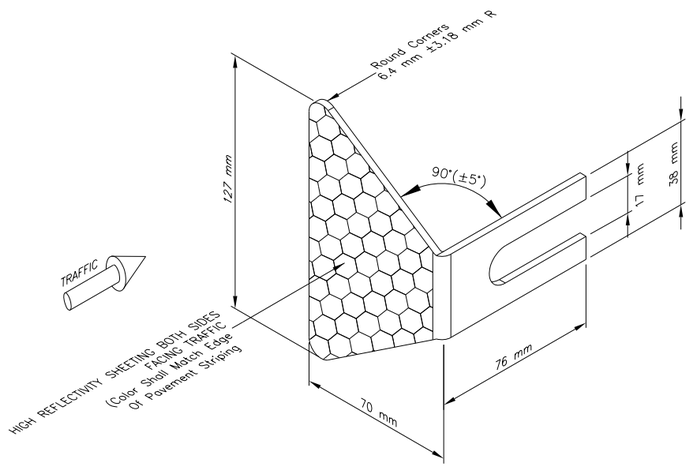
Asphalt Curb Depth=102 mm

GENERAL NOTES

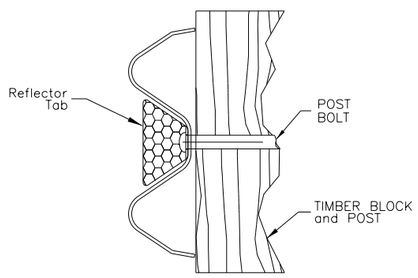
1. ALL GUARDRAIL "W" BEAMS, SHALL BE GALVANIZED IN ACCORDANCE WITH (AASHTO M–180, CLASS A, TYPE 1) SPECIFICATION. ALL HARDWARE SHALL CONFORM TO (ASTM A–325) AND GALVANIZED IN ACCORDANCE WITH (ASTM A–153).
2. ALL STRUCTURAL STEEL ITEMS SHOWN SHALL CONFORM TO (AASHTO N183/ASTM A36) AND BE GALVANIZED IN ACCORDANCE WITH (AASHTO M–111) SPECIFICATION.
3. WIRE ROPE, FITTINGS AND HARDWARE SHALL CONFORM TO (ASSHTO M–30) SPECIFICATION TYPE II WITH A 19 mm DIAMETER AND A CLASS B ZINC COATING.
4. WOOD POSTS AND BLOCKS SHALL BE ROUGH SAWN LUMBER OR (S4S) HAVING MINIMUM BENDING STRENGTH OF 8.27 MPa (SINGLE MEMBER USE) AND MEETING AASHTO N168 (21TH EDITION), ALL POSTS SHALL BE TREATED IN ACCORDANCE WITH (AASHTO M–133) SPECIFICATION.
5. ASPHALT CONCRETE CURBING SHALL BE INSTALLED IN ACCORDANCE WITH SECTION B–B, AND THE TABLE SHOWN ON SHEET __ CONSIDERED INCIDENTAL TO PAVING ITEMS AND NO DIRECT PAYMENT SHALL BE MADE.
6. ALL EMBANKMENT AND AGGREGATE BASE COURSE MATERIALS SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY.
7. THE EMBANKMENT MATERIALS AND THE PLACING THEREOF SHALL BE INCLUDED IN CONTRACT ITEM 20401–0000 AND NO DIRECT PAYMENT SHALL BE MADE.
8. THE CONTRACTOR SHALL BE REQUIRED TO COMPACT THE BACKFILL AND THE ASPHALT ALL AROUND EACH GUARD RAIL POST WITH HAND TAMPERS TO INSURE INTEGRITY OF THE PAVEMENT AND GUARDRAIL AND TO PREVENT SEEPAGE OF WATER INTO THE PAVEMENT FROM THE GUARD RAIL POST HOLES. THIS WORK SHALL BE INCIDENTAL OBLIGATIONS OF THE WORK DESCRIBED HEREIN.
9. PLACEMENT OF HOT ASPHALT AND ABC MATERIAL FOR GUARDRAIL WIDENING SHALL BE INCLUDED WITH ITEMS 30101–2000 AND 40201–0500.
10. FURNISHING & PLACEMENT OF 371 mm x 701 mm REFLECTIVE SHEETING, FIBERGLASS DELINEATORS, AND REFLECTIVE TABS SHALL BE CONSIDERED INCIDENTAL TO ITEM 61701–5000 AND NO DIRECT PAYMENT SHALL BE MADE.
11. ANY RELATED PATENT RIGHTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AS PER SECTION 107.01 OF THE FP–14.
12. THE CONTRACTOR HAS THE OPTION TO USE STEEL POSTS. IF STEEL POSTS ARE APPROVED THEN RUBBER BLOCKS WILL BE REQUIRED.
13. PLACE REFLECTIVE TABS ON POSTS AT EVERY FOURTH POST. THE COLOR OF THE TABS SHALL CONFORM TO THE COLOR OF THE ADJACENT EDGE LINE.



ELEVATION
GUARDRAIL/POST MOUNTED
DELINEATOR (TYP.)



ISOMETRIC VIEW
REFLECTOR TAB DETAIL



SECTION
REFLECTOR TAB
MOUNTING DETAIL

Install Tab on Every Fourth Post

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

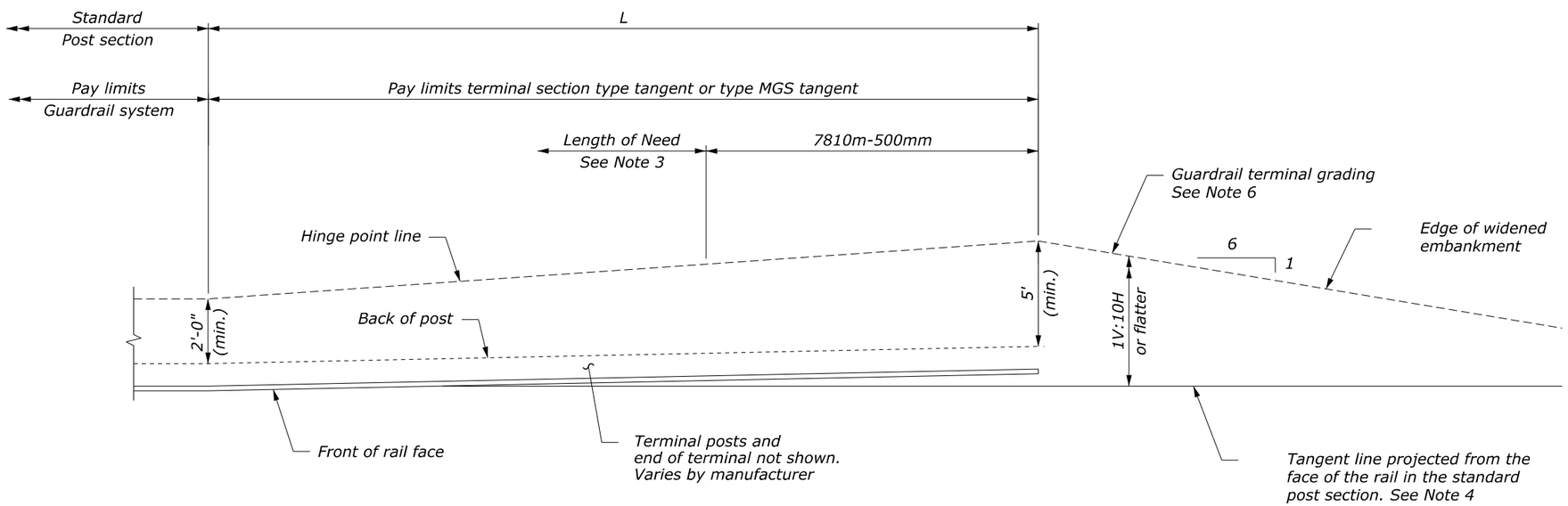
SGR04 STANDARD GUARDRAIL CURBING AND REFLECTOR TAB DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C2	

Registered Professional Engineer, Civil
CERTIFICATE NO.
25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	11	109



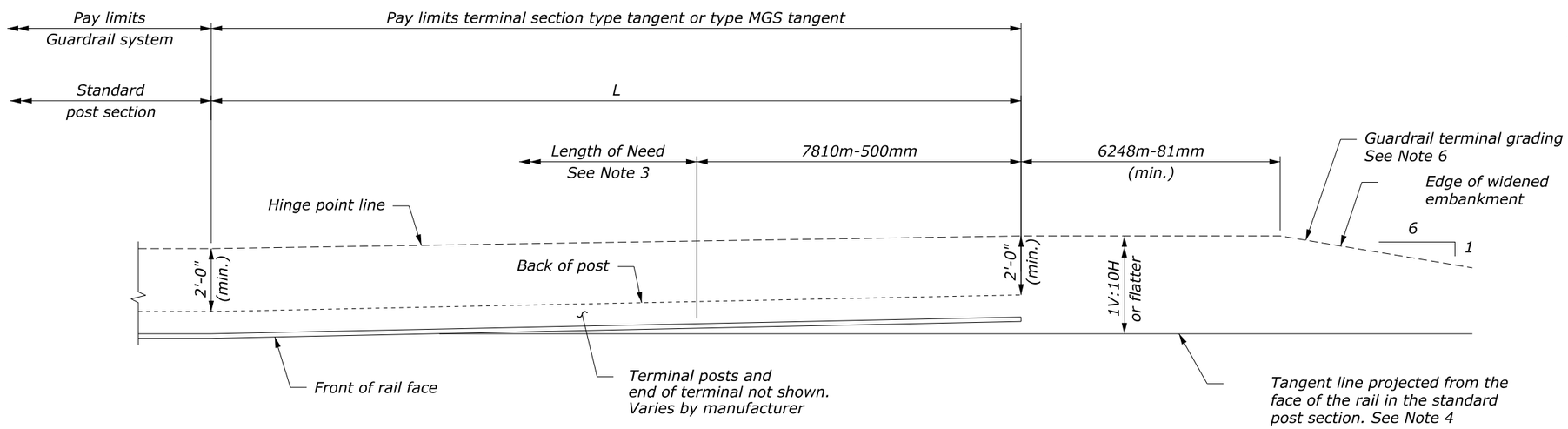
PLAN

PREFERRED GRADING

NOTE:

1. *Install tangent terminal according to the manufacturer's recommendations. See manufacturer's drawings for other details.*
2. *Construct the terminal grading layout as shown in the staking notes or model. If no staking notes or model are provided, use the preferred grading layout as much as practical within site constraints. If necessary because of site limitations, use the alternative grading layout.*
3. *For design purposes, the length of need is assumed to begin at post 3. Verify the length of need with the manufacturer for a specific product. Adjust grading as necessary to install the tangent terminal according to the manufacturer's recommendations.*
4. *Install terminal at a 1:25 taper or flatter, to position the end farther away from the edge of the shoulder, or use a taper according to manufacturer's recommendations.*
5. *Install a reflectorized object marker on the end of the terminal.*
6. *Construct a 1V:4H slope outside of the guardrail terminal grading extents where practical.*

TEST LEVEL	L (FT)
2 (≤ 45 mph)	25
3 (> 45 mph)	37.5 or 50 (for G4)
	50 (for MGS)



PLAN

ALTERNATIVE GRADING

NO SCALE

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

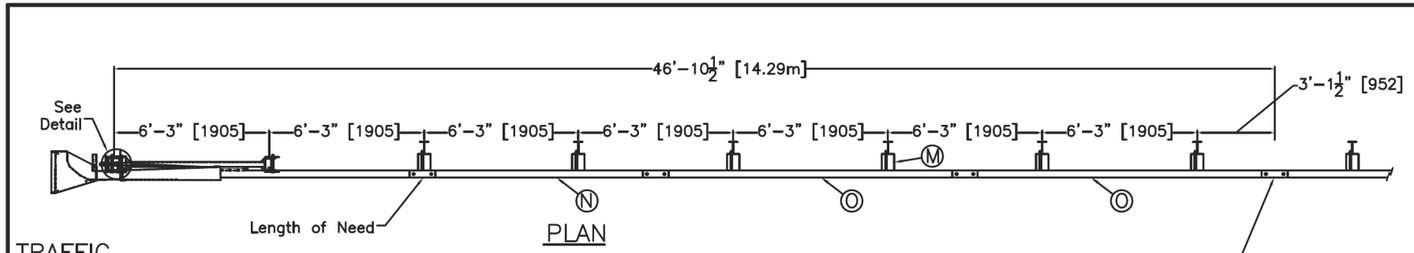
MGS AND G4 W-BEAM GUARDRAIL TYPE TANGENT TERMINAL AND GRADING

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C3	

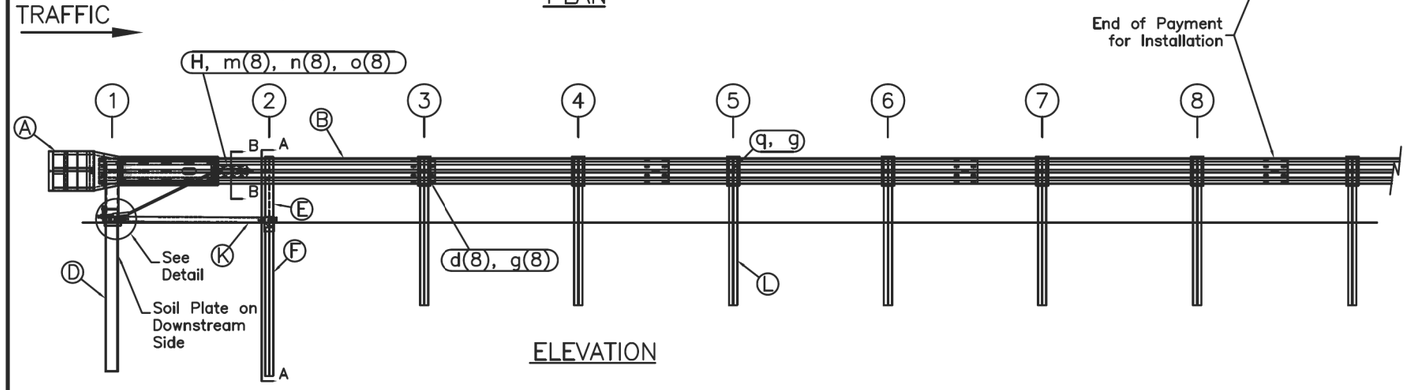
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 INCOMPLETE

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	12	109

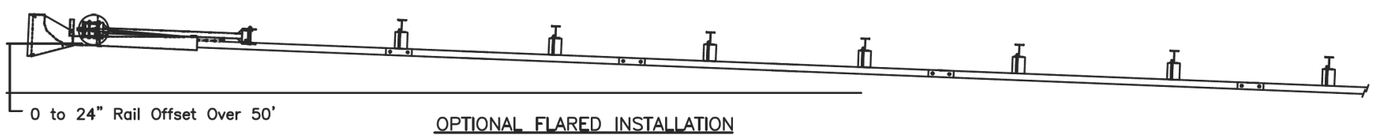


PLAN

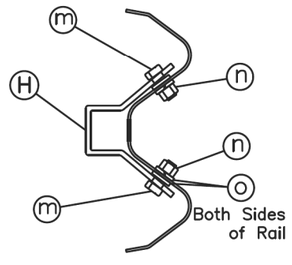


ELEVATION

ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	MS3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303
C	1	FIRST POST TOP (6X6X⅛" Tube)	MTPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	MTPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP2B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
K	1	STRUT	MS785
L	6	6x9 (6x8.5) STEEL POST	P621
M	6	RECYCLED PLASTIC BLOCK OR EQUIV.	CBSP-14
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	25	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	2	5/8 Dia. x 9 HEX BOLT A449	B580904A
f	3	5/8 WASHER	W050
g	33	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	1/2 RSI SHOULDER BOLT W/WASHER	SB12A
n	8	1/2 STRUCTURAL NUT	N012A
o	8	1/2 STRUCTURAL WASHER	W012A
p	1	BEARING PLATE RETAINER TIE	CT-100ST
q	6	5/8" x 10" H.G.R. BOLT	B581002

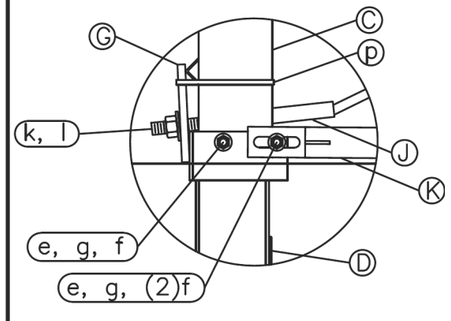


OPTIONAL FLARED INSTALLATION
25:1 maximum flare rate

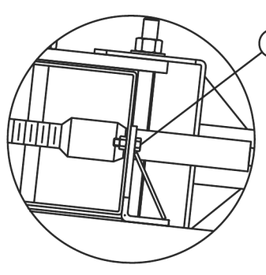


SECTION B-B
Anchor Bracket

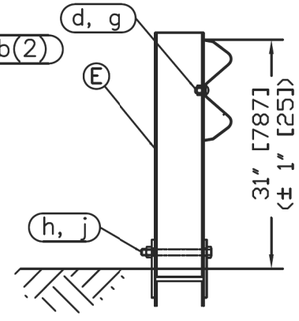
GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in [100] above the ground (measured along a 5' [1.5m] cord longitudinal to the system). Site grading may be necessary to meet this requirement.
3. The lower section of the hinged post should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" [300] Ø post hole, 20 in. [500] deep cored into the rock surface may be used if approved by the engineer for Posts 1 and/or 2. Granular material will be placed in the bottom of the hole, approximately 2.5" [60] deep to provide drainage. The first and/or second post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.



Post #1 Connection Detail



Impact Head Connection Detail



SECTION A-A
Post #2

RSI
Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-346-0721

MSKT-SP-MGS
Terminal (8" Blocks)
Test Level 3

Drawing Name:	Scale:	Sheet:	Date:	By:	Rev:
MSKT-SP-MGS8	None	1	05/20/17	JRR	0

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

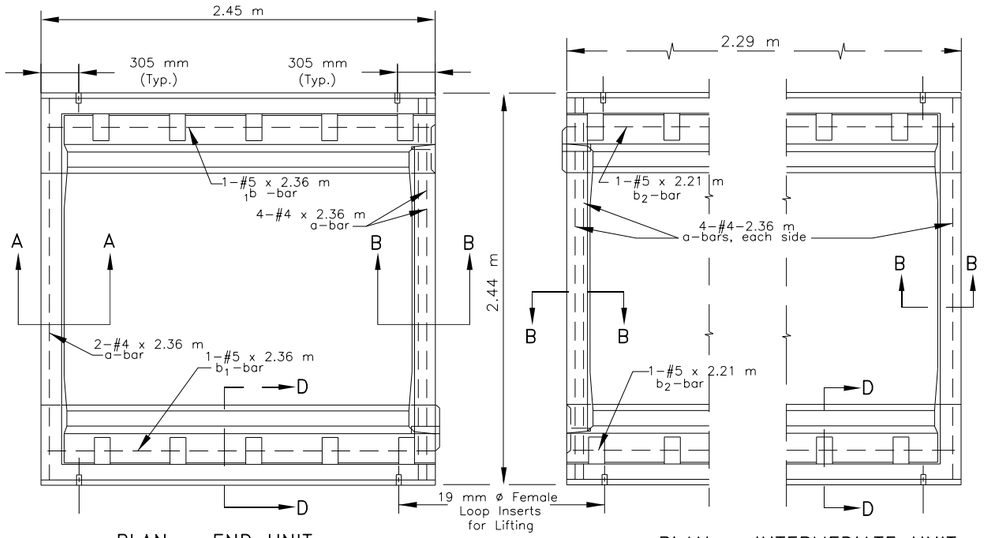
MGS AND G4 W-BEAM GUARDRAIL TYPE TANGENT TERMINAL AND GRADING

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C4	

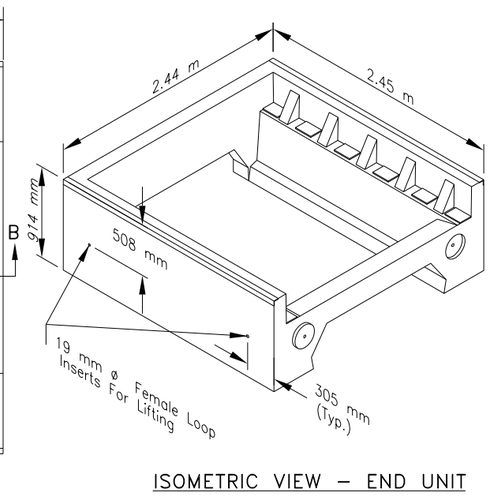
Registered Professional Engineer, CIVIL
CERTIFICATE NO. 25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	13	109



PLAN – END UNIT



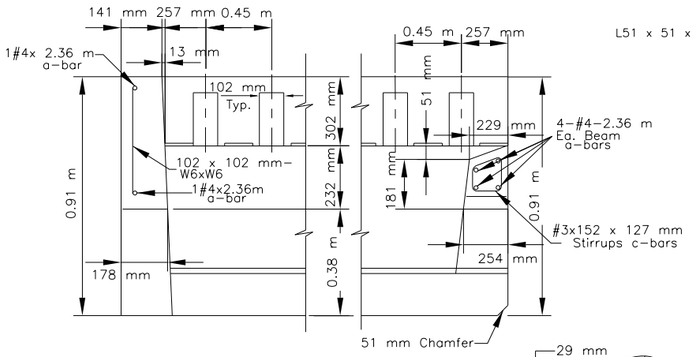
PLAN – INTERMEDIATE UNIT

ISOMETRIC VIEW – END UNIT

GENERAL NOTES

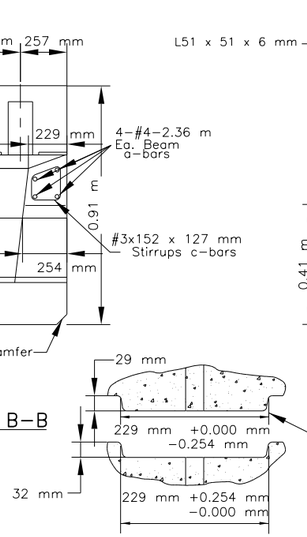
1. PRECAST CONCRETE SHALL ATTAIN 28–DAY COMPRESSIVE STRENGTH OF 27.62 MPa (minimum) IN ACCORDANCE WITH AASHTO T22 (ASTM C–39). THE CONCRETE SHALL BE CLASS A(AE) CONFORMING TO SECTION 552 OF FP–14.
2. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 420. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M–183.
3. THE CONTRACTOR SHALL SLOPE THE BASES OF THE CATTLE GUARDS AS REQUIRED TO PROVIDE ROADWAY CROWNS OR SUPERELEVATION AS SHOWN ON THE PLANS.
4. BOLTS, WASHERS, AND NUTS SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF AASHTO M111 OR AASHTO M298.
5. ALL TRAFFIC GRILL UNITS, AND WING BRACE STRUCTURAL STEEL AND PIPE, INCLUDING THE STEEL ANGLES, SHALL RECEIVE ONE (1) PRIMER COAT, ONE (1) INTERMEDIATE COAT, AND ONE (1) FINISH COAT IN ACCORDANCE WITH SECTION 563, PAINT SYSTEM 2 ON TABLE 563–1 OF FP–14.
6. WING BRACES SHALL BE CONSIDERED SUBSIDIARY ITEMS TO THE CATTLE GUARD UNIT.
7. THE CONTRACTOR HAS THE OPTION TO USE AN ALL STEEL FRAME CATTLE GUARD. IF THE CONTRACTOR ELECTS TO SUBSTITUTE FOR THE STEEL FRAME CATTLE GUARD, HE/SHE SHALL SHOW THEY ARE MORE COST EFFECTIVE WITH SUPPORTING DATA. THE CONTRACTOR IS RESPONSIBLE FOR ALL PATENT PROTECTION RIGHTS, SHOP DRAWINGS, MATERIAL CERTIFICATIONS, AND MILL TEST REPORTS. HOWEVER, NO STEEL FRAME CATTLE GUARD SHALL BE USED FOR CONCRETE DRAINAGE PAD CATTLE GUARD LOCATIONS.
8. ELASTOMERIC BEARING PADS SHALL BE SEALED WITH EPOXY ADHESIVE PRIOR TO THE INSTALLATION OF TRAFFIC GRILL UNIT.
9. DESIGN DATA: DESIGN ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, THIRD EDITION, 2004.

   DESIGN LOADS: HS20 AND DESIGN TANDEM WITH 33% IMPACT.

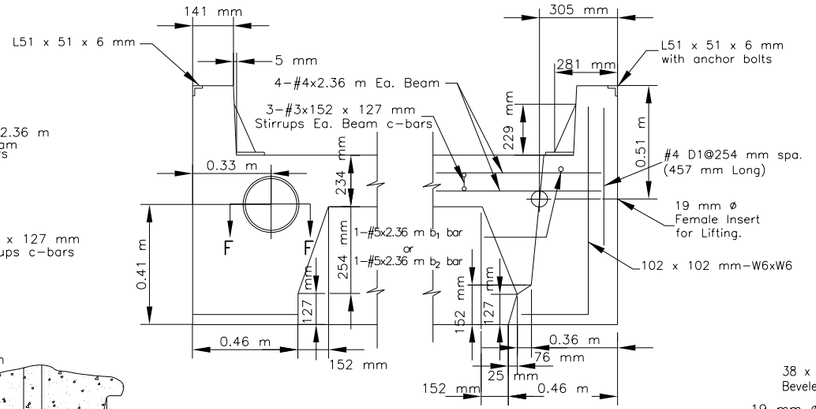


SECTION A–A

SECTION B–B



SECTION F–F

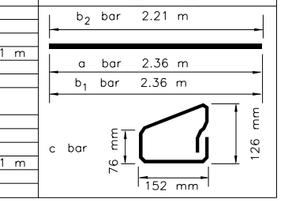


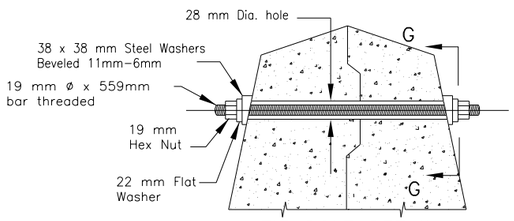
KEY LOCATION

SECTION D–D

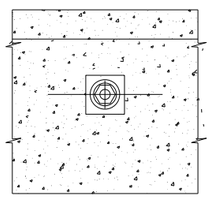
REINFORCING STEEL SCHEDULE

STRAIGHT BARS				BENT BARS				BENDING DIAGRAMS
MARK	NO.	SIZE	LENGTH	MARK	NO.	SIZE	LENGTH	ALL DIMENSIONS ARE OUT TO OUT
END UNIT								
a	6	4	2.36 m					
b_1	2	5	2.36 m					
c					3	3	0.61 m	
D_1	20	4	0.46 m					
INTERMEDIATE UNIT								
a	8	4	2.36 m					
b_2	2	5	2.21 m					
c					6	3	0.61 m	
D_1	18	4	0.46 m					

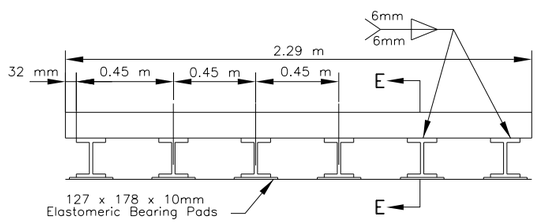




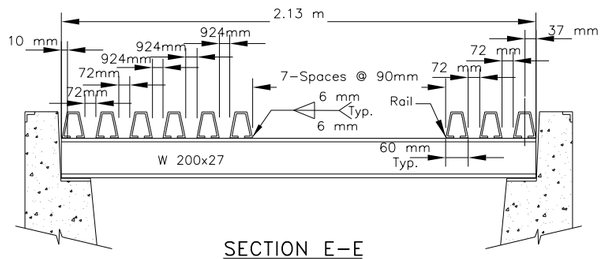
TIE BOLT DETAIL



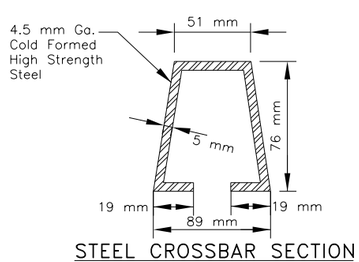
SECTION G–G



TRAFFIC GRILLE UNIT



SECTION E–E



STEEL CROSSBAR SECTION

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DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

PRE–CAST CONCRETE CATTLE GUARD DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C5	

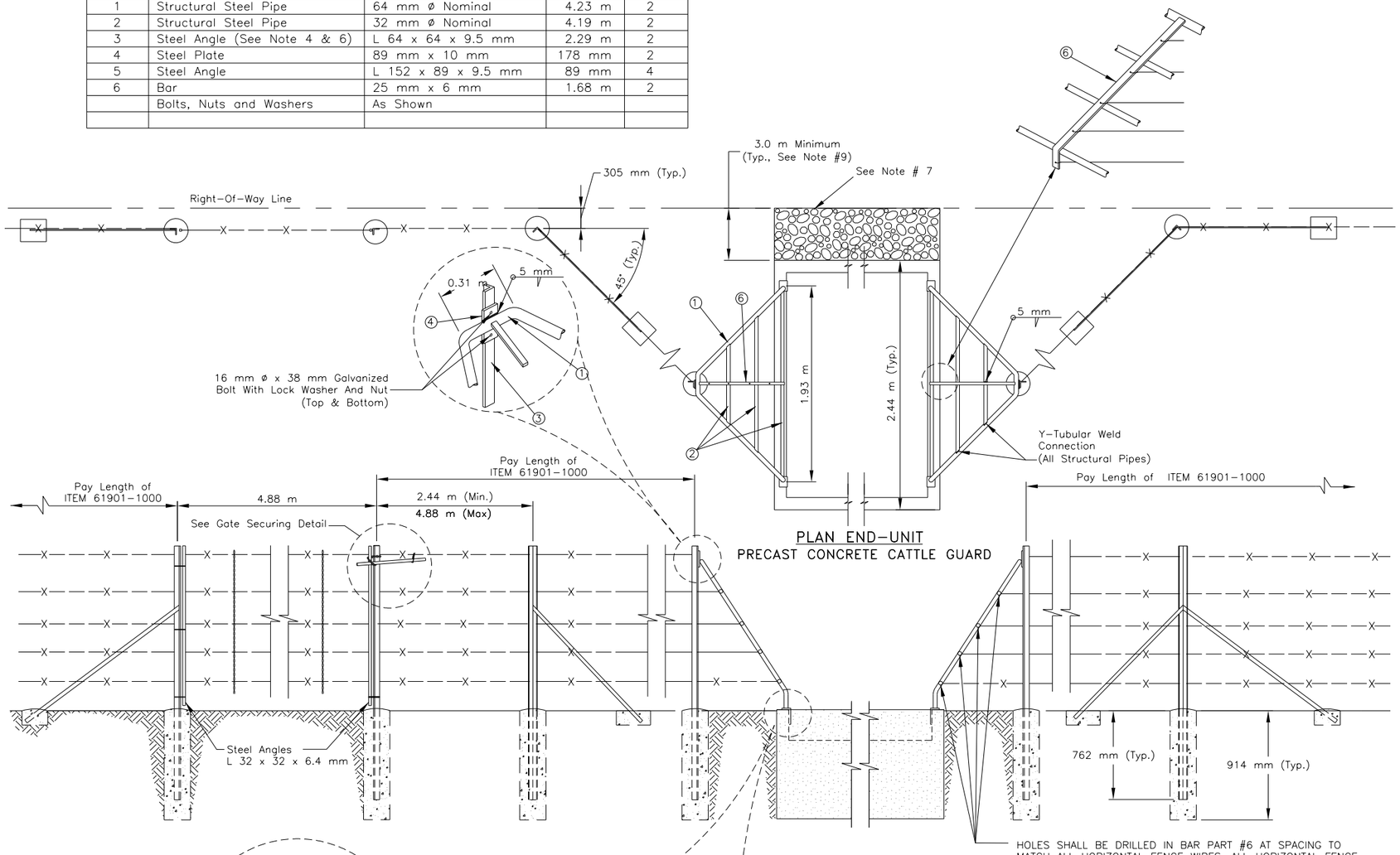
Registered Professional Engineer, CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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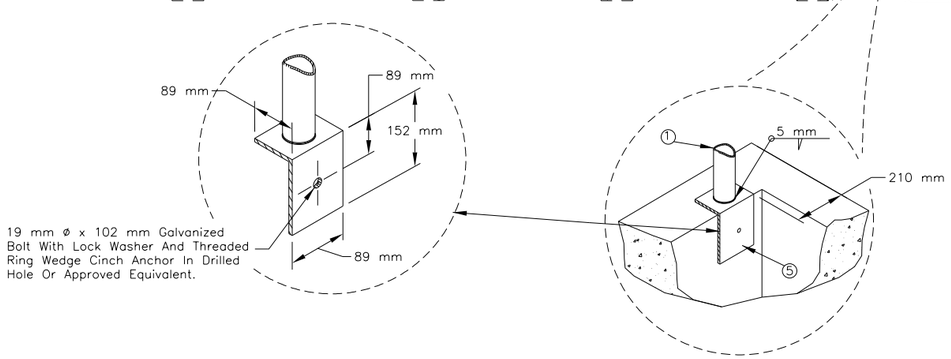
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	14	109

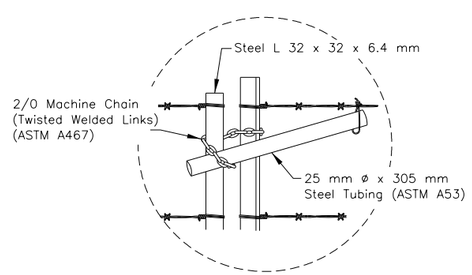
ESTIMATED MATERIAL LIST

PART NO.	MATERIAL	SIZE AND THICKNESS	LENGTH	QUANTITY
1	Structural Steel Pipe	64 mm ø Nominal	4.23 m	2
2	Structural Steel Pipe	32 mm ø Nominal	4.19 m	2
3	Steel Angle (See Note 4 & 6)	L 64 x 64 x 9.5 mm	2.29 m	2
4	Steel Plate	89 mm x 10 mm	178 mm	2
5	Steel Angle	L 152 x 89 x 9.5 mm	89 mm	4
6	Bar	25 mm x 6 mm	1.68 m	2
	Bolts, Nuts and Washers	As Shown		



PLAN END-UNIT
PRECAST CONCRETE CATTLE GUARD





GATE SECURING DETAIL

GENERAL NOTES

1. STRUCTURAL PIPE SHALL CONFORM TO ASTM A53-93a, GRADE B. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO ASTM-A36.
2. ALL STRUCTURAL PIPE JOINTS SHALL BE FABRICATED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
3. WELDING SHALL MEET THE REQUIREMENTS OF AASHTO STANDARD SPECIFICATIONS FOR WELDING AT STRUCTURAL STEEL HIGHWAY BRIDGES, LATEST EDITION.
4. THE SUPPORTING WING BRACE POSTS (PART NO. 3) LENGTH SHALL BE SUFFICIENT TO ALLOW BRACE POSTS TO BE INSTALLED WITHIN CONCRETE FOUNDATIONS AS SHOWN ON THIS DETAIL SHEET. UNDER CERTAIN CONDITIONS (SUCH AS DRAIN THROUGH CATTLE GUARD, HIGH EMBANKMENT, ETC) THE LENGTH OF THE POST MAY VARY TO FULLY SUPPORT THE WING BRACES. THIS WORK SHALL BE INCIDENTAL TO THE CATTLE GUARD CONTRACT ITEMS. INSTALLATION OF GATE SHALL BE SUBSIDIARY ITEM TO THE CATTLE GUARD ITEM(S).
5. THE AOTR/COR MAY ADJUST THE FINISHED CATTLE GUARD ELEVATION AS NEEDED TO FIT FIELD/DRAINAGE CONDITIONS. THE CONTRACTOR SHALL RE-GRADE THE ADJOINING TURNOUT APPROACHES AS REQUIRED. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE CATTLE GUARD CONTRACT ITEMS OF FP-03. ANY MISTAKES MADE BY THE AOTR/COR IN DIRECTING ADJUSTMENTS TO THE FINISHED GRADE FOR THE CATTLE GUARDS AND APPROACH ROADWAY WILL BE CORRECTED UNDER A NEGOTIATED MODIFICATION UNDER SUBSECTION 109.02(m).
6. AT SKEWED TURNOUT LOCATIONS, THE CATTLE GUARD SHALL BE INSTALLED PERPENDICULAR TO TURNOUT.
7. THE LENGTH OF THE TURNOUT BETWEEN THE BACK EDGE OF THE CATTLE GUARD AND THE RIGHT-OF-WAY LIMIT SHALL BE SURFACED WITH A 100mm THICKNESS OF AGGREGATE BASE COURSE AT ALL TURNOUTS. THE SURFACING MATERIAL AND WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEMS SHOWN IN THE BID SCHEDULE.
8. AT CATTLE GUARD LOCATIONS WHERE THE DESIGN TYPICAL WIDTH IS WIDER ON ONE SIDE OF THE CATTLE GUARD THAN THE OTHER SIDE, THE NARROWER ROADWAY WIDTH SHALL BE FLARED OUT TO MATCH THE WIDER ROADWAY WIDTH USING AN 8:1 TAPER OR TO LENGTH ALLOWED BY THE RIGHT-OF-WAY WIDTH. THIS INCLUDES AT NARROW RIGHT-OF-WAY WIDTH WHERE THE TURNOUT RADIUS CANNOT BE COMPLETELY INSTALLED BETWEEN THE MAIN ROAD AND THE CATTLE GUARD. THIS WORK SHALL BE PAID UNDER THE EARTHWORK AND BASE COURSE ITEMS INCLUDED IN THE BID SCHEDULE.
9. CATTLE GUARDS ON N8086 SHALL BE LOCATED IN LINE WITH N8084 FENCE. SEE DWG P10.
10. AS NEEDED, THE CONTRACTOR WILL BE REQUIRED TO INSTALL ADDITIONAL WIRES WHEN CLEARANCE BETWEEN WIRES EXCEEDS 203mm. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

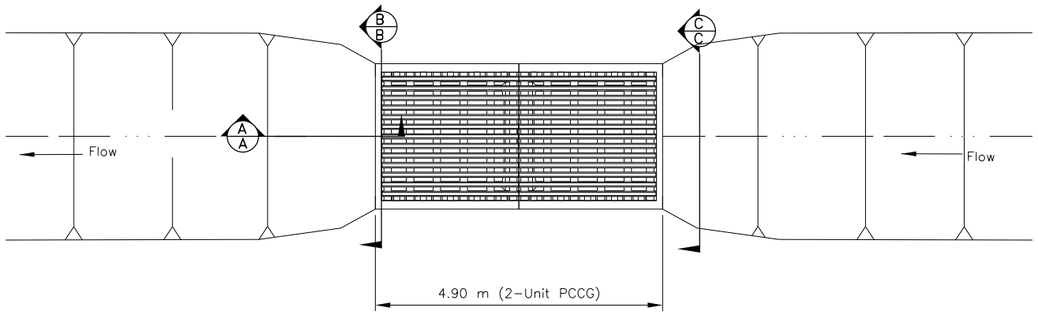
CATTLE GUARD AND WING BRACE DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C6	

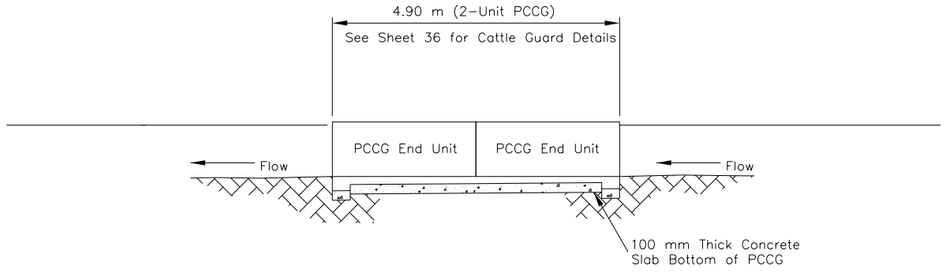
Registered Professional Engineer (Civil)
CERTIFICATE NO. 25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA U.S.A.

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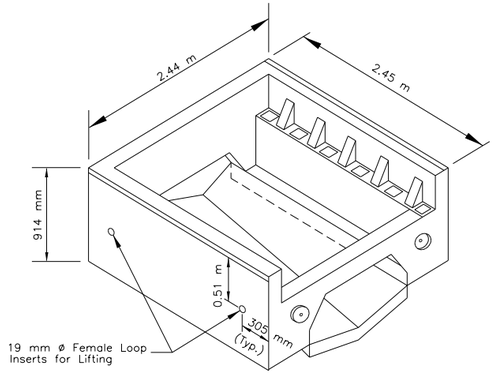
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	15	109



PLAN VIEW – PCCG WITH CONCRETE BOTTOM



ELEVATION – PCCG WITH CONCRETE BOTTOM



ISOMETRIC VIEW – END UNIT

GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP–03), ALONG WITH THE SUPPLEMENTAL SPECIFICATIONS FOR THIS PROJECT.

2. ALL CONCRETE SHALL BE CLASS A(AE) WITH CLASS 1 FINISH. CHAMFER ALL EXPOSED EDGES 19 mm. ALL CONCRETE SHALL CONFORM TO SECTION 552 & 601 OF THE FP–03. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'c = 20.7 MPa IN 28 DAYS.

3. REINFORCING STEEL SHALL CONFORM TO AASHTO SPECIFICATION M–31 ASTM A 615M, GRADE 40, AND SECTION 554 OF FP–03. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT TO OUT OF BARS. ALL REINFORCING STEEL SHALL HAVE 51 mm CLEARANCE COVER UNLESS OTHERWISE NOTED. ALL REINFORCING STEEL AND WIRE FABRIC SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF STRUCTURE.

4. IN NO CASE SHALL ANY BACKFILL BE PLACED UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 17.2 MPa.

5. ALL STRUCTURE EXCAVATIONS SHALL BE DONE TO NEAT LINES AND WILL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.

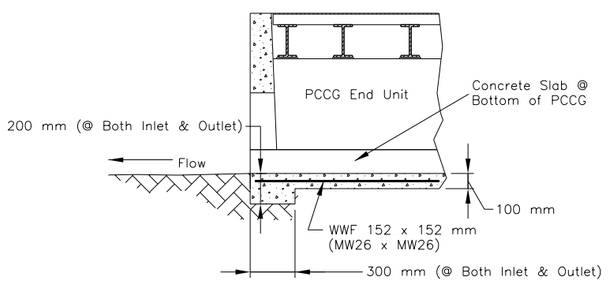
6. FOOTINGS SHALL BE PLACED TO THE ELEVATIONS SHOWN. IF UNSUITABLE MATERIAL IS FOUND AT THE FOOTING LOCATION AND ELEVATIONS, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED STRUCTURAL BACKFILL AS DETERMINED BY THE COR/AOTR. ALL STRUCTURAL BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T99 METHOD C, BEFORE AND AFTER FOOTINGS ARE PLACED. THE STRUCTURAL BACKFILL MATERIAL SHALL CONFORM TO SECTIONS 208 AND 209 OF THE FP–03.

7. THE CONTRACTOR WILL BE REQUIRED TO MAKE FIELD ADJUSTMENTS AS DIRECTED BY THE COR/AOTR TO MATCH FIELD CONDITIONS. THESE ADJUSTMENTS SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE PROJECT AND NO ADDITIONAL PAYMENT SHALL BE MADE.

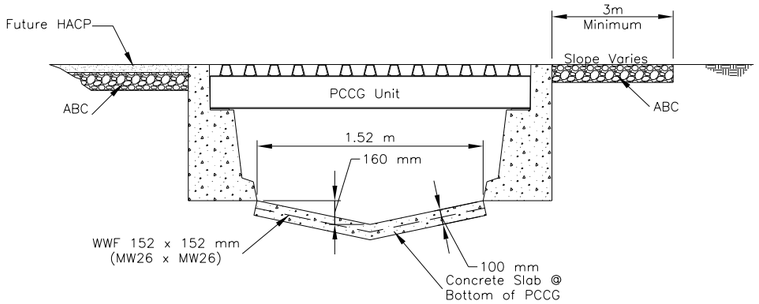
8. SLOPE RESHAPING, CLEANING, AND EXCAVATION SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND AS DETERMINED BY THE COR/AOTR. ANY WASTE MATERIAL SHALL BE USED AS BORROW WHERE NEEDED AT OTHER PROJECT LOCATIONS AS DIRECTED AND APPROVED BY THE COR/AOTR. ALL EXCAVATION, CLEANING, AND RESHAPING SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.

9. SEE SHEET 127 FOR THE CATTLE GUARD DETAILS AND DIMENSIONS.

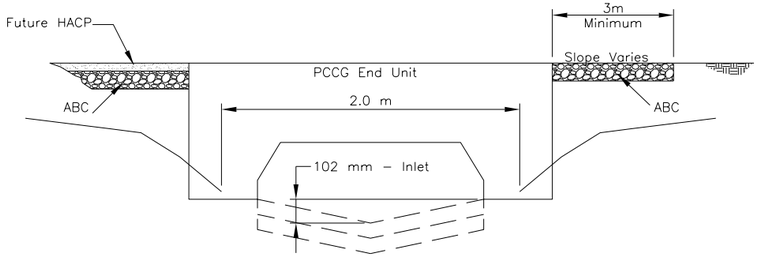
10. THE TOP ELEVATION OF DRAIN THROUGH CATTLE GUARDS SHALL BE SET A MAXIMUM OF 500mm (AS APPROVED BY THE AOTR/COR) ABOVE THE NATURAL GROUND IF REQUIRED TO ASSIST WITH DRAINAGE. THE TURNOUT GRADING, EARTHWORK, SURFACING, RIGHT OF WAY FENCING, ETC. SHALL BE ADJUSTED AS REQUIRED. THE COST OF THIS WORK SHALL BE INCLUDED IN THE RESPECTIVE BID ITEMS.



SECTION A–A



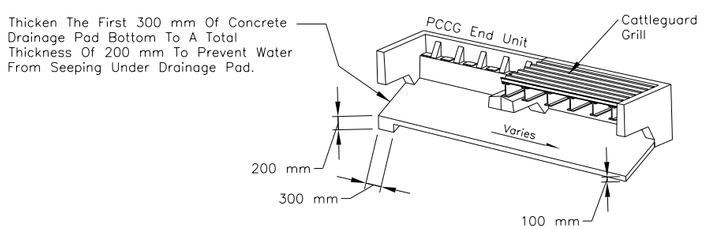
SECTION B–B



SECTION C–C

ITEM 60101-0000: MINOR CONCRETE CLASS A(AE)

LOCATION	NO. OF PCCG UNITS	LENGTH OF PAD (m)	TOTAL CONCRETE VOLUME (m^3)	TOTAL WT. OF WWF @ 2.83 kg/m^2
0+100 Lt.	2	4.8	0.84	7.53
		TOTAL	0.84	7.53



DRAINAGE PAD

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

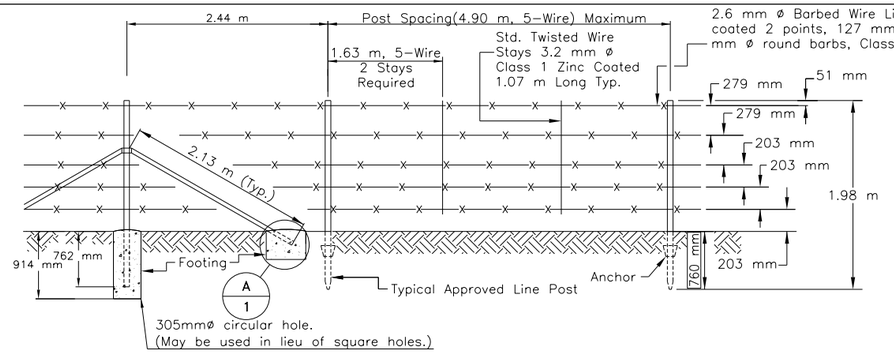
CONCRETE DRAINAGE PAD FOR PRECAST CATTLE GUARD

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C7	

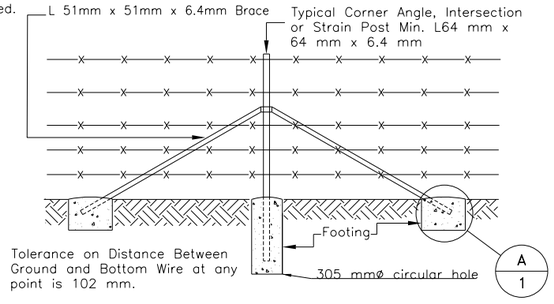
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 New Mexico U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	16	109

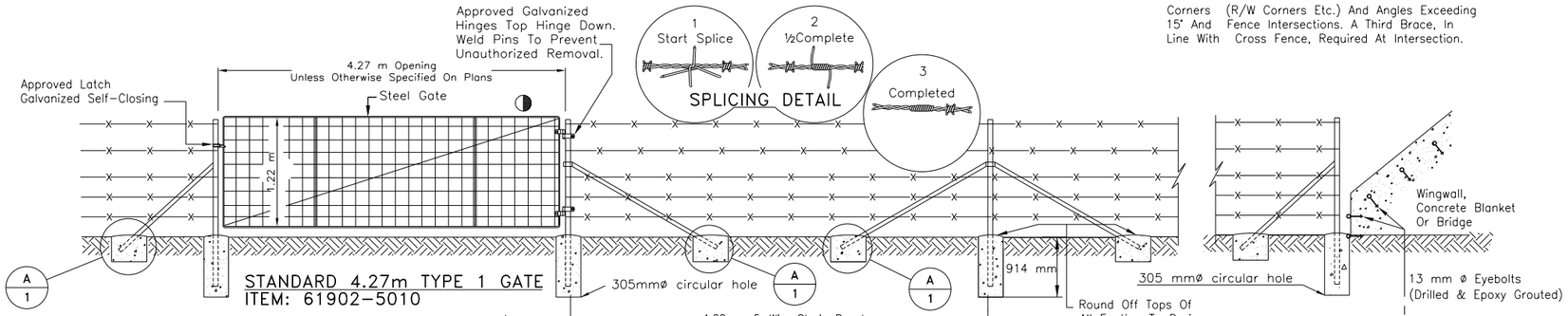


STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL



STANDARD STRAIN POST

To Be Placed @ 198 m Max. Intervals. Strain Posts With Braces Shall Be Installed At All Corners (R/W Corners Etc.) And Angles Exceeding 15° And Fence Intersections. A Third Brace, In Line With Cross Fence, Required At Intersection.



STANDARD 4.27m TYPE 1 GATE ITEM: 61902-5010

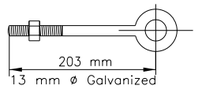
NOTES: When Tubular Post Hangers and/or Latches are used, It shall be drilled for a single 2.38 mm ø Min. drive pin to prevent rotation of the hangers and/or latches.

Set Gate to be self closing (use only when specified by special note in the plans)

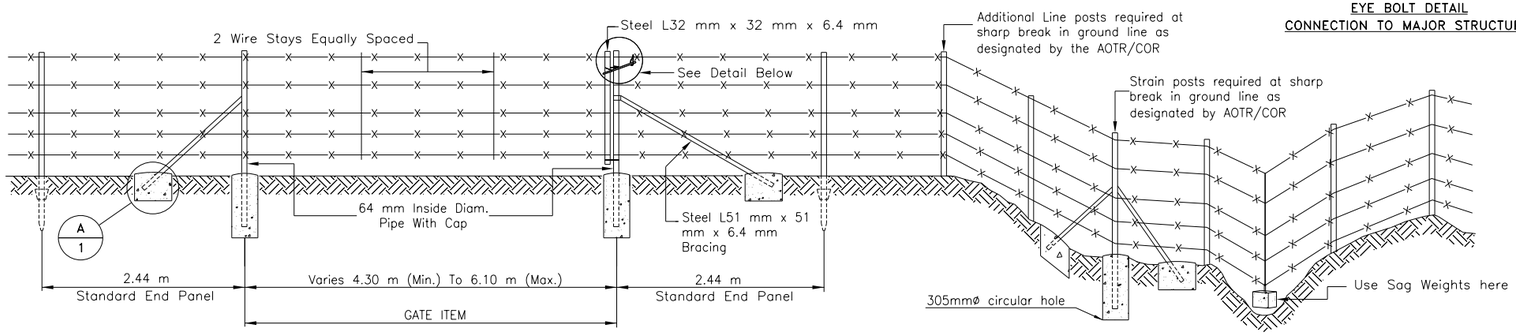
For Gate Details at Cattle Guard location see standard cattle guard drawings.

◑ 35 mm ø Tubing 2 Vert. Braces Mesh □, △ , ◇ , 3.2 mm ø Line Wires 2.6 mm ø Crosswires. 1 Adjustable Diagonal Guy Fully Galvanized.

END POST



EYE BOLT DETAIL
CONNECTION TO MAJOR STRUCTURES



STANDARD TYPE-2 GATE

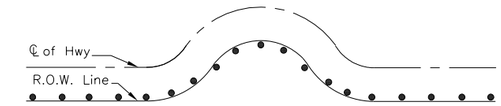
Use At Locations Noted On Plans

FENCE PROFILE IN ROUGH TERRAIN

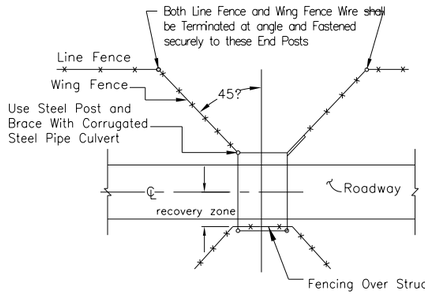
In Rough Terrain Post Spacing Shall Be Reduced Where Necessary To Maintain Required Spacing Below Bottom Wire Within The Tolerance Allowed.

GENERAL NOTES

1. CORNER, GATE, INTERMEDIATE BRACE POSTS AND LINE POSTS SHALL BE EITHER GALVANIZED OR PAINTED IN ACCORDANCE WITH AASHTO M 281-96. METAL POST AND BRACES SHALL BE FABRICATED FROM RAIL, BILLET, OR COMMERCIAL GRADE STEEL CONFORMING WITH THE REQUIREMENT OF ASTM A 702.
2. LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-96, AND SHALL BE A NOMINAL WEIGHT OF 1.98 kg/m EXCLUSIVE OF ANCHOR PLATES. ANCHOR PLATES SHALL BE CLAMPED, WELDED OR RIVETED TO THE SECTION IN SUCH A MANNER AS TO PREVENT DISPLACEMENT WHEN THE POSTS ARE DRIVEN.
3. WHEN LINE POST ANCHORS ARE OMITTED, DUE TO CHANGE IN SOIL CONDITIONS SUCH AS ROCK, THEN THE POSTS SHALL BE SET IN CONCRETE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
4. TIE WIRE, WIRE FASTENERS OR WIRE CLIPS FOR FASTENING BARBED AND WOVEN FABRIC FENCING TO THE STEEL POSTS SHALL BE 3.0 mm DIA. STEEL WIRE, CLASS 1 (ZINC COATED), SOFT TEMPER AND MEET THE REQUIREMENTS OF ASTM A 641. FURNISHING AND PLACEMENT OF FASTENERS SHALL BE INCLUDED WITH ITEM 61901-1000.
5. CONCRETE FOR ANCHORS, POST HOLES, ETC. SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa IN 28 DAYS AND SHALL CONFORM TO SECTION 601 OF THE FP-03. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-1000.
6. TWO SPLICES ON THE SAME LINE BETWEEN THE STRAIN POST ASSEMBLIES SHALL NOT BE PERMITTED. NO SPLICES SHALL BE PLACED CLOSER THAN 30 METER OF ANY POST ASSEMBLIES.
7. CONNECT ALL R.O.W. FENCING TO CATTLE GUARDS, CULVERTS (GREATER THAN 1524 mm DIA.), AND CONCRETE STRUCTURES AS SHOWN ON THESE PLANS, AND/OR AS DIRECTED BY THE AOTR/COR.
8. ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRICTIONS, THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
9. CLEARING AND GRUBBING SHALL INCLUDE SHAPING AND/OR REMOVAL OF SMALL MOUNDS NECESSARY TO PRESENT A SMOOTH UNIFORM APPEARANCE OF BOTH GROUND AND FENCING LINE. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
10. ALL DRILLING INTO ROCK MATERIAL, ETC. SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
11. GATE CLOSURE DEVICE SHALL BE STEEL PIPE, NPS 3/4 (26.7 mmø) SCHEDULE 40, CONFORMING TO THE REQUIREMENT OF ASTM A 53. THE GATE CLOSURE STEEL CHAIN SHALL BE WELDED TO THE STEEL PIPE AND ANGLE IRON FENCE POST. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
12. CONTRACTOR SHALL BE REQUIRED TO INSTALL SAG WEIGHTS WHERE VERTICAL CLEARANCE BETWEEN THE BOTTOM WIRE AND NATURAL GROUND IS 610 mm OR GREATER. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING.



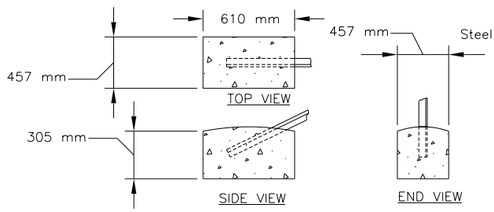
Wire Shall Be Strung On Opposite Side Of Post From Highway Except On Curve As Shown. Fence Shall Be Constructed 305 mm Inside Right-Of-Way Line.



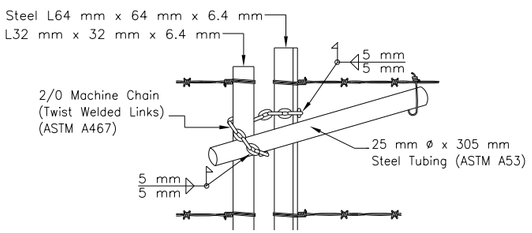
WING FENCE DETAIL



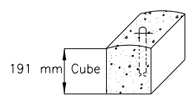
TYPICAL STEEL POST SECTION



CONCRETE FOOTING FOR CORNER & STRAIN POST (A 1)



GATE SECURING DETAIL



38 mm x 127 mm Doubled and Twisted 3.8 mm(dia.) Wire Loop Centered in Block. 25.4 mm Projection Twisted Ends Down.

CONCRETE SAG WEIGHT DETAIL

Min. Weight Of Concrete Sag Shall Be 16 kg

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

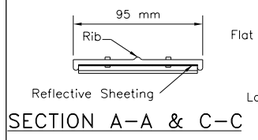
STANDARD FENCING DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C8	

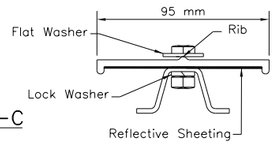
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 NAVAJO NATION

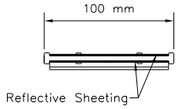
J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D11.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	17	109

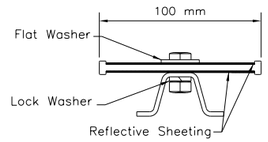


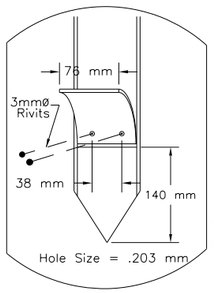
SECTION A–A & C–C



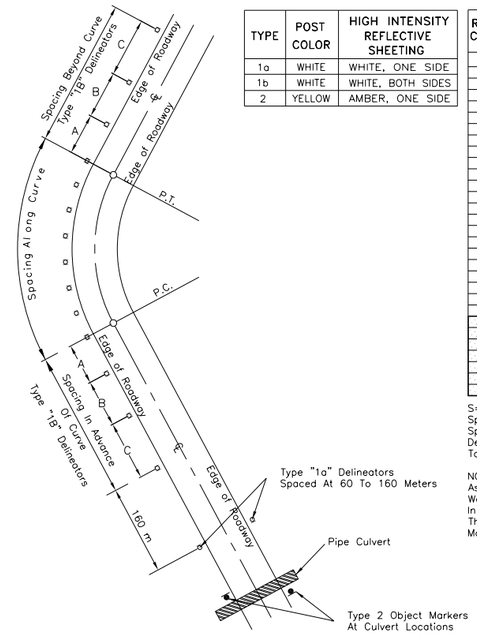


SECTION B–B





DETAIL A



TYPE	POST COLOR	HIGH INTENSITY REFLECTIVE SHEETING
1a	WHITE	WHITE, ONE SIDE
1b	WHITE	WHITE, BOTH SIDES
2	YELLOW	AMBER, ONE SIDE

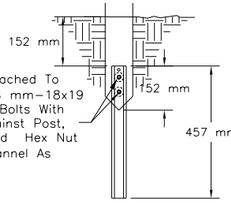
RADIUS OF CURVE (m)	APPROXIMATE SPACING (S) ON CURVE (m)	SPACING ON ADVANCE OF OR BEYOND A CURVE (m)		
		A (2S)	B (3S)	C (6S)
15	6	12	18	36
35	8	16	24	48
55	11	22	33	66
75	13	26	39	78
95	15	30	45	90
125	18	36	54	108
155	20	40	60	120
185	22	44	66	132
215	24	48	72	144
245	26	52	78	156
275	27	54	81	162
305	29	58	87	174
400	33	67	100	200
500	37	75	112	225
600	41	82	123	247
700	44	89	133	267
800	48	95	143	286
900	51	101	152	303
1000	53	107	160	320
1500	66	131	197	393
2000	76	151	227	454
2500	85	169	254	508
3000	93	186	279	557
3500	100	201	301	602
4000	107	215	322	644
4500	114	228	342	683
5000	120	240	360	720
5500	126	252	378	755
6000	132	263	395	789

$S = 1.7 * \sqrt{(R-15)}$.
Spacing For Specific Radii May Be Interpolated From Table. The Spacing On Curves Should Not Exceed 90 Meters. Shaded Areas Denote To Use 90 Meter Spacings. Delineators Should Be Spaced 60 To 160 Meters Apart On Mainline Tangent Sections.

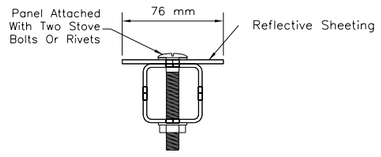
NOTE: When Uniform Spacing Is Interrupted By Such Features As Culverts, Signs, Driveways, Intersections, Delineators Which Would Ordinarily Be Located Within The Features May Be Relocated In Either Direction For A Distance Not Exceeding One Quarter Of The Uniform Spacing. Delineators Still Falling Within Such Features May Be Eliminated.

GENERAL NOTES

1. Survey Monument And Reference Markers Shall Be Placed As Shown On The Plans Or As Directed By The AOTR/COR. The Cost Of Supplying All Materials And Installation Of Right–of–Way Monument And Markers Shall Be Included In The Unit Price Bid Under Item 62101–0000 & 62102–0000.
2. If Rock Is Encountered When Installing The Right–of–Way Monuments And Reference Markers, Drill A 152mmø For R/W Monument And 305mmø For Reference Marker Hole In The Rock To The Depth Required To Install The Monument And Marker To Full Depth. All Hole Drilling Into Rock Material, Shall Be Considered Incidental To The Completion Of The Work And No Additional Payment Shall Be Made Thereof.
3. Brass Caps For The Survey Monuments Shall Be Supplied And Installed By The Contractor Conforming To The ASTM B–584 Specification And Shall Be Considered Incidental To Item 62101–0000.
4. All Concrete Shall Be Class A(AE) And Shall Conform To Section 601 Of The FP–03. Furnishing And Placing Of Concrete And Rebar Shall Be Considered Incidental To Item 63309–0020.
5. Roadway Stationings And Elevations Shall Be Stamped On All Brass Caps By The Contractor After Installation, Unless Otherwise Directed In Writing By The AOTR/COR.
6. The Contractor Shall Be Required To Paint The Reference Markers Per Section 708 And Subsection 708.04 of FP–03:
   A. The Primer Coat Shall Conform To Subsection 708.04(a) or (b) of FP–03.
   B. The White Finish Coat Of Paint Shall Conform To Subsection 708.04(c), (d), or (e) of FP–03.
   C. All Letters, Numerals, Symbols, Etc. Shall Be Painted On The Reference Markers Using The Dimensions Shown Using Black Lamp Paint Conforming To ASTM D 209. The Required Information To Place On The Reference Markers Shall Be Furnished To The Contractor By The AOTR/COR.
7. The Contractor Has The Option To Use An Approved State Paint Specification In Lieu Of That Stated In Note (5) Above. The Contractor Shall Submit (In Writing) The Paint Specifications And Request For Use On The Project At Least 14 Days In Advance Of The Paint Use For Review And Approval. The Contractor Shall Not Be Allowed To Use Any Paint Until The Proper Approval Has Been Given By The AOTR/COR. Any Painting Performed By The Contractor Without The Proper Approval Shall Cause The Work To Be Rejected.
8. The Contractor Shall Use Glass Fiber Type Highway Delineators. The Cost Of Supplying Materials And Installation Of U–channel Shall Be Included In The Unit Price Bid Under Item 63309–0100.
9. Set Right–of–Way Monument At Station And Offset To Match The Right–of–Way Plat. These Locations May Vary From The Stations And Offsets Shown On The Construction Plan And Profile Sheets.

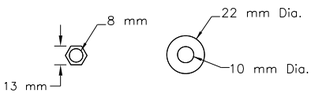


ALTERNATE DETAIL

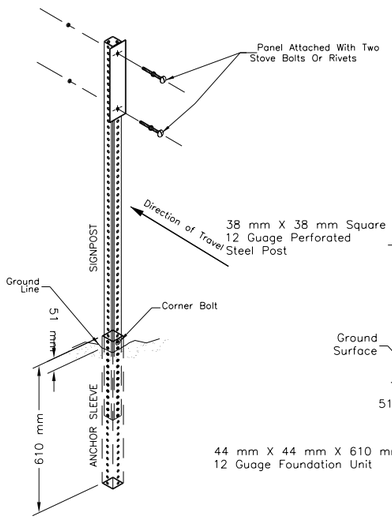


ALTERNATES

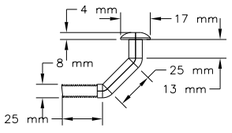
R/W MONUMENT SYMBOL



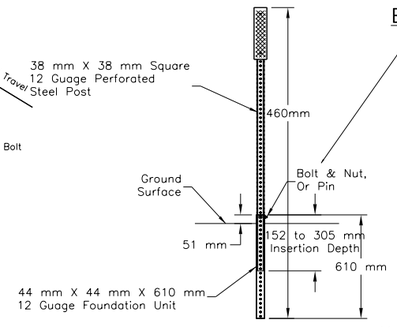
LOCK NUT FLAT WASHER



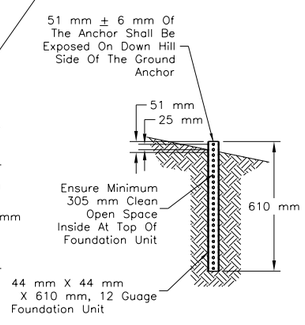
ISOMETRIC VIEW



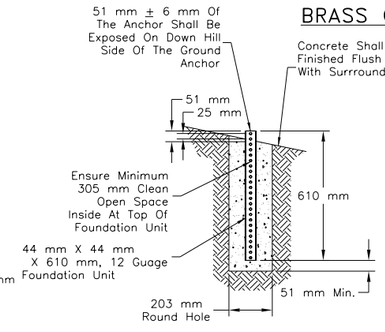
BOLT



ALTERNATE ASSEMBLY

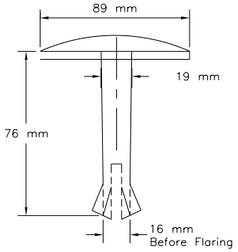


IN–GROUND DRIVEN



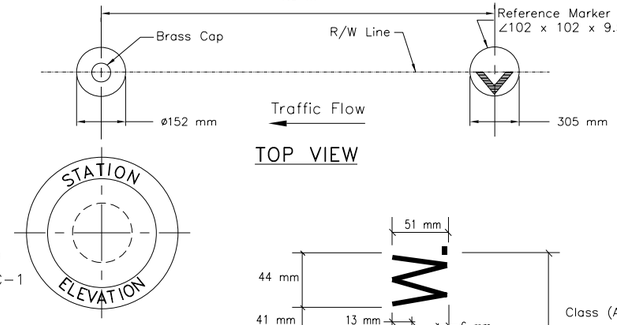
IN–GROUND CONCRETE

Use Chair Device To Ensure Minimum 51 mm Clearance Above Bottom Of Hole



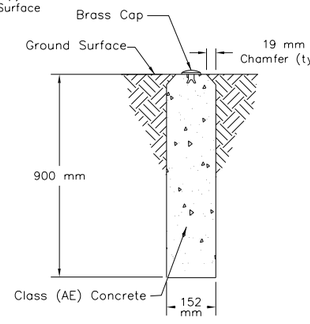
Similar to Berntsen Model C–1

BRASS CAP DETAIL

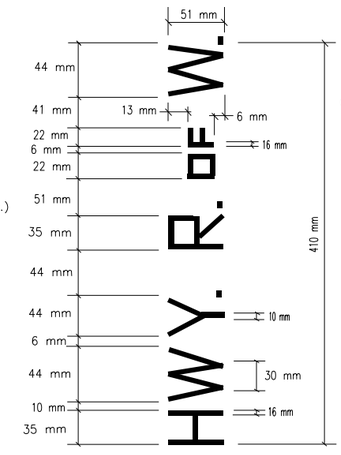


TOP VIEW

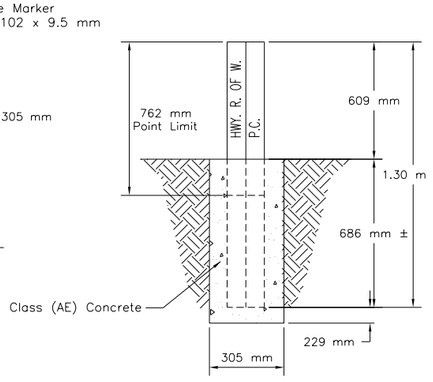
TOP VIEW



SURVEY MONUMENT



DETAIL OF LETTERS



REFERENCE MARKER

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

DELINEATOR & R.O.W. MARKER DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: C9	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	18	109

Sta. 1+000.000 Lt.
Construct 4.5m x 19.0m Turnout
@90° Skew with 9m Radius
Install 4800mm Cattle Guard w/Type I Gate
See Dwg G3, C5 & C6

Sta. 0+024 to Sta. 0+027 Lt.
Remove 22 m Existing Barbed Wire Fence
Sta. 0+027 Lt.–Tie R.O.W. Fence to Existing Fence
See Dwg C8
Install 4–Unit Cattle Guard w/Type I Gate
ADOT Stf Det C–11.10

Sta. 0+217.000 Lt.
Construct 4.5m x 19.0m Turnout
@ 90° Skew w/9m Radius
Install 4800mm Cattle Guard w/Type II Gate
See Dwg G3, C5, C6 & C7

Sta. 0+417 to Sta. 0+493 Lt.
Install Rolled Erosion Control Product
Type IV on Embankment Fill Slope
See Dwg E2 & G6

Sta. 0+430 Lt. & Rt.
Install Type I Gate
See Dwg C8

Sta. 0+447, 9 m Lt.
Remove & Salvage 3–914 mm
CMP Culverts

Sta. 0+452 to 0+714 Lt.
Sta. 0+688 to 0+707 Lt.
Obliterate Existing Road & Turnout.

Sta. 0+212 to 0+219 Lt.
Obliterate Existing Turnout.

Sta. 0+447 & 0+503 Lt.
Construct Ditch
See Dwg D3

Sta. 0+504.6, 10 m Lt.
Remove & Salvage 610 mm
CMP Culvert

Sensitive Site
Sta. 0+510 to +0+700, Rt. & Sta 0+520 to 0+670, Lt. The Contractor shall install temporary safety fence prior to any construction at ROW line. (Item 61901–3400) Installation of fencing to be monitored by NDOT.

Sta. 0+109 to 0+133 Lt.
Construct Ditch
See Dwg D3

Sta. 0+459 to 0+678 Lt.
Obliterate Existing Road

Sta. 0+684 Lt.
Construct Ditch
See Dwg D3

N8084
MP 458.23 US 191
Sta. 0+000.289
Begin Alignment
N 588809.799
E 263559.052

SCALE
10 0 10 20 30 40 50
(METRIC)

Staging Area

Grade to Drain

US 191 ℄

23m ADOT R/W

Install Permanent Barricade Sign See Sheet 11 for Details

Sta. 0+010 Lt. Install R1–1 Sign

Sta. 0+160 Lt. Install W3–1a Sign

Sta. 0+200 Lt. Install M2–1 & M1–4 Signs

Sta. 0+315 Lt. Install R4–1 Sign

Sta. 0+315 Rt. Install W14–3 Sign

Sta. 0+040 Rt. Install Rte. No. Sign

Sta. 0+150 Rt. Install R2–1(35) Sign

Sta. 0+180 Rt. Install R4–2 Sign

TBM–100

TBM–101

TBM–102

CP–10

23 m R.O.W.

TCE

20m

25 m

N 70°40'29" E

1074.444m

MATCH LINE Sta. 0+700

Sta. 0+085 Rt.
Remove & Salvage
Existing County Road
Sign

Sta. ± 0+085 Rt.
Remove & Salvage
Existing County Road
Sign

Sta. ± 0+185 Rt.
Remove & Salvage
Existing R2–1 (25) Sign

Sta. 0+463 Rt.
Install Type I Gate
See Dwg C8

Sta. 0+024
Remove & Salvage 3–Unit
Cattle Guard

Sta. 0+133
Remove & Salvage 2–914 mm
CMP Culverts

Sta. 0+051 to Sta. 0+133 Rt & Lt
Regrade Channel Within R.O.W. As
Directed by the AOTR/COR

Sta. 0+021 to Sta. 0+023 Rt.
Remove 17 m Existing Barbed Wire Fence
Sta. 0+021 Rt.–Tie R.O.W. Fence to
Existing Fence

Sta. 0+447 Rt.
Regrade Channel As
Directed By The AOTR/COR

Sta. 0+402 to Sta. 0+485 Rt.
Install Rolled Erosion Control Product
Type IV on Embankment Fill Slope
See Dwg E2 & G6

Sta. 0+629 to 0+683 Rt & Lt.
Regrade Channel Within R.O.W.
As Directed By The AOTR/COR

MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	10	0	6	2R, 2L	2

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
0+133.700	2–914 mm x 20.726 m CMP	101°	1499.5	End Sections at Inlet. Placed Riprap Apron at Outlet. See Dwg D8.
0+447.000	4–3048 mm S x 1524 mm R x 16.153 m CBC	90°	12961	Concrete Wing Walls at Inlet and Outlet. Wire Enclosed Riprap Apron and Concrete Apron and Cut–off Wall at Outlet. See Dwg D9.
0+504.000	1–914 mm x 15.851 m CMP	80°	6.9	Irrigation Pipe, Smooth Wall, Concrete Headwalls
0+683.000	1–1067mm x 737mm x 18.288 m CMPA	90°	**	End Section at Inlet.

* See Drainage Report
** Irrigation Pipe

PROJECT: N8084(1)
BOP Sta. 0+004.114
EOP Elev. 1629.230

L = 50.00 m, K = 22, e = 0.14 m, SD = 211.45 m
L = 100.00 m, K = 91, e = -0.14 m, SD = 655.00 m
L = 50.00 m, K = 85, e = 0.04 m, SD = 328.00 m
L = 100.00 m, K = 369, e = -0.03 m, SD = 2503.37 m
L = 100.00 m, K = 176, e = 0.07 m, SD = 648.92 m

PVC 0+035.000 Elev 1628.708
PVT 0+085.000 Elev 1628.439
PVC 0+090.000 Elev 1628.469
HI 0+145.991 Elev 1628.641
PVT 0+190.000 Elev 1628.535
PVC 0+255.000 Elev 1628.221
PVT 0+305.000 Elev 1628.126
PVC 0+400.000 Elev 1628.227
HI 0+439.088 Elev 1628.248
PVT 0+500.000 Elev 1628.198
PVC 0+600.000 Elev 1628.033
PVT 0+700.000

FG = -1.6914%
FG = 0.6151%
FG = -0.4834%
FG = 0.1059%
FG = -0.1650%

PVI 0+004.114 Elev 1629.230 MATCH EXST PVMT
PVI 0+060.000 Elev 1628.285
LO 0+071.667 Elev 1628.398
PVI 0+140.000 Elev 1628.777
PVI 0+280.000 Elev 1628.100
LO 0+296.016 Elev 1628.122
PVI 0+450.000 Elev 1628.280
LO 0+629.057 Elev 1628.009
PVI 0+650.000 Elev 1627.950

Finished Grade = Top of Asphalt
Existing Grade Profile (Dashed)

Sta. 0+133.000
2–914 mm x 20.726 m CSPC
Invert EL. = 1626.801
q_{25} = 45.5 m3/s

Sta. 0+447.000
4–3048 mm S x 1524 mm R x 16.153 m CBC
Invert EL. = 1625.498
q_{25} = 652.8 m3/s

Sta. 0+504.000
1–914 mm x 15.851 m CSPC
Invert EL. = 1626.654
q_{25} = 0.99 m3/s

Sta. 0+683.000
1–1067mm x 737mm x 15.851 m CMPA
Invert EL. = 1626.148
q_{25} = 0.3 m3/s

1635 1630 1625 1620 1615
0+000 0+100 0+200 0+300 0+400 0+500 0+600 0+700

PLAN & PROFILE
STA 0+000 TO STA 0+700

DATE: 5/4/2026

DWG: P1

DIBBLE

Registered Professional Engineer (Civil) CERTIFICATE No. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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CURVE C1
D = 19°49'39" Rt.
Dc= 4°21'57"
R. = 400.000m
T = 69.910m
L = 138.422m
e = 2.478%
PI
Sta. = 1+144.354
N = 589188.499
E = 264638.927

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	19	109

Sta. 0+720.000 Lt.
Construct 7.0m x 38.5m Turnout
@ 90° Skew w/15.0 m Radius
Install 7200mm Cattle Guard w/Type I Gate
See Dwg G3, C5 & C6

Sta. 0+920.000 Lt.
Construct 7.0 m x 19.0 m Turnout
@ 90° Skew w/15.0 m Radius
Install 7200mm Cattle Guard w/Type I Gate
See Dwg G3, C5 & C6

Sta. 0+927 to 1+023 Lt.
Obliterate Existing Road.

Sta. 0+931 Lt.
Construct Ditch
See Dwg D3

Sta. 1+044 to Sta. 1+154 Lt.
Remove Existing Steel Posts and Stockpile Them Outside the house where directed by the Homesite Leaseholder located east

Sta. 1+108, 20.5m Lt.
Exst PP, Protect-in-Place

Sta 1+207 to 1+226 Lt
Install BW Fence at 27.0m Lt
See Dwg C8

Sta. 1+276 to Sta. 1+308 Lt. and
Sta. 1+374.92 to Sta. 1+422 Lt.
Install Rolled Erosion Control Product Type IV on Embankment Fill Slope
See Dwg E2 & G6

Sta. 1+278.958 to Sta. 1+307.533 Lt.
Install 28.575 m of Guardrail Including
1 Guardrail Transition and
1 End Treatment Type ET-Plus
See Dwg C1-C4

Sta. 1+372.467 to Sta. 1+416.782 Lt.
Install 43.815 m of Guardrail Including
1 Guardrail Transition and
1 End Treatment Type ET-Plus
See Dwg C1-C4

Sta. 1+307.310 & Sta. 1+374.357 Rt. & Lt.
Install Type 3 Object Markers
See Dwg T3

Sta. 1+230 to 2+891 Lt.
Obliterate Existing Road & Turnout.

See Dwg B9 & B10 For Grading & Riprap Details At Chinle Wash.

Sta. 1+392 Lt.
Install Type I Gate
See Dwg C8

Sta. 0+726 to 0+913 Lt.
Obliterate Existing Road & Turnout.

Sta. 0+862 to 0+868 Rt.
Obliterate Existing Turnout.

Sta. 0+891 to 0+898 Rt.
Obliterate Existing Turnout.

Sta. 0+891 Rt.
Install R1-1 Sign

Sta. 1+033, 10 m Lt.
Remove and Salvage 610mm CMP Culvert

Sta. 1+073 to 1+086 Rt.
Obliterate Existing Turnout.

Sensitive Site
Sta. 0+820 to +0+950, Rt. & Sta 0+820 to 0+960, Lt. The Contractor shall install temporary safety fence prior to any construction at ROW line (Item 61901-3400) Installation of fencing monitored by NDOT.

Sensitive Site
Sta. 1+230 to +1+280, Rt. The Contractor shall install temporary safety fence at ROW line prior to any construction under (Item 61901-3400) Installation of fencing to be monitored by NDOT.

Sta. 0+868
Water Line Crossing @ 106° Skew
Relocate & Encase
See Dwgs G6 & U1

Sta. 0+906
Power Line Crossing @ 106° Skew
EL. = 1636.3

Sta. 0+904 Rt.
Power Pole to be Relocated by NTUA

Sta. 1+084 to Sta. 1+223 Rt.
Remove 144 m Existing Wood Fence Posts.

Sta. 0+883.000 Rt.
Construct 4.5m x 19.0m Turnout
@ 90° Skew w/9.0m Radius
Install 4800mm Cattle Guard w/Type I Gate
See Dwg G3, C5 & C6

Sta. 1+263.718 to Sta. 1+307.533 Rt.
Install 43.815 m of Guardrail Including
1 Guardrail Transition and
1 End Treatment Type ET-Plus
See Dwg C1-C4

Sta. 1+259 to Sta. 1+305.58 Rt. and
Sta. 1+374.92 to Sta. 1+433 Rt.
Install Rolled Erosion Control Product Type IV on Embankment Fill Slopes
See Dwg E2 & G6

Sta. 1+026 Rt.
Construct Ditch
See Dwg D3

Sta. 1+290 Rt.
Install Type I Gate
See Dwg C8

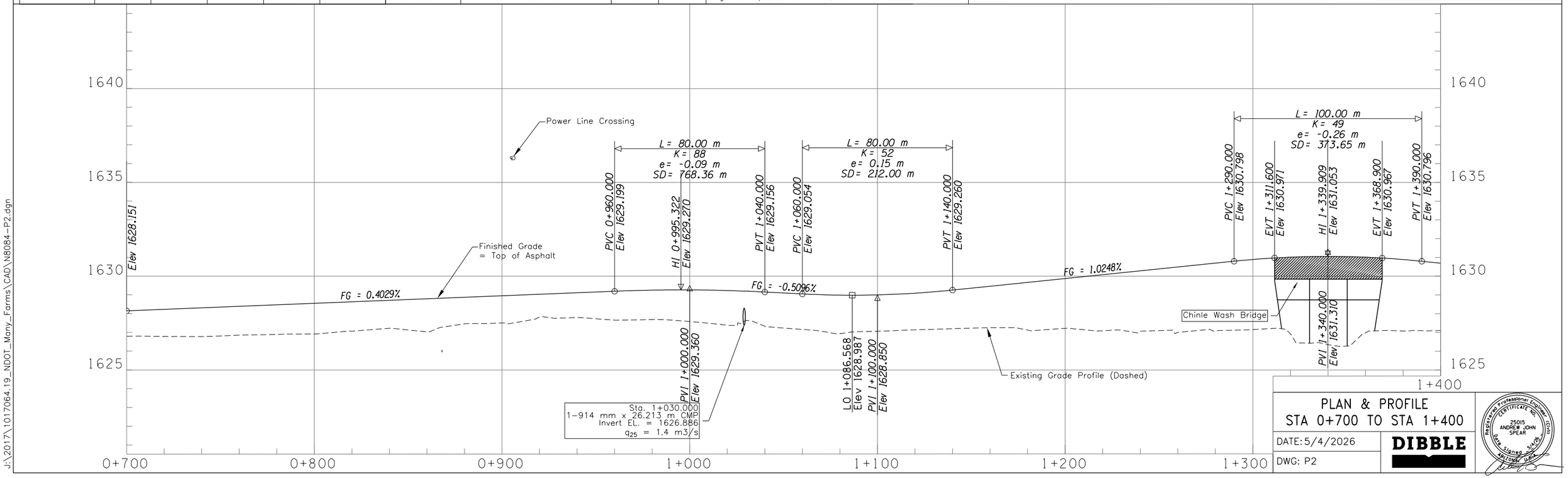
Sta. 1+117 to Sta. 1+296 Rt.
Install Riprap Toe of Slope Protection
See Dwg D3

Sta. 1+372.967 to Sta. 1+428.212 Rt.
Install 55.245 m of Guardrail Including
1 Guardrail Transition and
1 End Treatment Type ET-Plus
See Dwg C1-C4

SCALE
10 0 10 20 30 40 50
(METRIC)

MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	9	2	4	8

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
0+720.000 Lt.	1-610 mm x 18.288 m CMP	0°	0.4	End Section at Inlet & Outlet
0+883.000 Rt.	1-610 mm x 19.506 m CMP	0°	0.1	End Section at Inlet & Outlet
1+030.000	1-914 mm x 26.213 m CMP	113°	9.5	Irrigation Pipe, Smooth Wall, Concrete Headwalls Lt & Rt



PLAN & PROFILE
STA 0+700 TO STA 1+400

DATE: 5/4/2026

DWG: P2

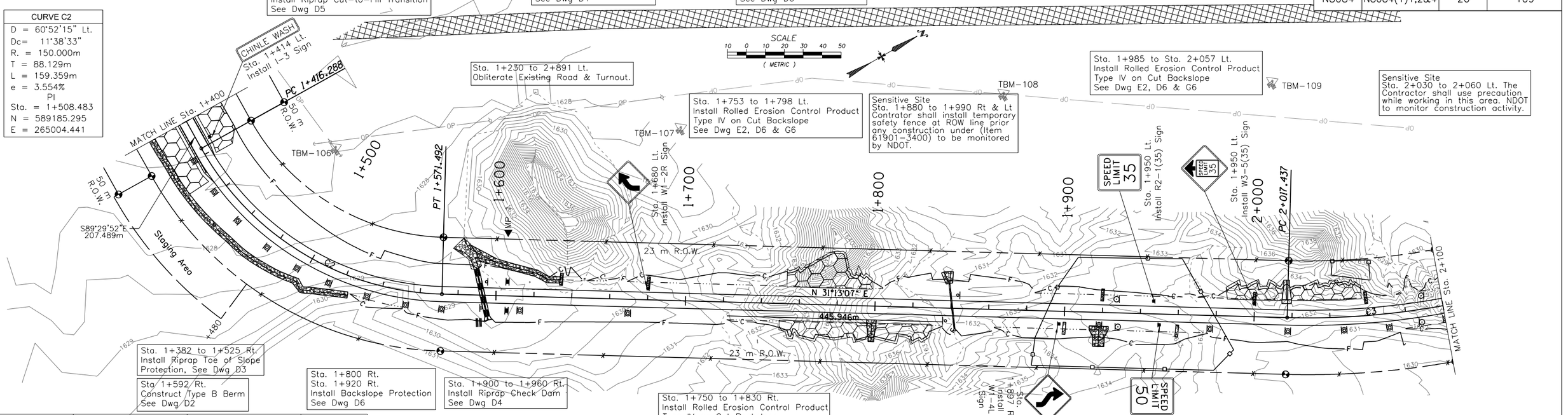
DIBBLE

Registered Professional Engineer, State of Arizona, CERTIFICATE NO. 25015, ANDREW JOHN SPEAR, Date Signed 5/4/26

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	20	109

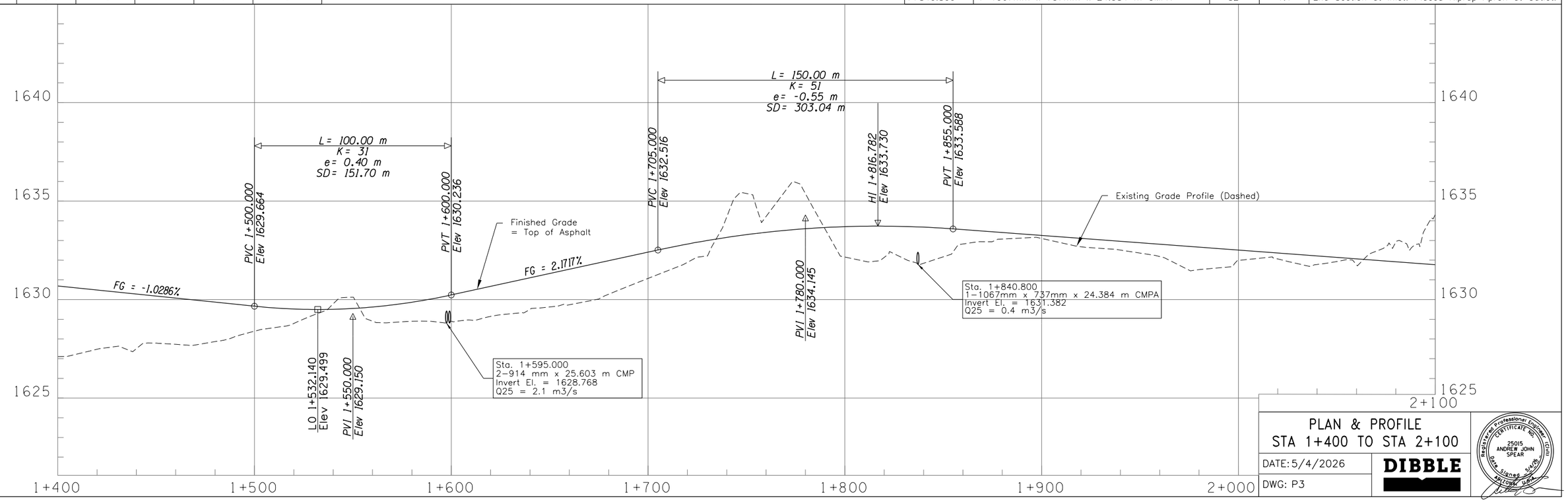
CURVE C2
D = 60°52'15" Lt.
Dc= 11°38'33"
R. = 150.000m
T = 88.129m
L = 159.359m
e = 3.554%
PI
Sta. = 1+508.483
N = 589185.295
E = 265004.441



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
2	0	18	4	0	8

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
1+595.000	2-914 mm x 25.603 m CMP	76°	9.8	End Section at Inlet. Placed Riprap Apron at Outlet.
1+840.800	1-1067mm x 737mm x 24.384 m CMPA	82°	1.1	End Section at Inlet. Placed Riprap Apron at Outlet.



PLAN & PROFILE
STA 1+400 TO STA 2+100

DATE: 5/4/2026

DWG: P3

DIBBLE

Registered Professional Engineer (Utah)
CERTIFICATE NO.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	21	109

CURVE C3
D = 35°00'58" Rt.
Dc= 4°21'57"
R. = 400.000m
T = 126.181m
L = 244.458m
e = 3.743%
PI
Sta. = 2+656.555
N = 590197.914
E = 265580.426

SCALE
10 0 10 20 30 40 50
(METRIC)

TBM-110

Sta. 2+200±, 130 m Lt.
Remove & Salvage 1-457 mm
CMP Culvert From Existing Road.
Grade to Drain Through Existing Rd.

Sta. 1+230 to 2+680 Lt.
Obliterate Existing Road & Turnout.

Sta. 2+563 & Sta. 2+566, 50 m Lt.
Remove & Salvage 1-762 mm & 1-914 mm
CMP Culvert From Existing Road.
Grade to Drain Through Existing Rd.

TBM-112

TBM-111

Sta. 2+392 Lt.
Install W1-4L
Sign

PT 2+101.116

MATCH LINE Sta. 2+100

N 19°13'58" E
89.897m

PC 2+191.013

PT 2+312.444

30 m R.O.W.

N 33°08'51" E
232.425m

Staging Area

+460

Sta. 2+160 to 2+320 Rt.
Install Riprap Check Dam
See Dwg D4

Sta. 2+464 Rt.
Install W1-2R Sign

PC 2+544.469

Sta. 2+340 to 2+358 Rt.
Install Riprap Cut-to-Fill Transition
See Dwg D5

Sta. 2+780 Lt.
Install Riprap Check Dam
See Dwg D4

Sta. 2+741 to 2+833 Lt.
Obliterate Existing Road

Sta. 2+560, 2+582,
2+610, 2+632 Lt.
Construct Ditch
See Dwg D3

Sta. 2+706.89 to
Sta. 2+794.22 Lt.
Construct Ditch
See Dwg D3

TBM-114

N64°38'51"E
868.359m

Sta. 2+760 Rt.
Install R1-2 Sign

PASS WITH CARE

PT 2+764.780

MATCH LINE Sta. 2+800

Sensitive Site
Sta. 2+240 to 2+280 Rt. Contractor shall install temporary safety fence at ROW line prior to any construction under (Item 61901-3400). Installation of fencing to be monitored by NDOT.

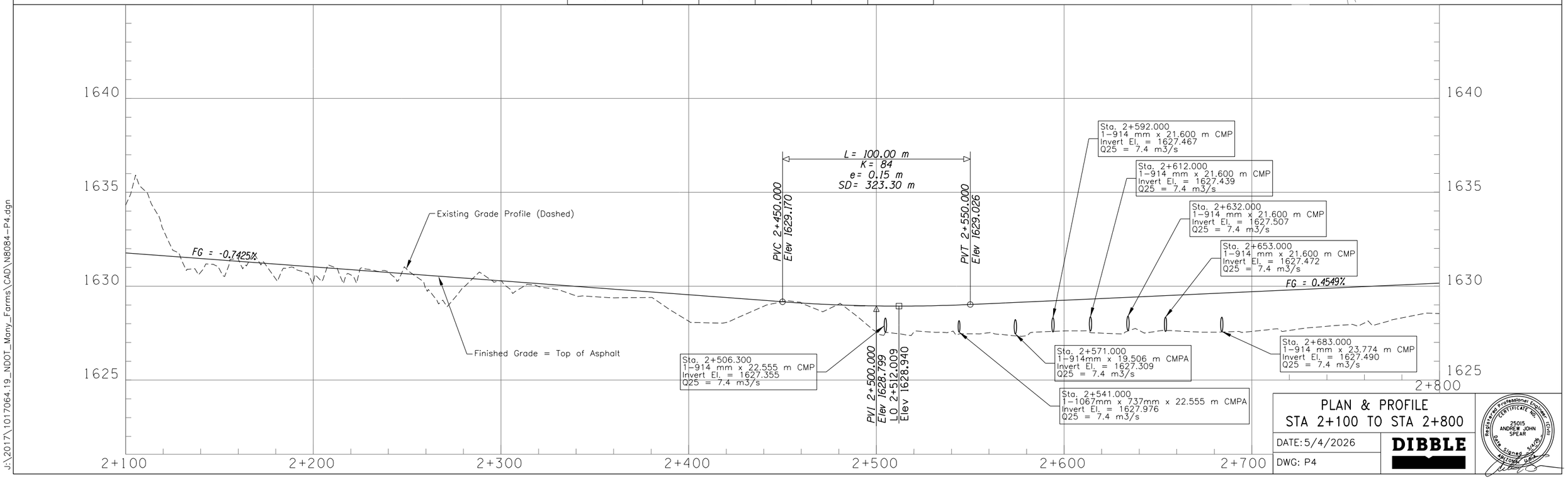
Sta. 2+156 Lt. to 2+266 Rt.
Install Rolled Erosion Control Product
Type IV on Cut Backslope
See Dwg E2, D6 & G6

MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	19	16	0	11

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
2+506.300	1-914 mm x 22.555 m CMP	143°	18.1	End Section at Inlet.
2+541.000	1-1067mm x 737mm x 22.555 m CMPA	90°	121.6	End Section at Inlet.
2+571.000	1-914 mm x 19.506 m CMP	90°	121.6	End Section at Inlet.
2+592.000	1-914 mm x 21.600 m CMP	90°	121.6	End Section at Inlet.
2+612.000	1-914 mm x 21.600 m CMP	90°	121.6	End Section at Inlet.
2+632.000	1-914 mm x 21.600 m CMP	90°	121.6	End Section at Inlet.
2+653.000	1-914 mm x 21.600 m CMP	90°	121.6	End Section at Inlet.
2+683.000	1-914 mm x 23.774 m CMP	90°	121.6	End Section at Inlet.

* All Structures Include Placed Riprap at Outlet.



PLAN & PROFILE
STA 2+100 TO STA 2+800

DATE: 5/4/2026
DWG: P4

DIBBLE

Registered Professional Engineer (QUE)
CERTIFICATE NO.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26
PROVINCE OF QUEBEC

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	22	109

Sta. 1+230 to 2+891 Lt.
Obliterate Existing Road.

Sta. 2+794.22 to 2+854.82 Lt.
Construct Wire Enclosed Riprap Lined Ditch
See Dwg D3 & D5

Sta. 2+900.000 Lt.
Construct 7.0 m x 26.0 m Turnout @ 90° Skew w/15.0 m Radius
Install 7200mm Cattle Guard w/Type I Gate
See Dwg G3, C5 & C6

SCALE
10 0 10 20 30 40 50
(METRIC)

Sta. 2+859.4 Lt.
Sta. 3+160.000 Lt
Construct Type B Berm
See Dwg D2

Sta. 3+232 to 3+480 Lt.
Install Riprap Check Dam
See Dwg D4

Sta. 3+229 to 3+420 Lt. and
Sta. 3+440 to 3+500 Lt.
Install Rolled Erosion Control Product Type IV on Cut Backslope
See Dwg E2, D6 & G6

Sta. 3+174 to 3+196 Lt.
Install Wire Enclosed Riprap Cut-to-Fill Transition
See Dwg D5

Sta. 3+196 to 3+232 Lt.
Install Wire Enclosed Riprap Lined Ditch
See Dwg D5

Sta. 3+397 & 3+449 Lt.
Remove & Salvage Signs from Existing Road.

TBM-119

Sta. 3+451 to 3+659 Lt.
Obliterate Existing Road.

See Dwg P10 For N8086 Plan & Profile Information

Sta. 2+837 Lt.
Install W1-2R Sign

DO NOT PASS

Sta. 2+870 Lt.
Install R4-1 Sign

STOP

Sta. 2+892 Lt.
Install R1-1 Sign

Sta. 2+911 to 3+409 Lt.
Obliterate Existing Road.

2+900

3+000

3+100

Sta. 3+120 Lt.
Install W14-3 Sign

NO PASSING ZONE

Sta. 3+165 Lt.
Construct Ditch
See Dwg D2

TBM-116

TBM-117

SPEED LIMIT 50

Sta. 3+240 Lt.
Install R2-1(50) Sign

PASS WITH CARE

Sta. 3+270 Lt.
Install R4-2 Sign

8084

Sta. 3+300 Lt.
Install Route No Sign

3+200

3+300

3+400

N8086

TBM-118

Construction Zone

45 m R.O.W.

30 m R.O.W.

MP 12

TBM-115

MATCH LINE Sta. 2+800

MATCH LINE Sta. 3+500

N64°38'51" E
881.728m

N8084

Sta. 2+861.2 Rt
Construct Berm
See Dwg D2

EQUATION
STA 2+853.318 Back =
STA 2+850.000 Ahead

NO PASSING ZONE

Sta. 2+870 Rt.
Install W14-3 Sign

Future IHS Waterline

Sta. 3+265 to 3+480 Rt.
Install Riprap Check Dam
See Dwg D4

Sta. 3+253 to 3+265 Rt.
Install Riprap Lined Ditch
See Dwg D5

Sta. 3+236 to 3+257 Rt.
Install Wire Enclosed Riprap Cut-to-Fill Transition
See Dwg D5

Sta. 3+120 Rt.
Install R4-1 Sign

DO NOT PASS

Sta. 3+250 Rt.
Install W2-1 Sign

Sta. 3+300 Rt.
Install M2-1 & Rte. No. Signs

8086

JCT

Sta. 3+267 to 3+420 Rt. and
Sta. 3+440 to 3+500 Rt.
Install Rolled Erosion Control Product Type IV on Cut Backslope
See Dwg E2, D6 & G6

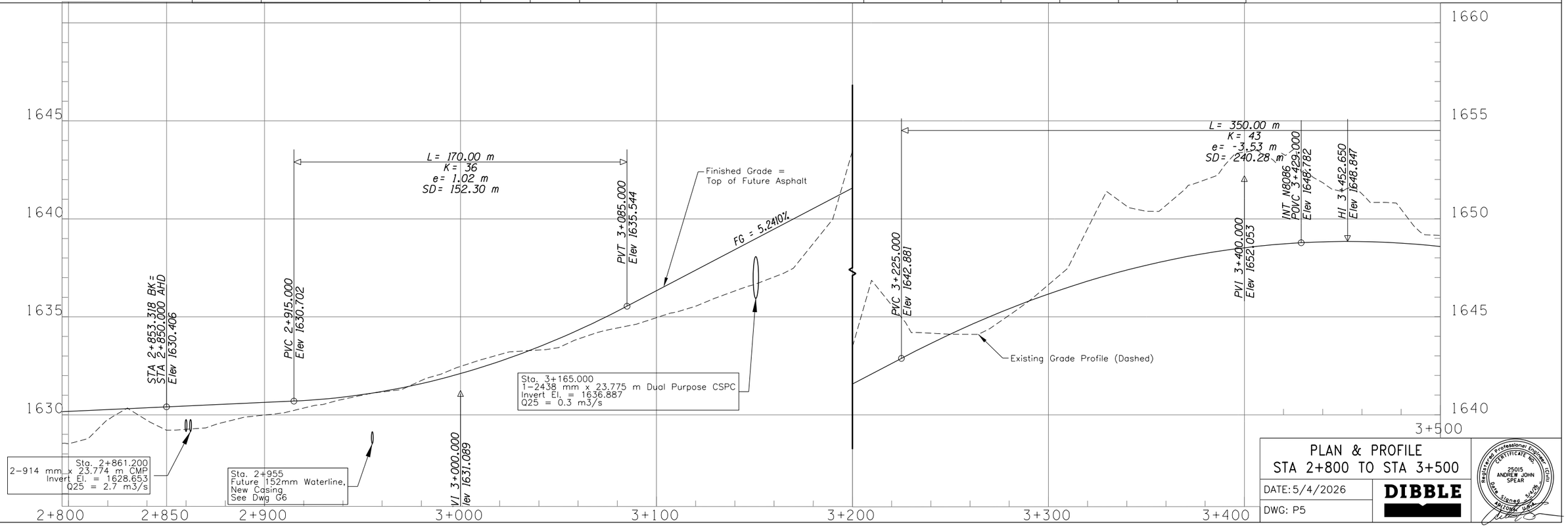
Sta. 3+429.000 N8084 =
Sta. 8+000.000 N8086

Sta. 2+955
Install 305mm x 18.288m Steel WL Casing
See Dwg G6 Utility Table

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
2+861.200	2-914 mm x 27.432 m CMP	45°	15.1	End Section at Inlet.
2+900.000 Lt.	1-610 mm x 18.288 m CMP	0°	0.7	End Section at Inlet & Outlet.
3+165.000	1-2438 mm x 23.775 m Dual Purpose CMP	90°	1.6	Concrete Slope Blanket at Inlet & Outlet.

MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
2	6	5	2	4	7



PLAN & PROFILE
STA 2+800 TO STA 3+500

DATE: 5/4/2026

DWG: P5

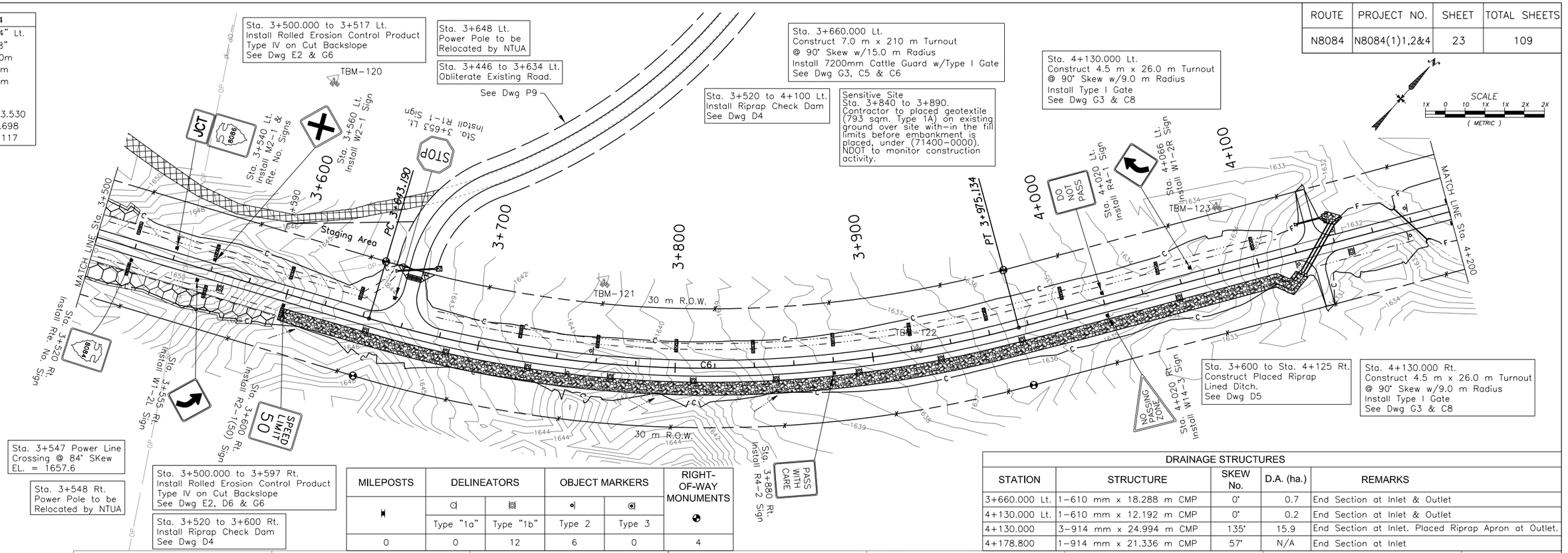
DIBBLE

Registered Professional Engineer - Civil
CERTIFICATE NO.
25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA, U.S.A.

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CURVE C4
D = 31°41'54" Lt.
Dc= 2°54'38"
R. = 600.000m
T = 170.340m
L = 331.945m
e = 3.194%
PI
Sta. = 3+813.530
N = 590696.698
E = 266633.117

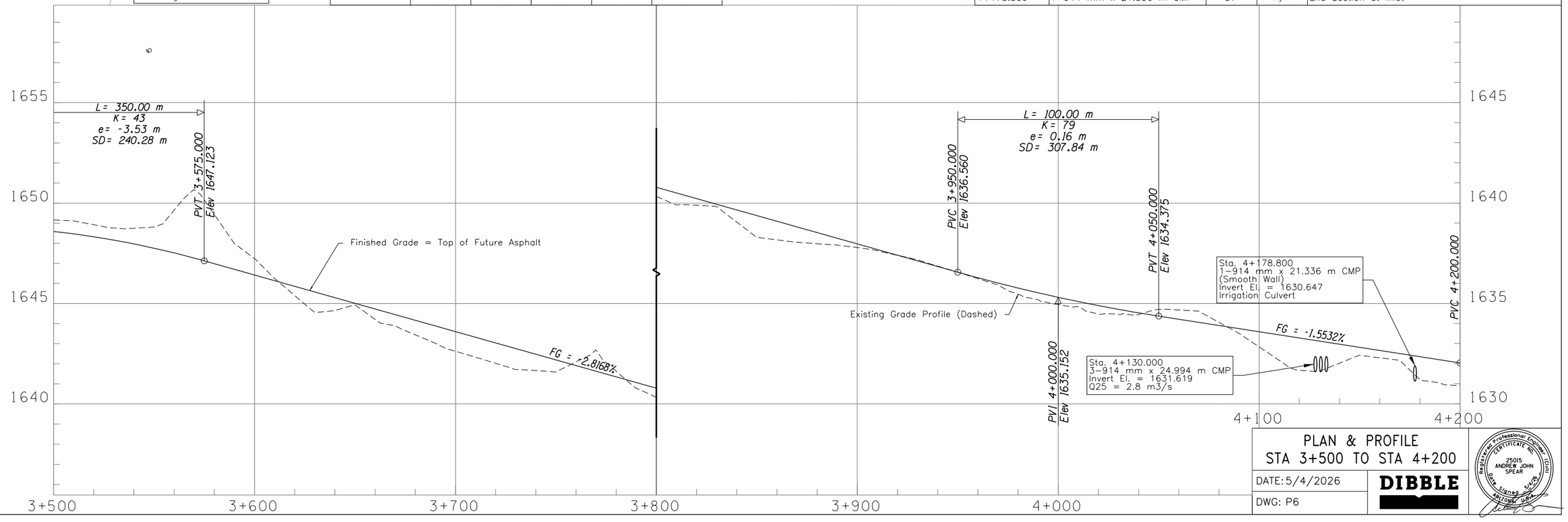
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	23	109



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	12	6	0	4

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
3+660.000 Lt.	1-610 mm x 18.288 m CMP	0°	0.7	End Section at Inlet & Outlet
4+130.000 Lt.	1-610 mm x 12.192 m CMP	0°	0.2	End Section at Inlet & Outlet
4+130.000	3-914 mm x 24.994 m CMP	135°	15.9	End Section at Inlet. Placed Riprap Apron at Outlet.
4+178.800	1-914 mm x 21.336 m CMP	57°	N/A	End Section at Inlet



PLAN & PROFILE
STA 3+500 TO STA 4+200

DATE: 5/4/2026

DWG: P6

DIBBLE

Registered Professional Engineer
CERTIFICATE NO.
25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
NEBRASKA U.S.A.

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CURVE C5
D = 17°50'36" Lt.
Dc= 4°21'57"
R. = 400.000m
T = 62.793m
L = 124.570m
e = 3.743%
PI
Sta. = 4+709.588
N = 591455.958
E = 267125.228

Sensitive Site
Sta. 4+210 to +4340 Rt. & Sta. 4+180 to 4+320 Lt. The Contractor shall place geotextile (3012 sqm. Type 1A) on existing ground to the fill limits prior to placing embankment under bid item (71400-0000) and install temporary safety fence at the ROW line prior to any construction under (Item 61901-3400). NDOT to monitor construction activity.

Sta. 4+308.438 to Sta. 4+344.633 Lt.
Install 36.195 m of Guardrail Including 1 Guardrail Transition and 1 End Treatment Type ET-Plus
See Dwg C1-C4

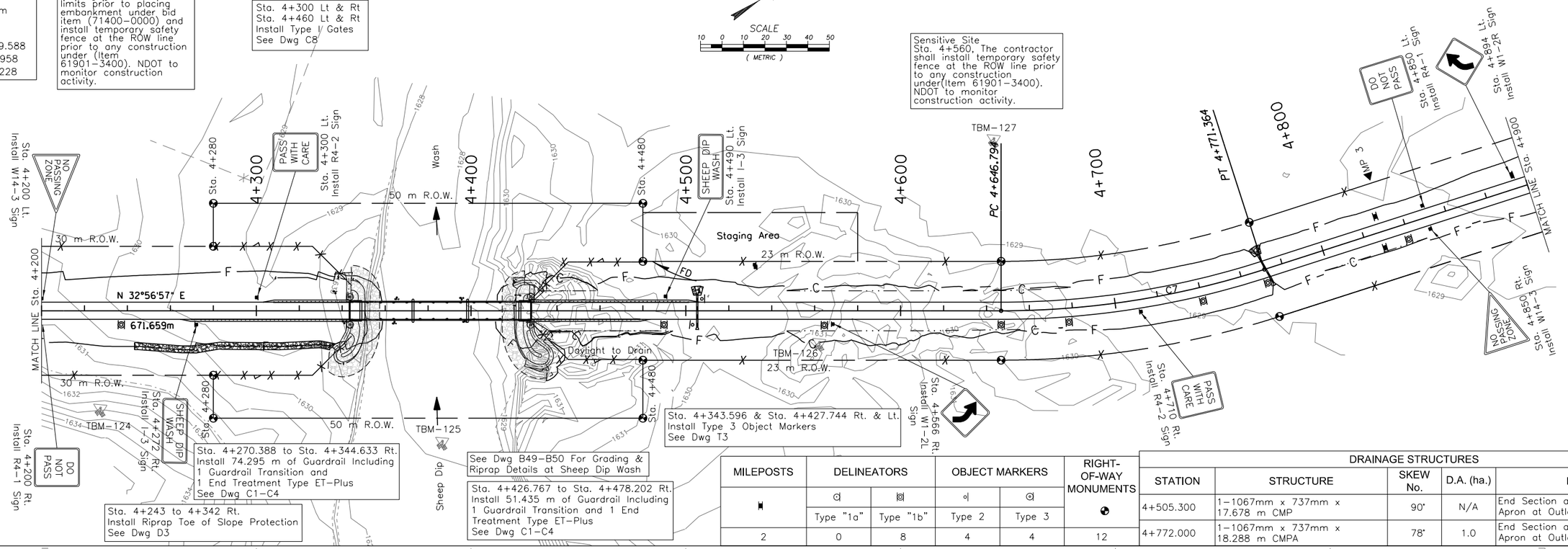
Sta. 4+426.767 to Sta. 4+501.062 Lt.
Install 74.295 m of Guardrail Including 1 Guardrail Transition and 1 End Treatment Type ET-Plus
See Dwg C1-C4

Sta. 4+300 Lt & Rt
Sta. 4+460 Lt & Rt
Install Type I Gates
See Dwg C8

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	24	109

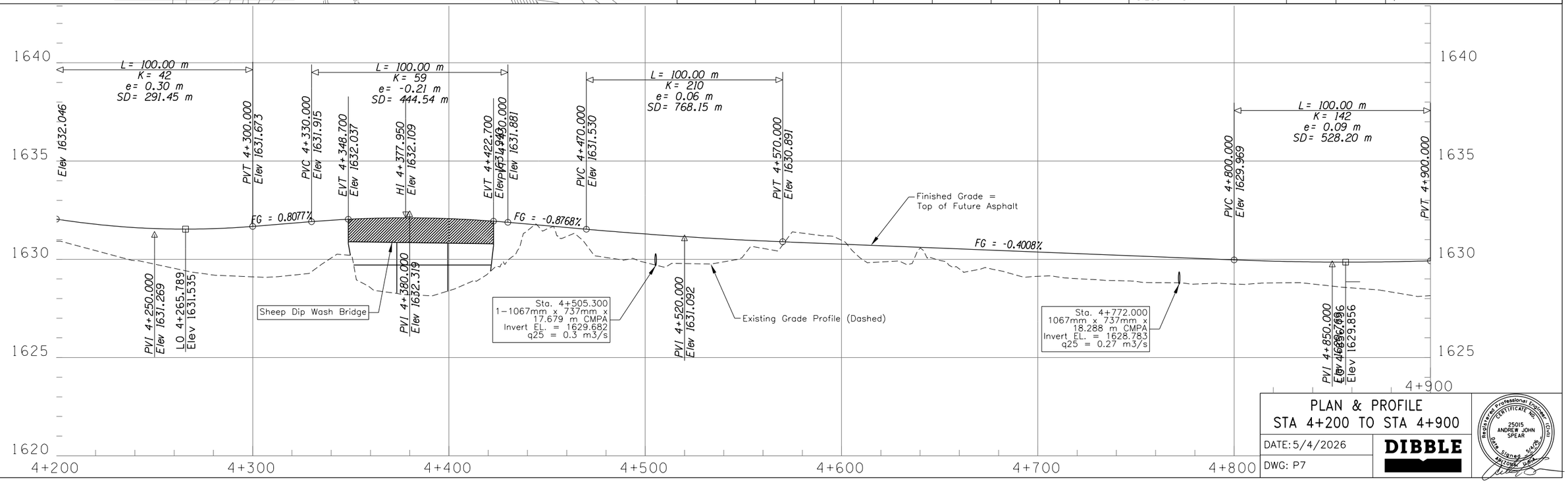
SCALE
10 0 10 20 30 40 50
(METRIC)

Sensitive Site
Sta. 4+560, The contractor shall install temporary safety fence at the ROW line prior to any construction under(Item 61901-3400). NDOT to monitor construction activity.



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
2	0	8	4	4	12

DRAINAGE STRUCTURES				
STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
4+505.300	1-1067mm x 737mm x 17.678 m CMP	90°	N/A	End Section at Inlet. Placed Riprap Apron at Outlet.
4+772.000	1-1067mm x 737mm x 18.288 m CMPA	78°	1.0	End Section at Inlet. Placed Riprap Apron at Outlet.



PLAN & PROFILE
STA 4+200 TO STA 4+900

DATE: 5/4/2026

DWG: P7

DIBBLE

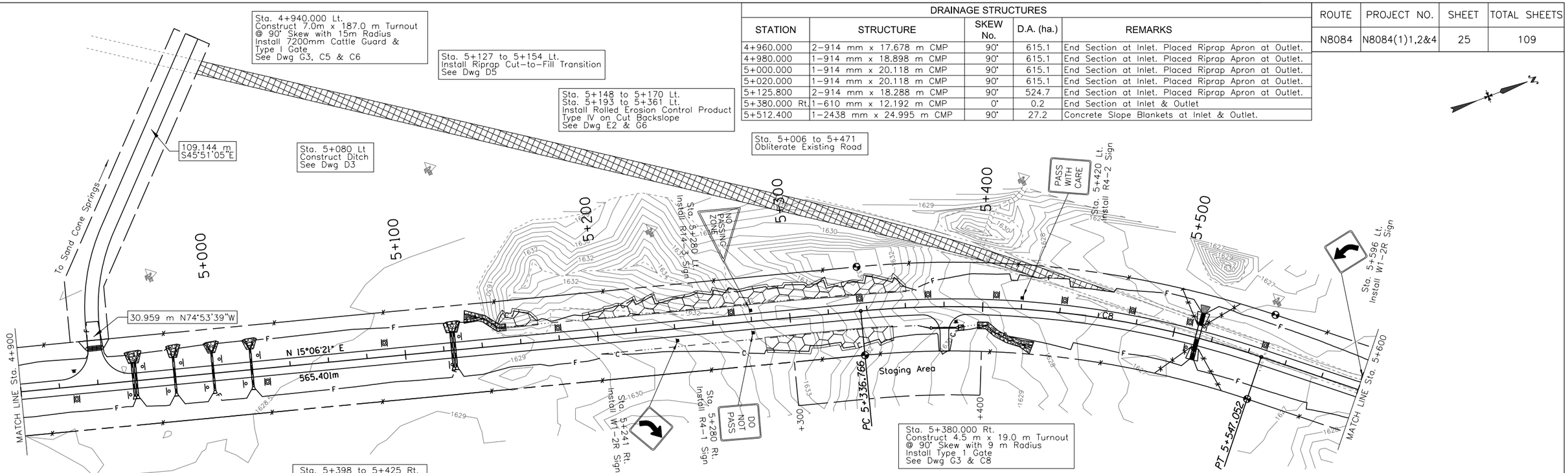
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State Signed 5/4/26 Arizona U.S.A.

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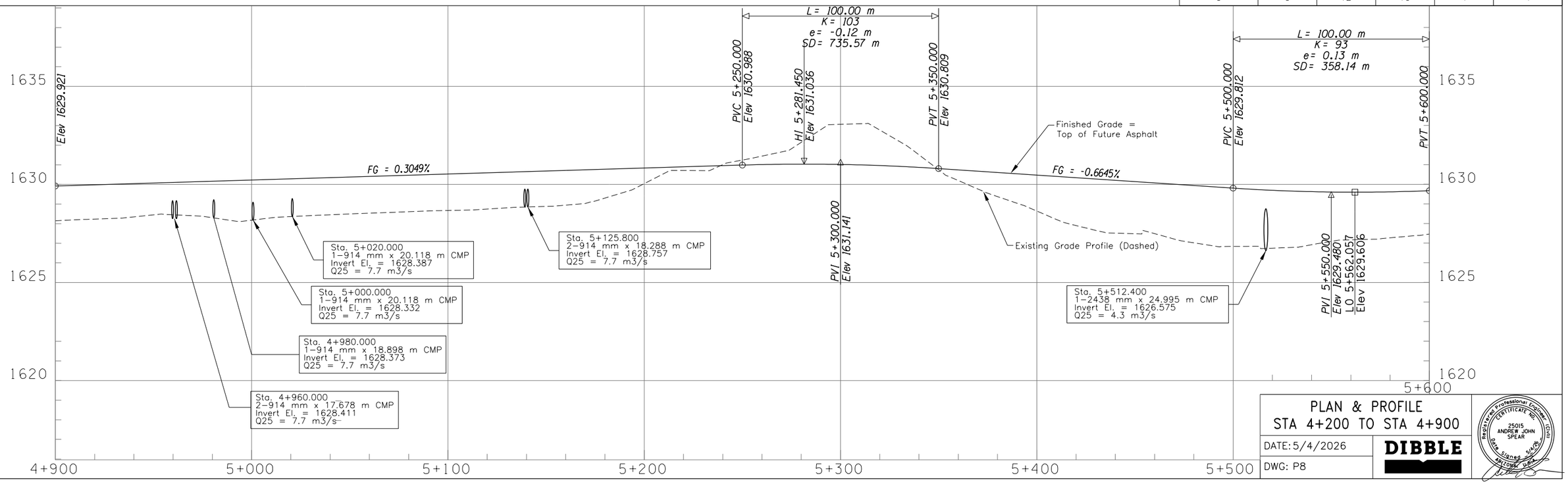
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	25	109

DRAINAGE STRUCTURES

STATION	STRUCTURE	SKEW No.	D.A. (ha.)	REMARKS
4+960.000	2-914 mm x 17.678 m CMP	90°	615.1	End Section at Inlet. Placed Riprap Apron at Outlet.
4+980.000	1-914 mm x 18.898 m CMP	90°	615.1	End Section at Inlet. Placed Riprap Apron at Outlet.
5+000.000	1-914 mm x 20.118 m CMP	90°	615.1	End Section at Inlet. Placed Riprap Apron at Outlet.
5+020.000	1-914 mm x 20.118 m CMP	90°	615.1	End Section at Inlet. Placed Riprap Apron at Outlet.
5+125.800	2-914 mm x 18.288 m CMP	90°	524.7	End Section at Inlet. Placed Riprap Apron at Outlet.
5+380.000 Rt.	1-610 mm x 12.192 m CMP	0°	0.2	End Section at Inlet & Outlet
5+512.400	1-2438 mm x 24.995 m CMP	90°	27.2	Concrete Slope Blankets at Inlet & Outlet.



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	12	10	4	4



PLAN & PROFILE
STA 4+200 TO STA 4+900

DATE: 5/4/2026

DWG: P8

DIBBLE

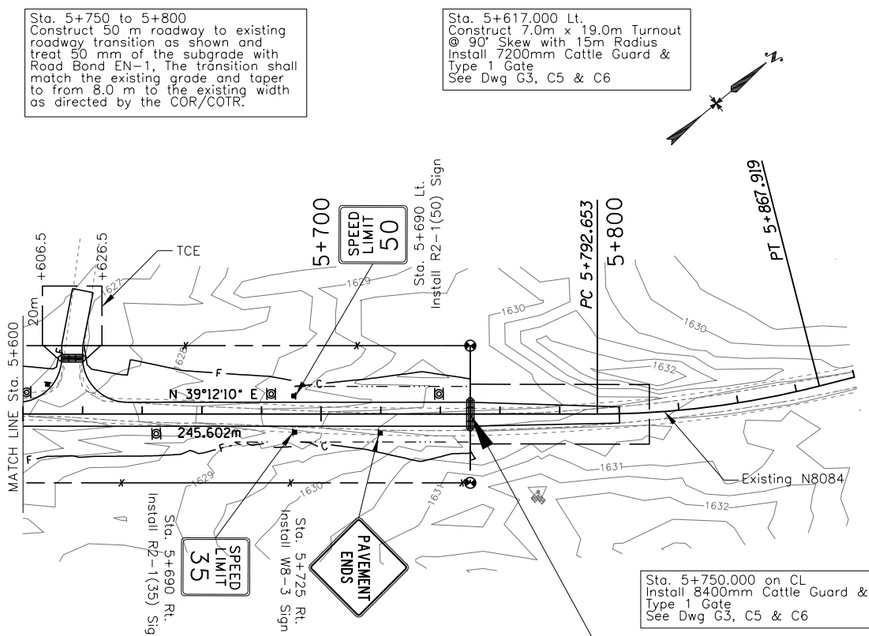
Registered Professional Engineer (Utah)
CERTIFICATE No.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	26	109

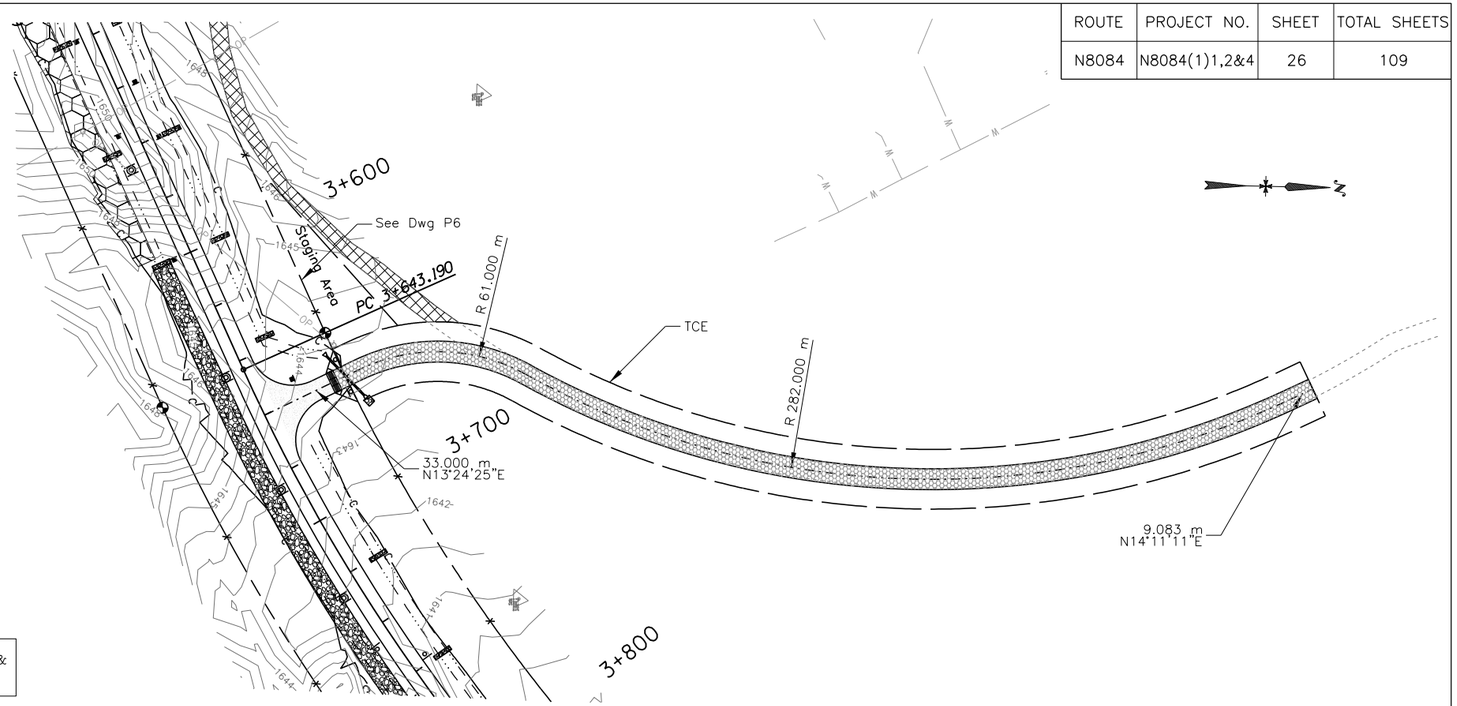
Sta. 5+750 to 5+800
Construct 50 m roadway to existing roadway transition as shown and treat 50 mm of the subgrade with Road Bond EN-1. The transition shall match the existing grade and taper to from 8.0 m to the existing width as directed by the COR/COTR.

Sta. 5+617.000 Lt.
Construct 7.0m x 19.0m Turnout @ 90° Skew with 15m Radius
Install 7200mm Cattle Guard & Type 1 Gate
See Dwg G3, C5 & C6

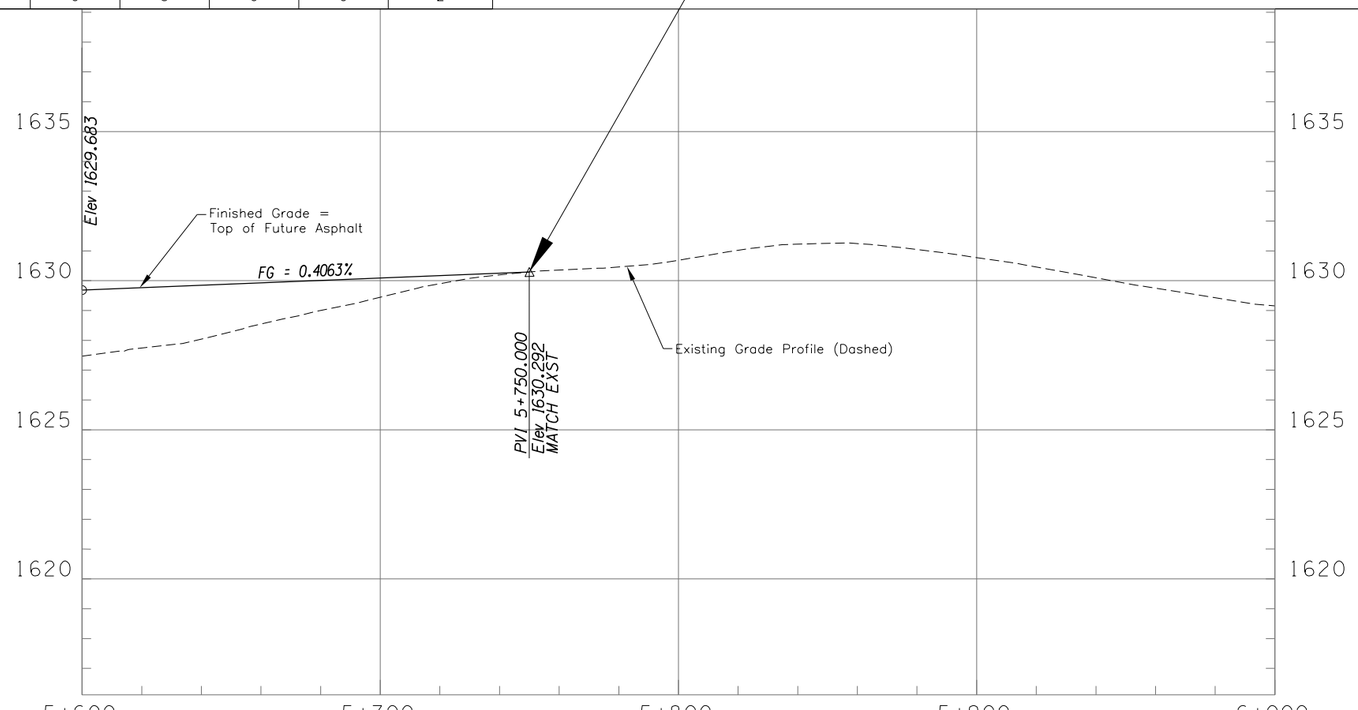


Sta. 5+750.000 on CL
Install 8400mm Cattle Guard & Type 1 Gate
See Dwg G3, C5 & C6

PROJECT: N8084(1)
EOP Sta. 5+750.00
Elev. 1630.292



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	3	0	0	2



PLAN & PROFILE
STA 4+200 TO STA 4+900

DATE: 5/4/2026

DWG: P9

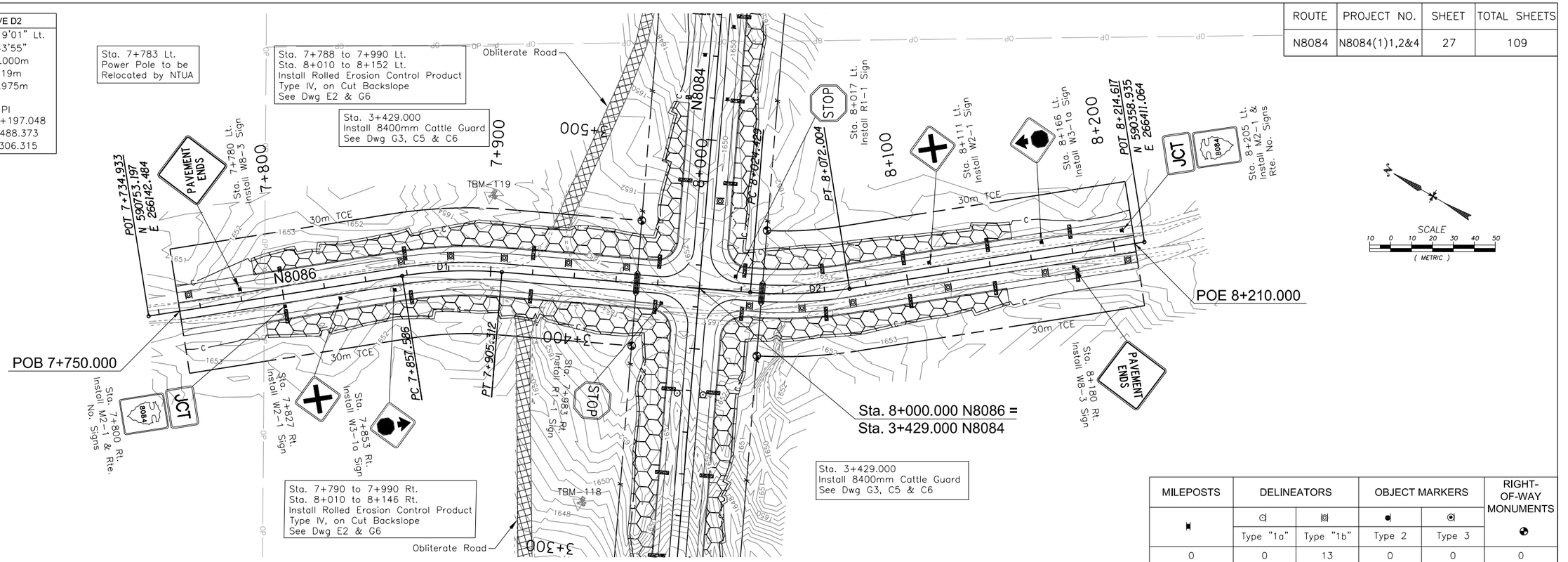
DIBBLE

Registered Professional Engineer
CERTIFICATE NO. 25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
NEBRASKA U.S.A.

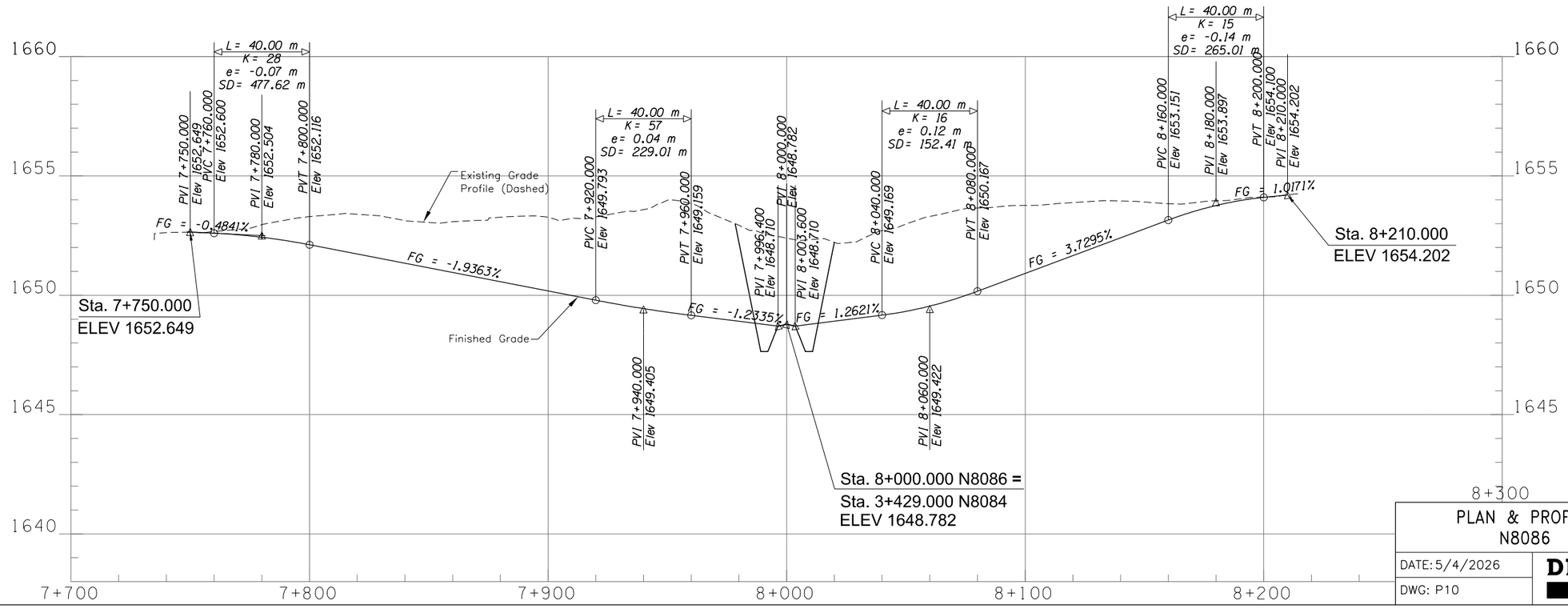
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CURVE D1	CURVE D2
D = 11°53'20" Rt.	D = 14°19'01" Lt.
Dc= 8°43'55"	Dc= 8°43'55"
R = 200.000m	R = 200.000m
T = 20.825m	T = 25.119m
L = 41.500m	L = 49.975m
e = N/A	e = N/A
PI	PI
Sta. = 0+030.203	Sta. = 0+197.048
N = 590639.284	N = 590488.373
E = 266234.811	E = 266306.315

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	27	109



MILEPOSTS	DELINEATORS		OBJECT MARKERS		RIGHT-OF-WAY MONUMENTS
	Type "1a"	Type "1b"	Type 2	Type 3	
0	0	13	0	0	0



PLAN & PROFILE
N8086

DATE: 5/4/2026

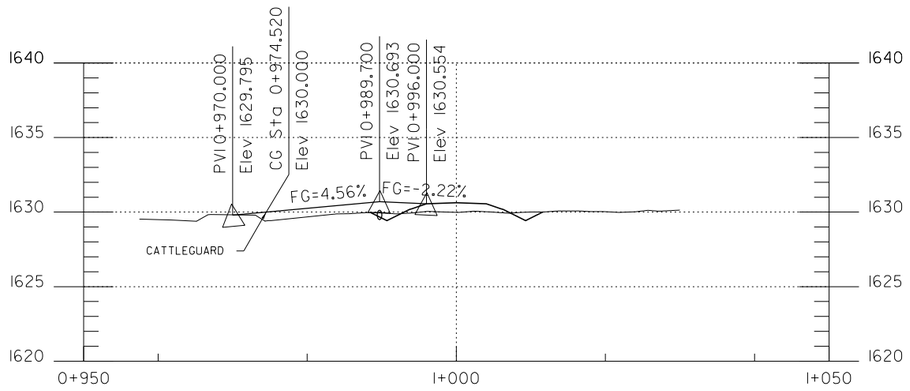
DWG: P10

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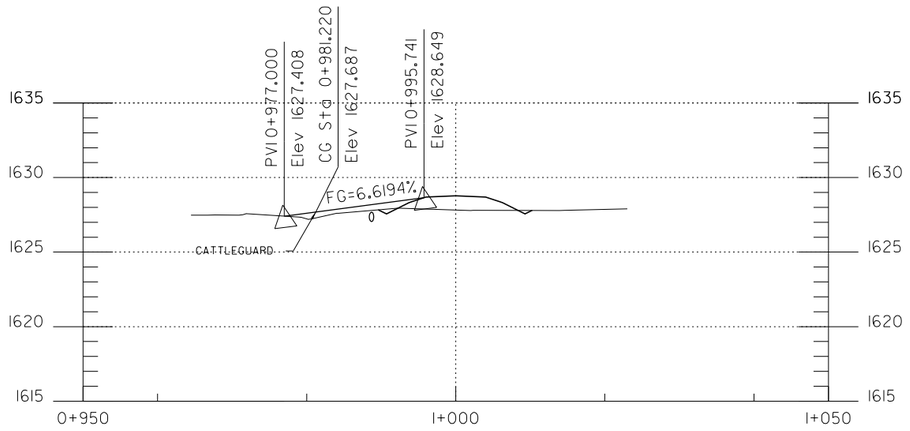
Registered Professional Engineer (Utah)
CERTIFICATE NO.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26

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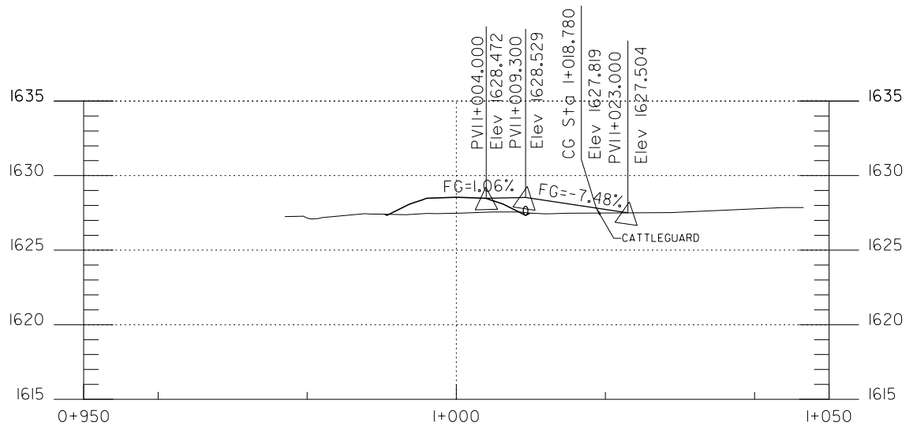
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	28	109



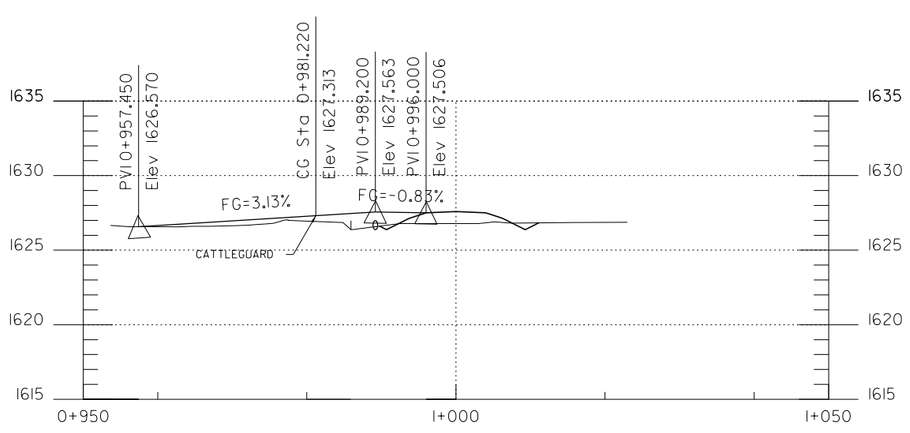
Sta. 2+900LT



Sta. 0+920 LT



Sta. 0+883 RT



Sta. 0+720 LT

TURNOUT PROFILES

DATE: 5/4/2026

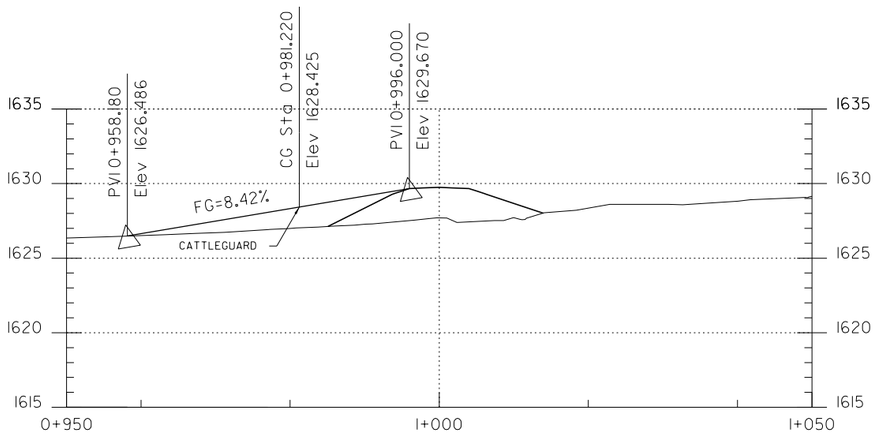
DWG: P11

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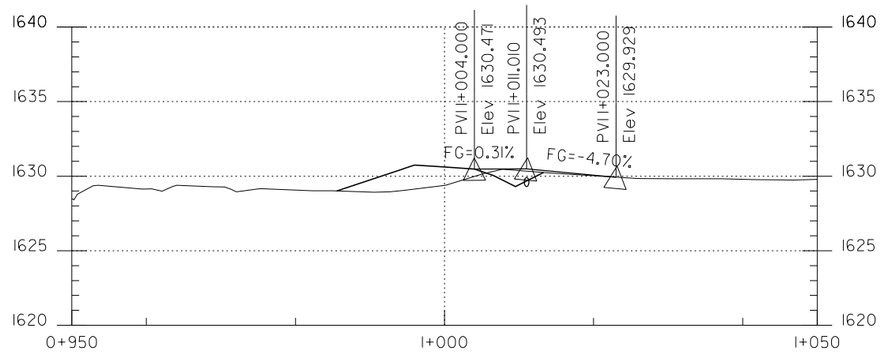
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR 5/4/26 NEBRASKA U.S.A.

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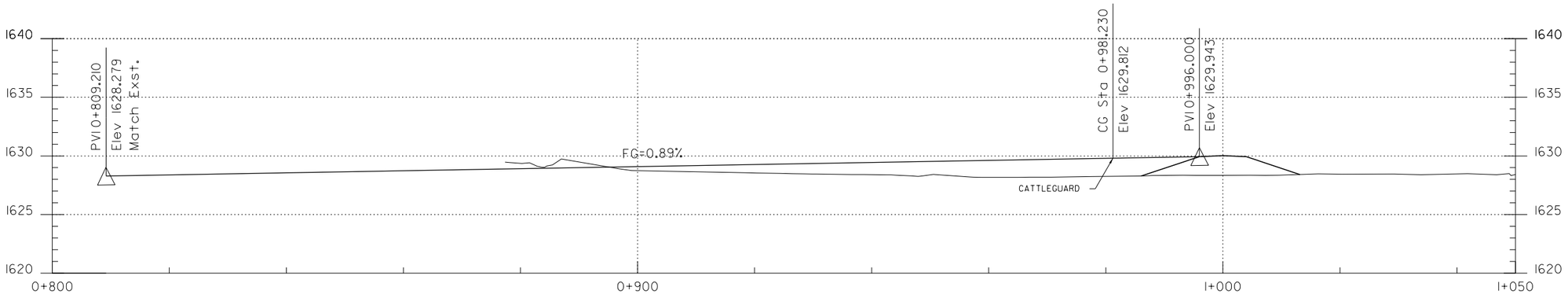
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	29	109



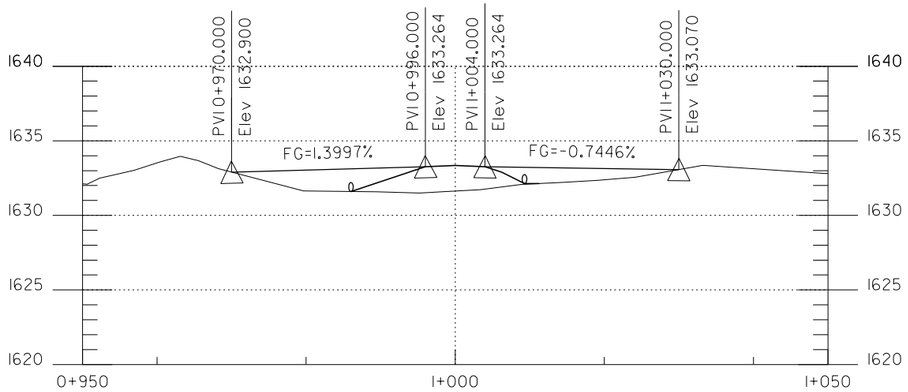
Sta. 5+617 LT



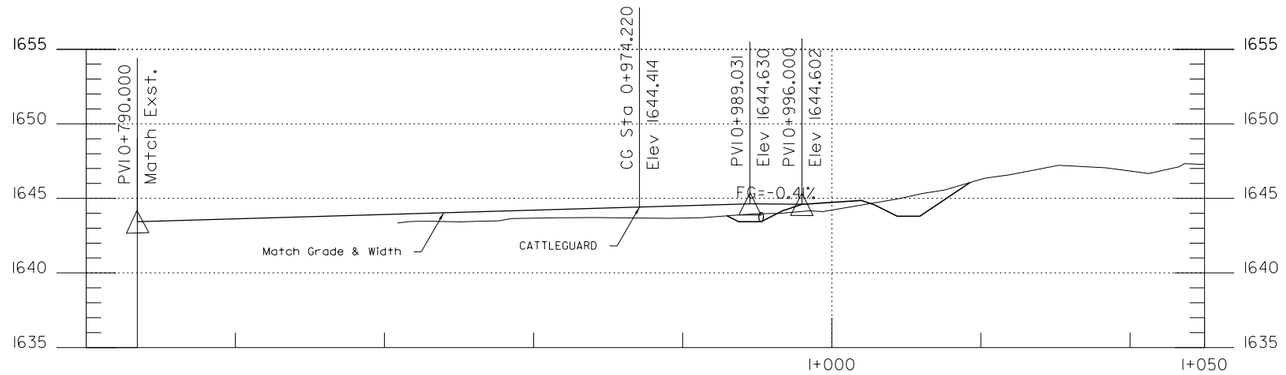
Sta. 5+380 LT



Sta. 4+940 LT



Sta. 4+130 LT



Sta. 3+660 LT

TURNOUT PROFILES

DATE: 5/4/2026

DWG: P12

DIBBLE

Registered Professional Engineer (Utah) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 DO NOT COPY THIS DOCUMENT

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	30	109

ESTIMATED DRAINAGE STRUCTURE

				60201-0800	60201-1000	60201-2000	60202-0600	60210-0800	60210-1000	60210-1030	60211-1000		60103-0185	60225-1740	
STATION	DA (ha)	STRUCTURE DESCRIPTION	SKEW NO	610 mm CMP-2.77 mm Thickness 68 mm x 13 mm Corrugation	914 mm CMP-2.77 mm Thickness 68 mm x 13 mm Corrugation	2438 mm CMP-3.50 mm Thickness 127 mm x 25 mm Corrugation	1067 mm Span x 767 mm Rise CMPA	End Section for 610 mm CMP*, Type 1 1.6 mm Thickness	End Section for 914 mm CMP*, Type 2 2.0 mm Thickness	End Section for Triple 914mm CMP, Type 2 2.7 mm Thickness	End Section for 1067 mm x 767 mm CMPA mm CSPA*, Type 2, 1.6 mm Thickness	Concrete Slope Blanket	Concrete, Headwall for 914 mm Pipe Culvert. MAG Det 501-4	3048 mm Span, 1524 mm Rise Reinforces Concrete Box Culvert, Four Barrel	X1 Length (meters)
				m	m	m	m	EA	EA	EA	EA	EA	EA	m	m
0+133.700	1499.9	2-914 mm x 20.726 m CMP	104		41.452				2						2.363
0+447.000	12961.5	4-3048 mm x 1524 mm x 16.153 m CBC	90											16.153	
0+504.000	6.9	1-914 mm x 15.851 m CMP (Smooth Wall)	80		15.851								2		
0+683.000	1.6	1-1067 mm x 737 mm x 18.288 m CMPA	90				18.288				1				
0+720.000 Lt.	0.4	1-610 mm x 18.288 m CMP, 10.8 m Lt.	0	18.288				2							
0+883.000 Rt.	0.1	1-610 mm x 19.506 m CMP, 9.3 m Rt.	0	19.506				2							
1+030.000	9.5	1-914 mm x 26.213 m CMP, Smooth Wall	113		26.213								2		
1+595.000	9.8	2-914 mm x 25.603 m CMP	76		51.206				2						2.363
1+840.800	1.1	1-1067 mm x 737 mm x 24.384 m CMPA	82				24.384				1				
2+506.300	18.1	1-914 mm x 22.555 m CMP	143		22.555				1						
2+541.000	121.6	1-1067 mm x 737 mm x 22.555 m CMPA	90				22.555				1				
2+571.000		1-914 mm x 19.506 m CMP	90		19.506				1						
2+592.000		1-914 mm x 21.600 m CMP	90		21.6				1						
2+612.000	22.5	1-914 mm x 21.600 m CMP	90		21.6				1						
2+632.000		1-914 mm x 21.600 m CMP	90		21.6				1						
2+653.000		1-914 mm x 21.600 m CMP	90		21.6				1						
2+683.000		1-914 mm x 23.774 m CMP	90		23.774				1						
2+861.200	15.1	2-914 mm x 27.432 m CMP	45		54.864				2						2.363
2+900.000 Lt.	0.7	1-610 mm x 18.288 m CMP, 10.3 m Lt.	0	18.288				2							
3+165.000	1.6	1-2438 mm x 23.775 m Dual Purpose CSPC	90			23.775						2			
3+660.000 Lt.	0.7	1-610 mm x 18.288 m CMP, 30.0 m Lt.	0	18.288				2							
4+130.000 Lt.	0.2	1-610 mm x 12.192 m CMP, 14.0 m Lt.	0	12.129				2							
4+130.000	26.6	3-914 mm x 24.994 m CMP	135		74.982					1					1.651
4+178.800	-	1-914 mm x 21.336 m CMP (Smooth Wall)	58		21.336								2		
4+505.300	2.2	1-1067 mm x 737 mm x 17.678 m CMPA	90				17.679				1				
4+772.000	1.0	1-1067 mm x 737 mm x 18.288 m CMPA	78				18.288				1				
4+960.000	615.1	2-914 mm x 17.678 m CMP	90		35.356				2						2363
4+980.000		1-914 mm x 18.898 m CMP	90		18.898				1						
5+000.000		1-914 mm x 20.118 m CMP	90		20.118				1						
5+020.000		1-914 mm x 20.118 m CMP	90		20.118				1						
5+125.800	524.7	2-914 mm x 18.288 m CMP	90		36.576				2						2.363
5+380.000 Rt.	0.2	1-610 mm x 12.192 m CMP, 11.0 m Rt.	0	12.192				2							
5+512.400	27.2	1-2438 mm x 24.995 m Dual Purpose CMP	90			24.995						2			
TOTALS				**98.691**	**569.205**	**48.77**	**101.194**	**12**	**20**	**1**	**5**	**4**	**6**	**16.153**	

ITEM 60701-1000: REMOVE, CLEAN AND STOCKPILE CULVERT

STATION	LOCATION	SIZE (m)	LENGTH (m)	REMARKS
0+133	CL	2-914 mm x 12.1 m	12.1	
0+447	9m Lt.	3-914 mm x 12.1 m	12.1	Remove from Existing Road
0+505	10m Lt.	1-610 mm x 12.0 m	12	Remove from Existing Road
1+033	10m Lt.	1-610 mm x 8.2 m	8.2	Remove from Existing Road
2+200	130m Lt.	1-457 mm x 12.0 m	12	Remove from Existing Road
2+563	50m Lt.	1-762 mm x 11.9 m	11.96	Remove from Existing Road
2+566	50m Lt.	1-914 mm x 12.1 m	12.1	Remove from Existing Road
		TOTAL	116.76	

ITEM 20443-2000: EARTHEN DIKE & BERMS (TYPE "B" DIKE)

CULVERT STATION	LOCATION	APPROX LENGTH (m)
1+592.000	11 m Rt.	4.6
2+859.400	7.78 m Lt.	4.6
2+861.200	7.82 m Rt.	4.6
3+160.000	16.1 m Lt.	4.6
	TOTAL	**18.3**

Note: Skew Ditch Blocks as Directed by the AOTR/COR

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

DRAINAGE QUANTITIES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D1	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 Navajo Nation

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	31	109

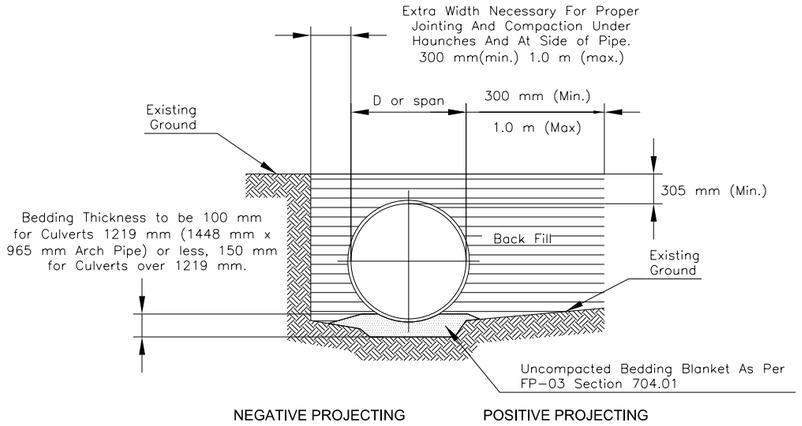
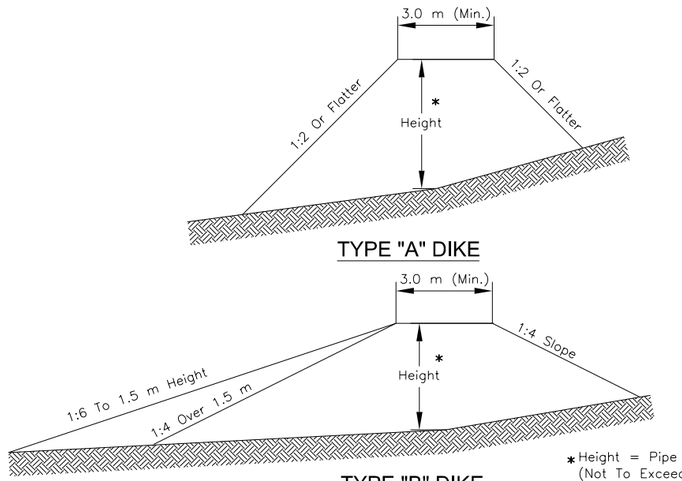


FIGURE A: BEDDING



*Height = Pipe Diameter + 305 mm (Not To Exceed Paved Shoulder and Elevation.)

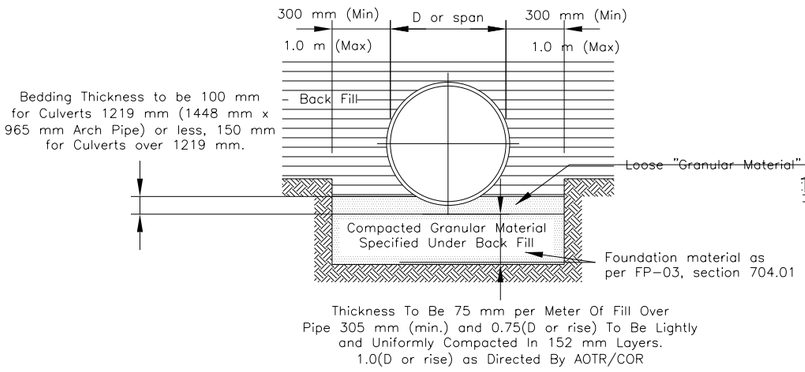


FIGURE B: ROCK BEDDING

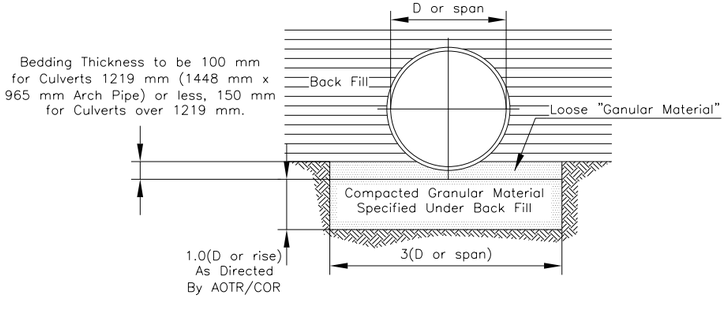
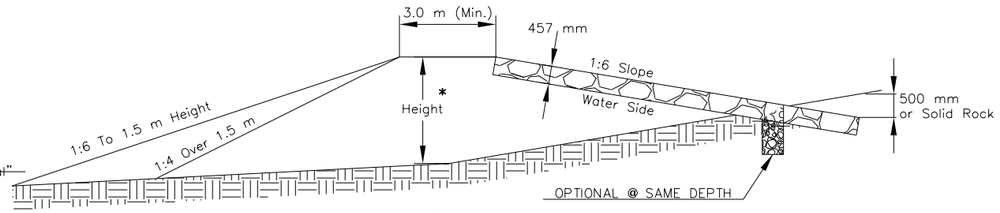
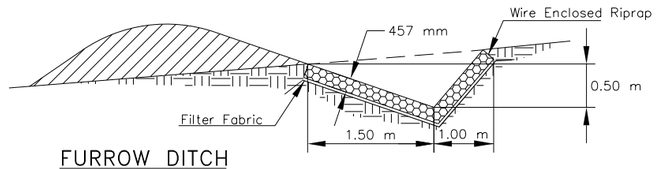


FIGURE C: FOUNDATION STABILIZATION BEDDING



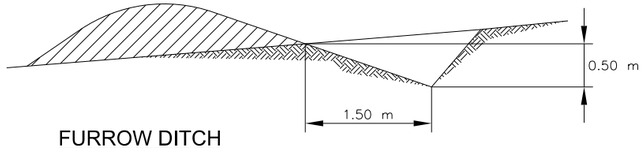
TYPE "B" DIKE
With Placed Riprap

EARTHEN DIKE/BERM DETAILS



FURROW DITCH

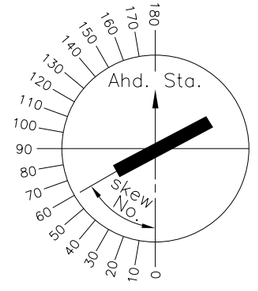
1. Install Riprap in Furrow Ditch Only Where Directed in the Plans.
2. Payment Will Be Made Separately for the Furrow Ditch and the Riprap Lining Under Items 20425-2000 and 25303-1000 Respectively.
3. See Dwg D5 For Additional Riprap Notes.



FURROW DITCH

1. To Be Paid For By The Meter.
2. Furrow Ditch Sections As Shown Above Or And Approved Equivalent Shall Be Built As Directed By The AOTR/COR.

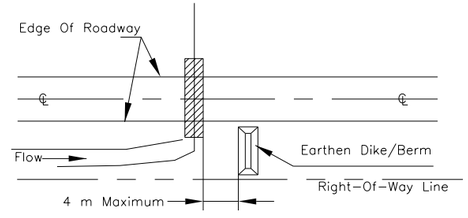
NOTE: Pipe Bedding And Backfill Material Shall Be Tested For Resistivity At Each Pipe Location. The Minimum Acceptable Resistivity To Be 2000 Ohm-cm.



STRUCTURE SKEW DIAGRAM

GENERAL NOTES

1. PLACE LOOSE BEDDING ROUGHLY SHAPED TO AT BOTTOM OF PIPE, THEN COMPACT UNDER HAUNCHES AFTER PIPE PLACEMENT.
2. SEE SECTION 204,209,602, AND 704 OF FP-14, INCLUDING THE SUPPLEMENTAL SPECIFICATION FOR ADDITIONAL NOTES.
3. ALL DRAINAGE STRUCTURE MATERIAL SHALL BE UNLOADED AND HANDLED WITH REASONABLE CARE. NO STRUCTURE SHALL BE DRAGGED OR ALLOWED TO STRIKE ANY HARD SURFACE DURING PLACEMENT. ANY DAMAGED STRUCTURE SHALL BE REPAIRED OR REPLACED, BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE GOVERNMENT.
4. ALL STRUCTURAL PLATE PIPE AND CBC STRUCTURES SHALL BE ASSEMBLED AND INSTALLED IN ACCORDANCE WITH THE FABRICATORS RECOMMENDATION.
5. BACKFILL MATERIAL SHALL BE PLACED 300 mm (min) 1.0 m (max) PIPE DIAMETER WIDTH ON THE SIDES AND 300 m OVER THE PIPE. BACKFILL MATERIAL BEYOND THE LIMITS SHALL BE REGULAR EARTHWORK EMBANKMENT MATERIAL, THE BACKFILL MATERIAL SHALL BE APPROVED BY THE AOTR/COR PRIOR TO IT'S USE AND SHALL BE PLACED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
6. PONDING OR JETTING PIPE BACKFILL SHALL NOT BE PERMITTED.
7. ALL PIPE EXCAVATION, BACKFILLING, DE-WATERING PUMPING OR COFFERDAMS REQUIRED TO PROPERLY INSTALL THE DRAINAGE PIPE SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE PROJECT AND NO ADDITIONAL PAYMENT SHALL BE MADE.
8. ALL PIPES SHALL BE PROTECTED BY A COVER OF NOT LESS THAN 0.91 m OF EMBANKMENT ABOVE PIPE BEFORE ANY HEAVY EQUIPMENT IS ALLOWED TO PASS OVER THE STRUCTURE(S) DURING CONSTRUCTION.
9. ALL CULVERTS SHALL BE INSTALLED AT THE ORIGINAL GROUND LINE AND SLOPE TO ASSURE POSITIVE DRAINAGE UP TO THE R.O.W. LIMITS, IN NO CASE SHALL THE PIPE BE PLACED BELOW THE ORIGINAL GROUND ELEVATIONS, UNLESS AS DIRECTED BY THE REGIONAL ROAD MANAGER THIS SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF PROJECT AND NO ADDITIONAL PAYMENT SHALL BE MADE.
10. ALL CULVERTS UNDER TURNOUT AND DRIVEWAYS SHALL BE PLACED AT THE PROPOSED DITCH FLOWLINE. THE CONTRACTOR SHALL BE REQUIRED TO FIELD ADJUST THE PROFILE GRADES OVER THE PIPE AS DIRECTED BY AOTR/COR TO PROVIDE FOR THE MINIMUM COVER.
11. TYPE "B" DIKE SHALL BE USED ON THIS PROJECT UNLESS OTHERWISE NOTED ON THE PLANS. EMBANKMENT MATERIAL NEEDED TO BUILD EARTHEN DIKE SHALL BE CONSIDERED INCIDENTAL TO ITEM 20443-2000.



EARTHEN DIKE/BERM INSTALLATION AT STRUCTURE

1. Earthen Dike/Berm At Structures To Be So Placed That They Create A Water Cushion. Elevation Top Of Earthen Dike/Berm Shall Be 305 mm Above Elevation Of Top Of Pipe Unless Otherwise Shown Or Directed by the AOR/COR.
2. Earthen Dike/Berm Shall Be Located A Distance Equal To The Largest Dimension Of Box Culvert Or Pipe from the Face of the Drainage Structure. In No Case Shall The Distance Exceed 4.0 m.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T.
N8084(1)1,2&4 MANY FARMS

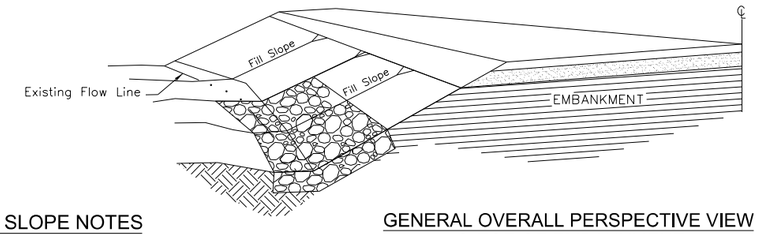
STANDARD PIPE INSTALLATION AND DITCH DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D2	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

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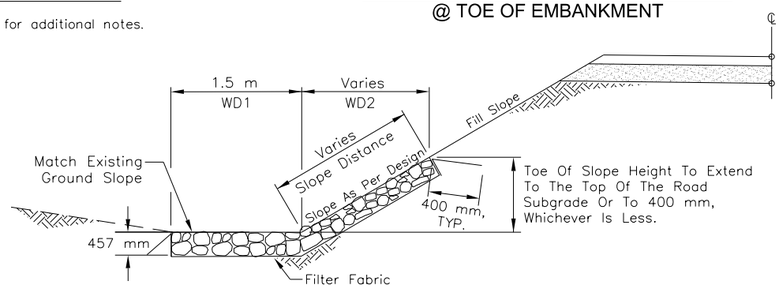
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	32	109



GENERAL OVERALL PERSPECTIVE VIEW
@ TOE OF EMBANKMENT

TOE OF SLOPE NOTES

1. See sheet 70 for additional notes.



TOE OF SLOPE PROTECTION WITH PLACED RIPRAP, CLASS 2 OR WIRE ENCLOSED RIPRAP
LOCATIONS AS FIELD DETERMINED BY THE COTR/COR

NOTE: The Toe Of Slope And Ditch Lining Details Shown On This Sheet Represents The Two (2) Types Of Riprap Protection To Be At The General Stations Shown. However, It Is The COTR/COR's Responsibility, In Consultation With The Owner–NRDOT, To Field Determine The Type Of Riprap Protection For Specific Areas After Final Earthwork Is Completed. The COTR/COR Shall Provide The Contractor With A Riprap Location And Type Plan Prior To Installation Of The Riprap.

DITCHES

ITEM 20401-2000: DRAINAGE EXCAVATION

Station	Offset (m)	To	Station	Offset (m)	Bottom Width (m)	Ave Depth (m)	Length (m)	Drainage Excavation (m3)
0+109.00	11.3 Lt.	To	0+133.00	14.0 Lt.	2	0.5	25.0	43.8
0+447.00	11.3 Lt.	To	0+447.00	40.0 Lt.	8.0	2.0	17.0	476.0
0+503.00	11.8 Lt.	To	0+501.00	18.0 Lt.	0.6	0.9	7.0	20.8
0+684.00	13.2 Lt.	To	0+684.00	23.0 Lt.	4.0	0.9	10.0	60.3
0+931.00	18.0 Lt.	To	0+931.00	28.0 Lt.	4.0	0.7	10.0	42.7
1+026.00	15.0 Rt.	To	1+034	23.0 Rt.	1.0	0.5	8.0	10.0
1+034.00	15.0 Lt	To	1+037.00	23.0 Lt.	1.0	0.5	8.0	10.0
2+560.00	36.0 Lt.	To	0+665.00	50.0 Lt.	8.0	1.2	14.0	194.9
2+582.00	30.0 Lt.	To	2+584.00	42.0 Rt.	10.0	1.0	12.0	156.0
2+610.00	22.0 Lt.	To	2+612.00	34.0 Lt.	10.0	0.9	12.0	137.2
2+632.00	18.0 Lt.	To	2+633.00	28.0 Lt.	10.0	0.9	10.0	114.3
2+706.89	23.1 Lt.	To	2+854.82	9.6 Lt.	3.0	0.7	157.8	563.3
2+850.00	16.4 Lt.	To	2+868.00	9.3 Lt.	0.0	0.6	19.1	20.6
3+165.00	12.0 Lt.	To	3+178.00	18.0 Lt.	2.5	0.5	20.0	40.0
5+080.00	125.0 Lt	To	5+082.00	138.0 Lt.	50.0	0.6	13.0	404.0
						TOTAL:		2,294

ITEM 25303-1000: WIRE ENCLOSED RIPRAP

Station	Offset (m)	To	Station	Offset (m)	Bottom Width (m)	Ave Depth (m)	Length (m)	Thickness (mm)	Total Volume (m3)
2+794.22	28.38 Lt.	To	2+854.82	9.55 Lt.	3.0	0.7	66.7	457	226.30
							TOTAL:		226.30

ITEM 25101-0100: PLACED RIPRAP, CLASS 2

TOE OF SLOPE PROTECTION

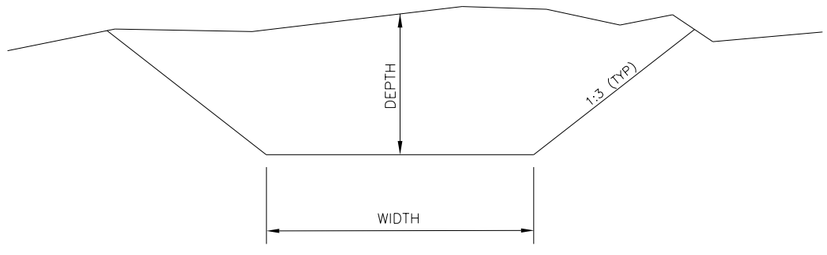
LOCATION				Estimated	WD1	H	WD2	Slope	THICK-	TOTAL
1+117	to	1+296	Rt.	179.00	1.50	0.40	1.80	1.84	457	273.54
1+382	to	1+525	Rt.	143.00	1.50	0.40	1.80	1.84	457	218.53
4+243	to	4+342	Rt.	112.00	1.50	0.40	1.80	2.43	457	201.15
									TOTAL:	693.22

H = Toe of Slope Height to Etend to the top of the road subgrade or to 400mm, whichever is less

WD2 = 6*H

Slope Length = Sqrt (H^2 + $WD2^2$)

Volume = Thickness *(WD1 +Slope Length) *Estimated Length



DITCH OR LIVESTOCK RAMP

DITCH NOTES:
1. Dimensions of Ditches and Ramps shall be shown on plans as bottom width x depth x length.
2. Ditches and Channels shall be constructed with minumum grade to prevent erosion. Ditch outlet treatment shall be as provided on plans.
3. Ramps grades shall be 1:10 max.
4. Refer to Dwg D5 & D6 for additional wire enclosed riprap notes and typical details.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

TOE OF SLOPE PROTECTION
DITCHES AND RAMPS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D3	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR STATE OF ARIZONA U.S.A.

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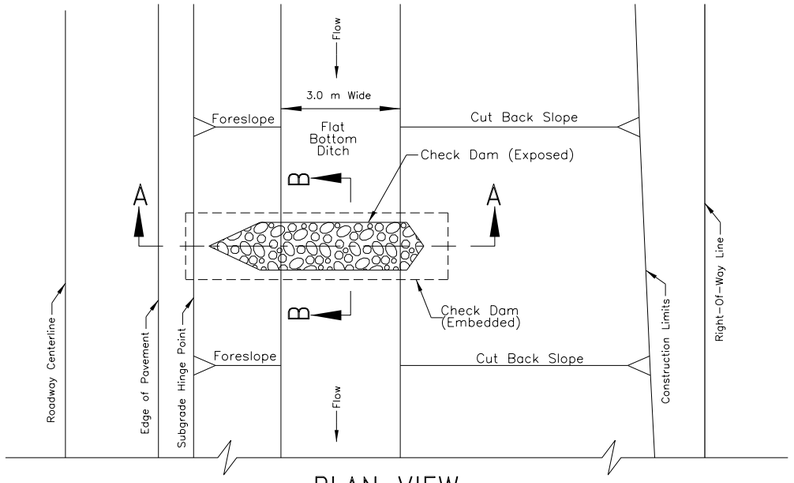
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	33	109

ITEM NO. 25101-2100: PLACED RIPRAP, CLASS 1
CHECK DAMS

STATION	LOC.	L1	L2	L3	BACKSLOPE (1:#)	VOLUME (m^3)	REMARKS
1+634	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
1+680	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
1+920	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
1+900	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
1+960	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+000	Lt.	4.00	0.00	2.625	3	6.96	V-Ditch
2+060	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+160	Rt.	4.00	0.00	2.625	3	6.96	V-Ditch
2+220	Rt.	4.00	0.00	2.100	2	6.41	V-Ditch
2+280	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+320	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+780	Lt.	4.00	3.00	2.625	3	10.11	Flat Bottom Ditch
2+900	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+940	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+980	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
3+020	Rt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+940	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
2+980	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
3+020	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
3+060	Lt.	4.00	0.00	3.150	4	7.51	V-Ditch
3+230	Lt.	4.00	3.00	2.625	3	10.11	Flat Bottom Ditch
3+260	Lt.	4.00	3.00	2.625	3	10.11	Flat Bottom Ditch
3+300	Lt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+340	Lt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+380	Lt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+265	Rt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+300	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+340	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+380	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
					SUBTOTAL	238.74	m^3

ITEM NO. 25101-2100: PLACED RIPRAP, CLASS 1
CHECK DAMS

STATION	LOC.	L1	L2	L3	BACKSLOPE (1:#)	VOLUME (m^3)	REMARKS
3+480	Lt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+520	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+560	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+600	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+640	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+680	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+720	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+760	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+800	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+480	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+520	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+560	Rt.	4.00	3.00	2.100	2	9.56	Flat Bottom Ditch
3+600	Rt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+840	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+880	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+920	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
3+960	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
4+000	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
4+050	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
4+100	Lt.	4.00	3.00	3.150	4	10.66	Flat Bottom Ditch
SUBTOTAL						208.74	m^3
TOTAL						447.48	m^3



PLAN VIEW

GENERAL NOTES

1. WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATION FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS [FP-14].

2. ROUND ALL SHARP CONTOURS AS REQUIRED TO FIT THE SOIL EROSION MATERIAL FLUSH WITH THE EXISTING GROUND.

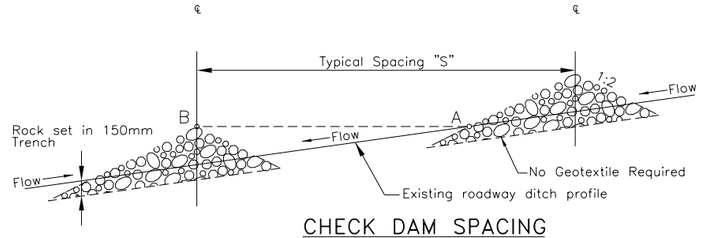
3. THE CONTRACTOR SHALL BE REQUIRED TO MAKE FIELD ADJUSTMENTS TO MATCH ACTUAL FIELD CONDITIONS AS DIRECTED BY THE COR/COTR. NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH ADJUSTMENTS.

4. EMBANKMENT SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99, METHOD C AND CONFORM TO SECTION 204 OF FP-03.

5. EXCAVATION OF RIPRAP TOE TRENCH TO PLACE RIPRAP BELOW FLOW LINE AND OTHER EXCAVATION AND EMBANKMENT NECESSARY TO PLACE RIPRAP AS SHOWN SHALL BE INCIDENTAL TO ITEM 25101-2000.

6. STONE SIZE SHALL CONFORM TO TABLE 705-1, SECTION 705, STONE FOR RIPRAP, CLASS 2 & 3.

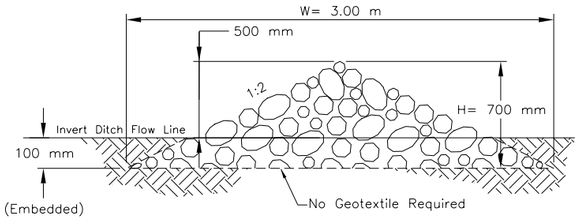
7. ROCK CHECK DAM SHALL BE INCLUDED IN BID ITEM 25101-2000.



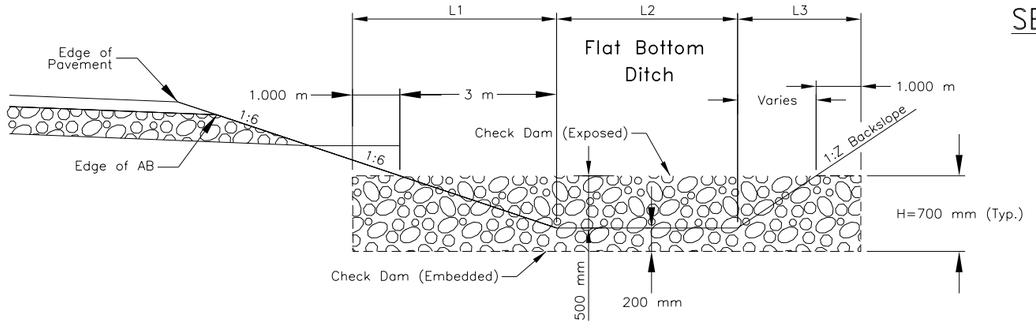
CHECK DAM SPACING

S = 60 m For 2% & Less Grade.
S = 40 m For Greater That 2% Grade.

Note: Place Downstream Structure Such That Point "B" Is Approximately Level With The Lowest Ground Elevation (Point "A") Of The Upstream Structure.



SECTION B-B : Riprap Check Dam



SECTION A-A
3.05 m WIDE FLAT BOTTOM DITCH
WITH CLASS 2 RIPRAP CHECK DAM
(See Table Above for Location)

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

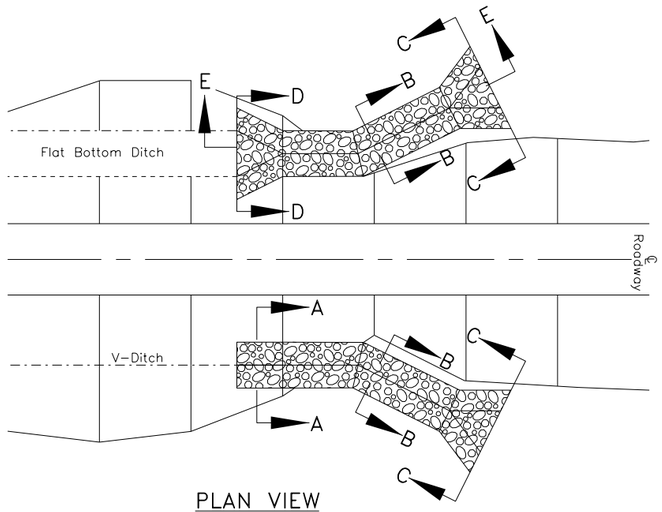
PLACED RIPRAP CHECK DAM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D4	

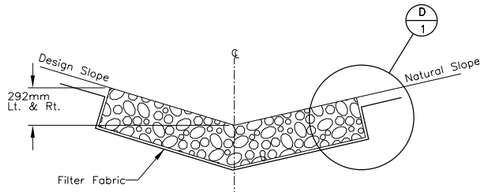
Registered Professional Engineer CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona United States

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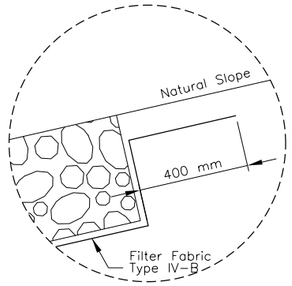
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	34	109



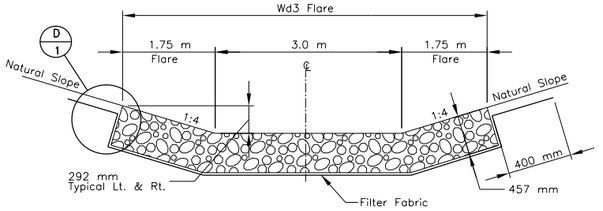
PLAN VIEW
Cut To Fill Transition



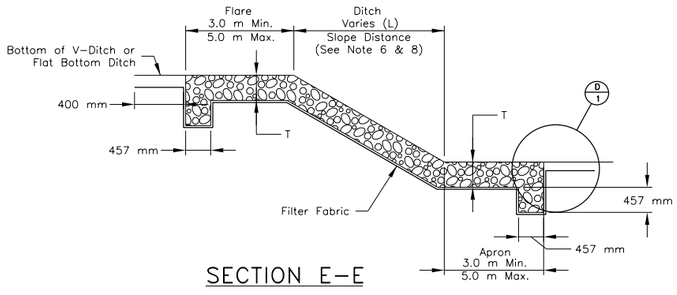
SECTION A–A
&
SECTION B–B



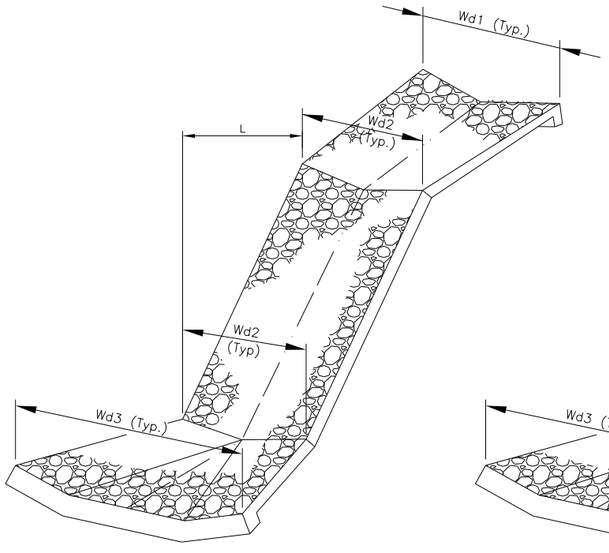
DETAIL D/1



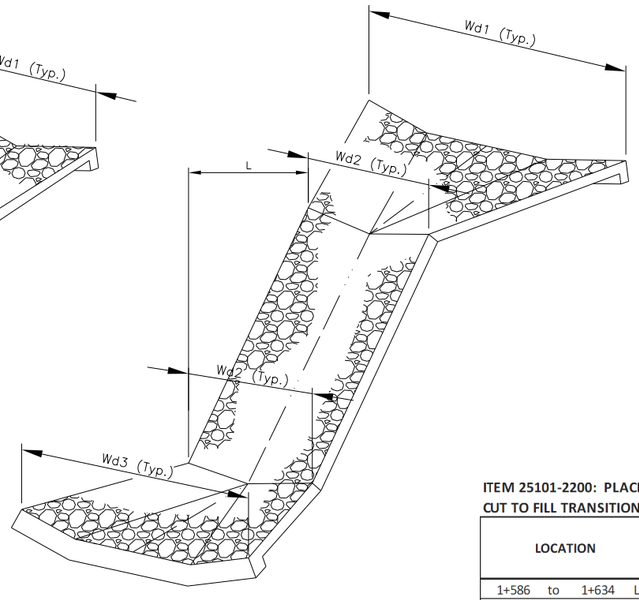
SECTION C–C



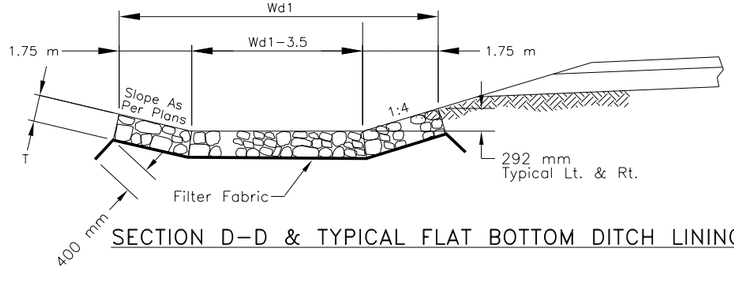
SECTION E–E



ISOMETRIC VIEW
Cut To Fill Transition & Down Drains
At V–Ditch



ISOMETRIC VIEW
Cut To Fill Transition & Down Drains
At Flat Bottom Ditch



SECTION D–D & TYPICAL FLAT BOTTOM DITCH LINING DETAIL

ITEM 25101-2200: PLACED RIPRAP, CLASS 2
CUT TO FILL TRANSITIONS

LOCATION				Wd1 (m)	Wd2 (m)	THICKNESS (mm)	LENGTH (m)	APRON LENGTH (m)	FLARE VOLUME (m^3)	DITCH VOLUME (m^3)	TOTAL VOLUME (m^3)
1+586	to	1+634	Lt.	6.50	3.50	457	49	6.0	15.03	68.78	83.81
2+340	to	2+358	Rt.	6.50	3.50	457	21	5.0	12.75	25.60	38.35
5+127	to	5+154	Lt.	6.50	3.50	457	27	5.0	12.75	35.19	47.94
5+398	to	5+425	Rt.	6.50	3.50	457	27	5.0	12.75	35.19	47.94
TOTAL:											**218.04**

ITEM 25303-1000: WIRE ENCLOSED RIPRAP
CUT TO FILL TRANSITIONS

LOCATION				Wd1 (m)	Wd2 (m)	Wd3 (m)	THICKNESS (mm)	LENGTH (m)	APRON LENGTH (m)	FLARE AREA (m^2)	DITCH AREA (m^2)	TOTAL VOLUME (m^3)
3+168	to	3+192	Lt.	6.50	3.50	6.50	457	30	8.0	40.71	65.36	48.47
3+230	to	3+253	Rt.	6.50	3.50	6.50	457	25	5.0	12.14	59.41	32.70
TOTAL:												**81.17**

ITEM 25101-0100: PLACED RIPRAP, CLASS 1
FLAT BOTTOM DITCH LINING

LOCATION				Wd1 (m)	THICKNESS (mm)	LENGTH (m)	DITCH VOLUME (m^3)	TOTAL VOLUME (m^3)
3+600	to	4+120	Rt.	6.50	457	520	1,544.7	1,544.66
TOTAL:								**1,544.66**

GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP–14).
2. THE CONTRACTOR SHALL CLEAR AND GRUB ALL DEBRIS, BRUSH AND TREES THAT WILL INTERFERE WITH THE PLACEMENT OF DOWNDRAIN, EMBANKMENT PROTECTION. THIS WORK SHALL BE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR UNDER ITEM 25101–2000.
3. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ANY NECESSARY FIELD ADJUSTMENTS TO MATCH ACTUAL FIELD CONDITIONS. THESE FIELD ADJUSTMENTS ARE INCIDENTAL OBLIGATIONS OF THE CONTRACTOR.
4. IF UNSUITABLE MATERIAL IS FOUND AT THE FOOTING LOCATION AND ELEVATIONS, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED BACKFILL MATERIAL FROMON–SITE AS DETERMINED BY THE COR/COTR. ALL BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T99 METHOD C. THE BACKFILL MATERIAL SHALL CONFORM TO SECTION 208 AND 209 OF THE FP–14. IF SUITABLE ON–SITE MATERIALS CANNOT BE FOUND, IMPORTED MATERIAL WILL BE NEGOTIATED IN ACCORDANCE WITH SECTION 109.02(s).
5. V–DITCH AND CHANNEL RESHAPING, CLEANING, AND EXCAVATION SHALL BE DONE IN ACCORDANCE WITH THE DETAILS SHOWN AND AS ADJUSTED BY THE COR/COTR. ANY WASTE MATERIAL SHALL BE USED AS BORROW WHERE NEEDED IN OTHER PROJECT LOCATION AS DETERMINED BY THE COR/COTR. ALL DITCH AND CHANNEL EXCAVATION, CLEANING, AND RESHAPING SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.
6. THE QUANTITIES SHOWN ARE ONLY AN ESTIMATE. ACTUAL QUANTITIES SHALL BE DETERMINED IN THE FIELD. THE COR/COTR, AND CONTRACTOR SHALL REVIEW ALL ROCKCUT AREAS AFTER THE CONSTRUCTION OF DITCHES, DOWNDRAINS, AND RIPRAP BASINS HAVE BEEN "ROUGH IN". IF IN THE OPINION OF THE COR/COTR, THE ROCK CUT IS STABLE, THE COR/COTR MAY ELECT TO DELETE SECTIONS OF THE RIPRAP PROTECTION.
7. STONE SIZE SHALL CONFORM TO SECTION 750.01.
8. FILTER FABRIC SHALL BE INSTALLED UNDER ALL RIPRAP (EXCEPT GROUTED RIPRAP) AND SHALL CONFORM TO TABLE 714–1, CLASS 2, AND SHALL BE CONSIDERED INCIDENTAL TO RIPRAP BID ITEMS. ROUND ALL SHARP CONTOURS AS REQUIRED TO FIT THE SOIL EROSION MATERIAL FLUSH WITH THE EXISTING GROUND. EXTEND RIPRAP DOWN THE SHOULDER DITCH UNTIL A 2% SLOPE IS ACHIEVED, OR AS DIRECTED BY THE COR/COTRBEFORE PLACEMENT OF THE FL ARE SECTION.
9. WIRE ENCLOSED RIPRAP SHALL CONFORM TO SECTION 251 OF THE FP–14 AND THE SUPPLEMENTAL SPECIFICATIONS. WIRE MESH SHALL BE PLACED TO ENCLOSE THE STONE LAYER ON ALL SIDES AND FACES. THE WIRE MESH SHALL BE SPLICED ON ALL EDGE SAND SHALL BE DRAWN TIGHTLY AGAINST THE STONE BY MEANS OF 3.8 mm WIRE TIESSPACED 0.61m LONGITUDINALLY AND TRANSVERSELY.
10. THE WIRE FABRIC SHALL BE GALVANIZED AND BE OF THE CONFIGURATION SHOWN ON THIS SHEET. AN ALTERNATE WIRE FABRIC MAY BE SUBMITTED FOR REVIEW AND APPROVAL. ANY WIRE FABRIC USED SHALL HAVE A MINIMUM WIRE DIAMETER OF 2.8 mm, A CLASS 3 ZINC COATING (GALVANIZED), SHALL HAVE A MINIMUM OPENING DIMENSION OR 100 mm, AND SHALL NOT ALLOW A 75 mm ø SPHERE TO PASS THROUGH WIRE FABRIC OPENING. SEE SHEET D6 FOR TYPICAL WIRE ENCLOSED RIPRAP DETAILS.
11. RIPRAP SHALL BE ANCHORED AS SHOWN WITH L 102mm x 102mm x 9.5mm STEEL ANGLES SPACED AT 2.44 m EACH WAY. STEEL ANGLE SHALL EXTEND 75mm ABOVE THETOP OF THE MESH. IN ROCKY AREAS, DRIVE ANGLE IRON ANCHORS TO REFUSAL (MIN. EMBEDDED 500mm). THEN CUT AT 75mm ABOVE RIPRAP. ANCHORS SHALL BE SAW CUT TO LEAVE A SMOOTH EDGE. DO NOT USE A CUTTING TORCH. FURNISHING AND PLACEMENT OF STEEL ANGLES SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE. SEE DETAIL DWG D6 FOR ANGLE IRON DETAILS.

ITEM 25303-1000: WIRE ENCLOSED RIPRAP
FLAT BOTTOM DITCH LINING

LOCATION				Wd1 (m)	THICKNESS (mm)	LENGTH (m)	DITCH VOLUME (m^3)	TOTAL VOLUME (m^3)
3+192	to	3+230	Lt.	6.50	457	38	112.9	112.88
3+253	to	3+265	Rt.	6.50	457	12	35.7	35.65
TOTAL:								**148.53**

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T.
N8084(1)1,2&4 MANY FARMS

WIRE ENCLOSED RIPRAP LINED DITCH & DOWNDRAIN DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D5	

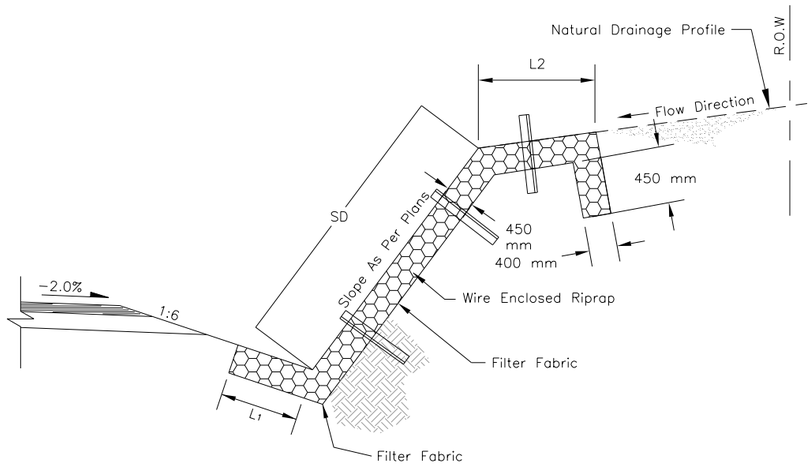
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

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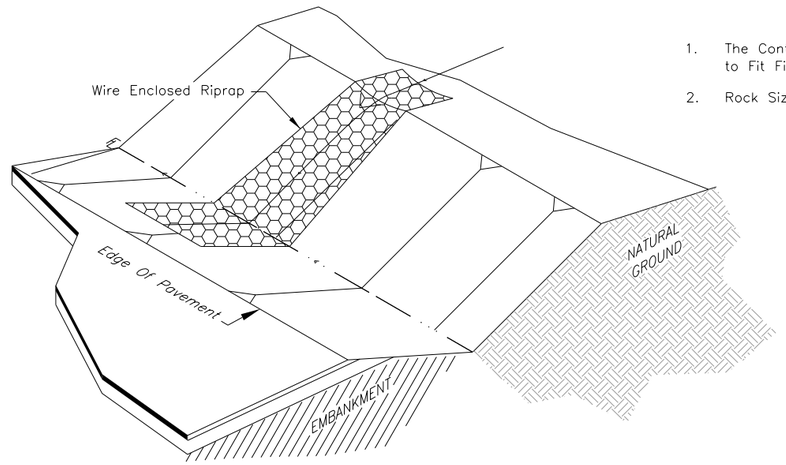
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	35	109

GENERAL NOTES

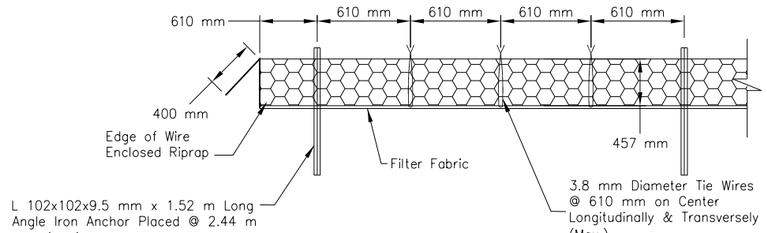
1. The Contractor Shall Be Required to Make Field Adjustments to Fit Field Conditions as Directed By The COTR/COR.
2. Rock Size Shall Conform to Section 750.01.



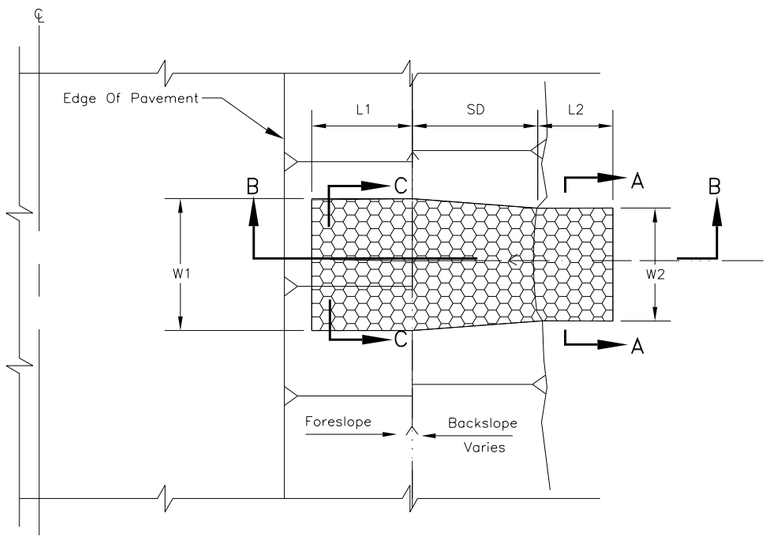
SECTION B-B



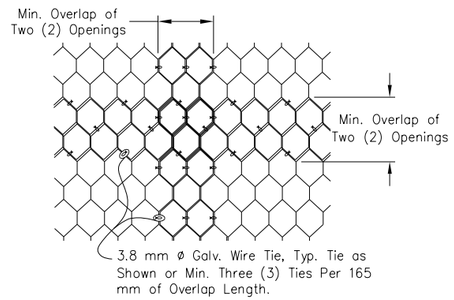
ISOMETRIC VIEW



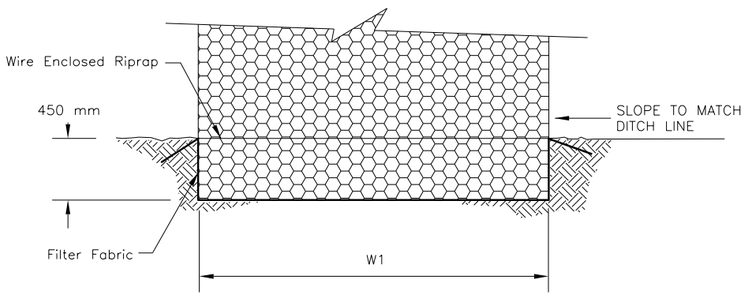
TYPICAL WIRE ENCLOSED RIPRAP SECTION
N.T.S.



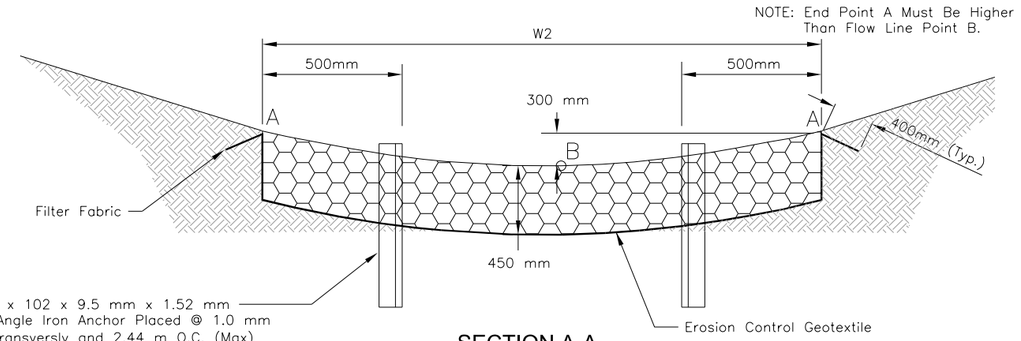
PLAN VIEW



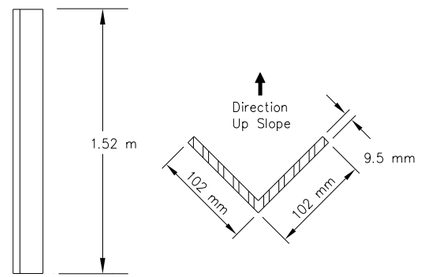
TYPICAL FABRIC SPLICING DETAIL
N.T.S.



SECTION C-C



SECTION A-A



TYPICAL ANGLE IRON ANCHOR DETAIL
N.T.S.

BACKSLOPE PROTECTION LOCATIONS
25303-1000: WIRE ENCLOSED RIPRAP

LOCATION	SD (m)	L_1 (m)	W_1 (m)	W_2 (m)	L_2 (m)	THICKNESS (mm)	A1 (m^2)	A2 (m^2)	A3 (m^2)	TURNDOWN VOL (m^3)	TOTAL VOL (m^3)
1+800 to 0+000 Rt.	7.90	2.00	5.00	3.00	2.00	457	10.00	31.60	6.00	0.54	22.29
1+920 to 0+000 Rt.	4.80	2.00	10.00	6.00	5.00	457	20.00	38.40	30.00	1.08	41.48
2+017 to 0+000 Lt.	7.34	2.00	5.00	3.00	3.00	457	10.00	29.38	9.00	0.54	22.65
										N8031	86.42

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

WIRE ENCLOSED RIPRAP DETAIL FOR BACKSLOPE PROTECTION

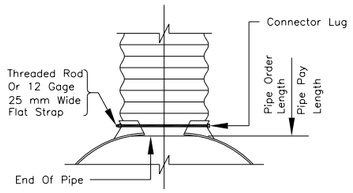
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	
DWG: D6	

DIBBLE

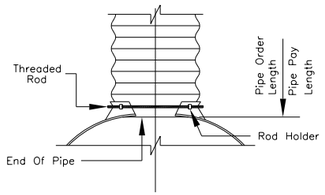
Registered Professional Engineer CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

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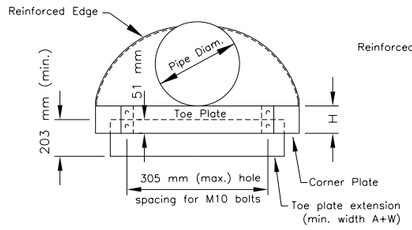
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	36	109



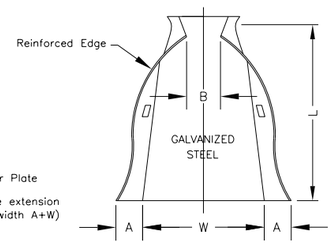
TYPE NO. 1



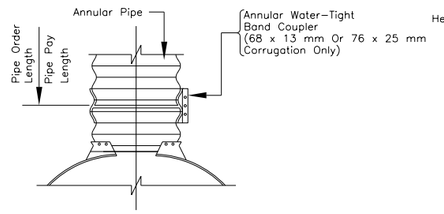
TYPE NO. 2



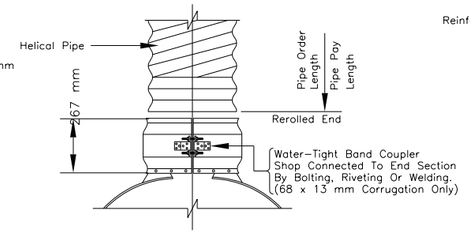
ELEVATION



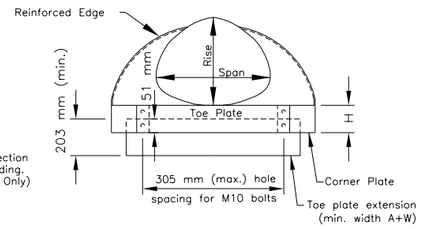
PLAN



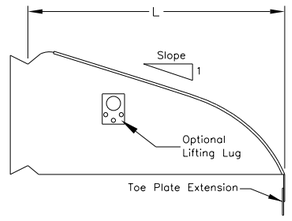
TYPE NO. 3



TYPE NO. 5
(See Note No.9)



ELEVATION



TYPICAL CROSS SECTION

GENERAL NOTES

1. For Multiple Installation Of All Types, A Minimum Of A 610 mm Spacing Measured Along The Horizontal Between Flared End Sections At Their Widest Cross Section Shall Be Used.
2. All Three (3) Piece Bodies To Have 2.77 mm Thickness Sides And 3.5 mm Thickness Center Panels. Width Of Center Panels To Be Greater Than 20% Of The Pipe Periphery. Multiple Panel Bodies To Have Lap Seams Which Are To Be Tightly Joined By 9.53 mmø Galvanized Rivets Or Bolts.
3. End Sections For Steel Pipe-Arches: For The 1956 mm x 1321 mm And 2108 mm X 1448 mm Sizes, Reinforced Edge To Be Supplemented By 51 mm x 51 mm x 6.35 mm Galvanized Angles. The Angles To Be Attached By 9.53 mm Dia. Galvanized Nuts And Bolts. Angle Reinforcement Will Be Placed Under The Center Panel Seams.
4. End Sections For Steel Circular Pipes: For 1524 mm Thru 2134 mm Sizes, Reinforced Edge To Be Supplemented With Galvanized Stiffener Angles. The Angles Will Be 51 mm x 51 mm x 6.35 mm For 1524 mm Thru 1829 mm, And 64 mm x 64 mm x 6.35 mm For 1981 mm And 2134 mm. The Angles To Be Attached By 9.53 mm Galvanized Nuts And Bolts.
5. Welding Shall Not Be Permitted In Connecting End Sections To Connector Sections Or Connector Sections To Pipe.
6. Type No. 1 Steel End Section: Connect End Section With Threaded Rod With Connector Lug, For 610 mm Pipe Only.
7. Type No. 2 Steel End Section: Connect End Section With Threaded Rod With Rod Holder, For 762 mm And 914 mm Round Pipe; And 432 mm x 330 mm Thru 1448 mm x 965 mm CSPA.
8. Type No. 3 Steel End Section: The Connection Includes 305 mm Of The Pipe Length As A Connector Section For Pipe Arch Sizes 1626 mm x 1092 mm Thru 2108 mm x 1448 mm And Round Pipe Sizes 1067 mm Thru 2134 mm. Gages Of Connector Section Shall Be The Same As The End Sections As Mentioned Above. The Connector Section Will Be Attached To The End Section By 9.5 mm Galvanized Rivets Or Bolts On Approximately 152 mm Centers.
9. Helically Corrugated Pipe: For Type No. 5 And Type No. 3 The Dimple Band Or Corrugated Pipe Connector Section Shall Be Attached To The End Section By 9.5 mm Galvanized Steel Rivets Or Bolts Spaced At Approximately 152 mm Centers.
10. Type No. 1, Type No. 2, And Type No. 3 Connections May Be Used With Welded Seams Helically Corrugated Pipe With Re-Rolled Ends. Re-Rolled Ends Shall Include A Minimum Of Two (2) Annular Corrugations Of The Same Size As The Pipe Corrugations.

ROUND PIPE END SECTION

Pipe Diam (mm)	Thick ness (mm)	DIMENSIONS A (25 mm=)	B (Max.)	H (25 mm±)	F (mm)	L (38 mm±)	W (51 mm±)	Approx. Slope	BODY
610	1.6	254	330	152	1168	1041	1219	2 1/2	1 Pc
762	2	311	318	203	1397	1229	1448	2 1/2	2 Pc
914	2	368	305	229	1778	1524	1829	2 1/2	2 Pc
1067	2.8	432	279	267	2082	1753	2134	2 1/2	2 Pc
1219	2.8	470	737	305	2235	2007	2286	2 1/4	3 Pc
1372	2.8	470	762	305	2540	2134	2591	2	3 Pc
1524	2.8 / 3.5	457	914	305	2845	2235	2896	1 3/4	3 Pc
1676	2.8 / 3.5	457	914	305	2997	2210	3048	1 1/2	3 Pc
1829	2.8 / 3.5	457	1118	305	3048	2248	3048	1 1/3	3 Pc
1981	2.8 / 3.5	457	168	305	3302	2223	3505	1 1/4	4 Pc
2134	2.8 / 3.5	457	1219	305	3454	2223	3658	1 1/6	4 Pc

ARCH PIPE END SECTION

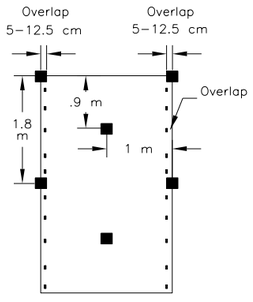
SPAN* *68 mm x 13 mm	RISE *76 mm x 25 mm	Thick ness (mm)	DIMENSIONS A (25 mm±)	B (Max.)	H (25 mm±)	F (mm)	L (38 mm±)	W (51 mm±)	Approx. Slope	BODY
711 x 508		1.6	203	406	152	711	813	1219	2 1/2	1 Pc
889 x 610		2.0	254	406	152	863	991	1524	2 1/2	1 Pc
1067 x 737		2.0	305	305	191	1016	168	1905	2 1/2	2 Pc
1245 x 838		2.8	343	508	229	1168	1346	2134	2 1/2	2 Pc
1448 x 965		2.8	470	660	305	1473	1575	2286	2 1/4	3 Pc
1626 x 1092		2.8	457	737	305	1854	1753	2591	2 1/4	3 Pc
1803 x 1194		2.8 / 3.5	470	914	305	2540	1956	2896	2 1/4	3 Pc
	1854 x 1397	2.8	457	914	305	3149	1956	3200	2.0	3 Pc
	2057 x 1499	2.8	457	991	305	3454	1956	3505	2.0	3 Pc
	2210 x 1600	2.8	457	991	305	3454	1956	3505	2.00	3 Pc

* CORRUGATION DIMENSION

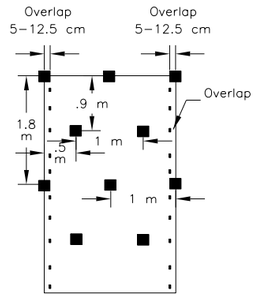
RECP STAPLE TABLE

Slope Ht. (m)	Staple Pattern		
91	C	C	C
84			
76			
69			
61	B		
53			
46			
38	A	B	
30			
23			B
15			
8			
	1:3	1:2	1:1

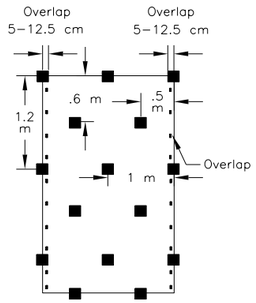
Grade



Staple Pattern A
0.8 Staples Per Square Meter



Staple Pattern B
1.3 Staples Per Square Meter



Staple Pattern C
2 Staples Per Square Meter

RECP STAPLE DETAILS

STAPLE NOTES

1. To Determine The Staple Pattern To Use For Erosion Blankets/Mats Refer To The RECP Staple Table. Choose Staple Pattern A, B Or C Based On The Grade And Slope Height.
2. Begin Stapling At Top Of Slope.
3. Staple Overlap Areas With Staggered Pattern With Staples.
4. Staple Patterns Shown Are For 2.44 m Wide Blankets.
5. Follow All The Manufacturer's Recommendations For Installing Blankets & Staples.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

FLARED END SECTION & RECP STAPLE DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D7	

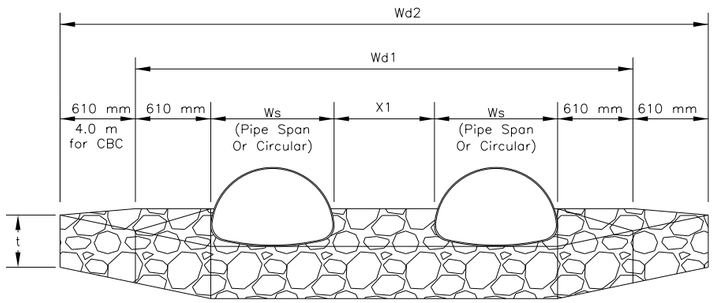
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State Of Arizona

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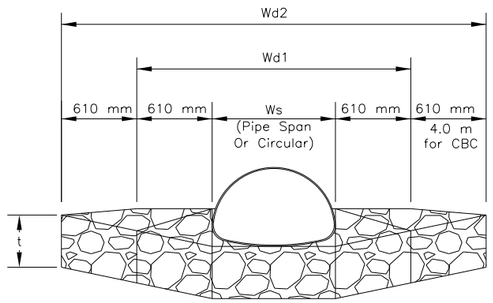
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	37	109

GENERAL NOTES

1. See Dwg D5 & D6 For Additional Wire Enclosed Riprap Notes and Typical details.
2. All Stone For Placed Riprap Shall Be Class 2 Meeting The Grading Requirements Of Table 705-1 Of The FP-14. All stone for wire enclosed riprap shall confrom to Section 750.01.
3. All Excavations And Backfill Operations Shall Be Done To Neat Lines In Accordance With Section 209 Of The FP-14 And Will Be Incidental To Installation Of Riprap. See Supplemental Specifications For Additional Requirements.
4. Any Borrow Material Needed To Bring Existing Channels Up To Grade Shall Be Incidental To Riprap Pay Items.
5. The Contractor Has The Option To Use Articulated Concrete Block Revetment.



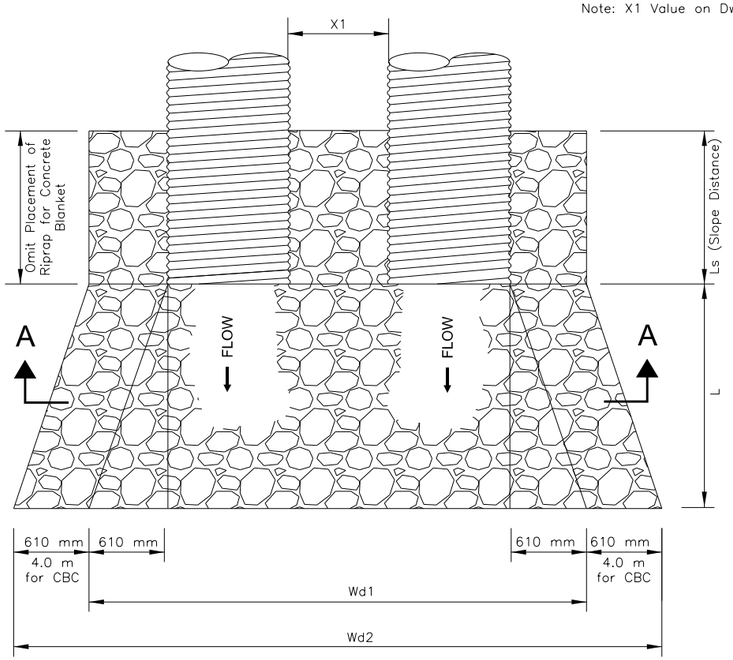
ELEVATION - MULTIPLE BARREL
SECTION A-A



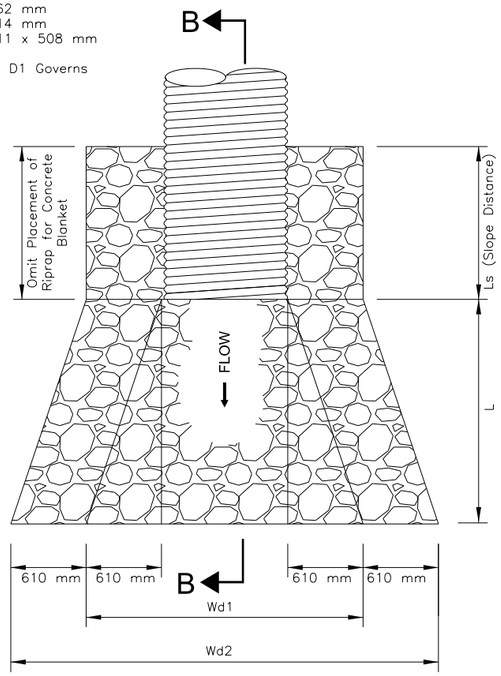
ELEVATION - SINGLE BARREL
SECTION A-A

X1 = 1829 mm for 610 mm
X1 = 2083 mm for 762 mm
X1 = 2363 mm for 914 mm
X1 = 1677 mm for 711 x 508 mm

Note: X1 Value on Dwg D1 Governs



PLAN - MULTIPLE BARREL



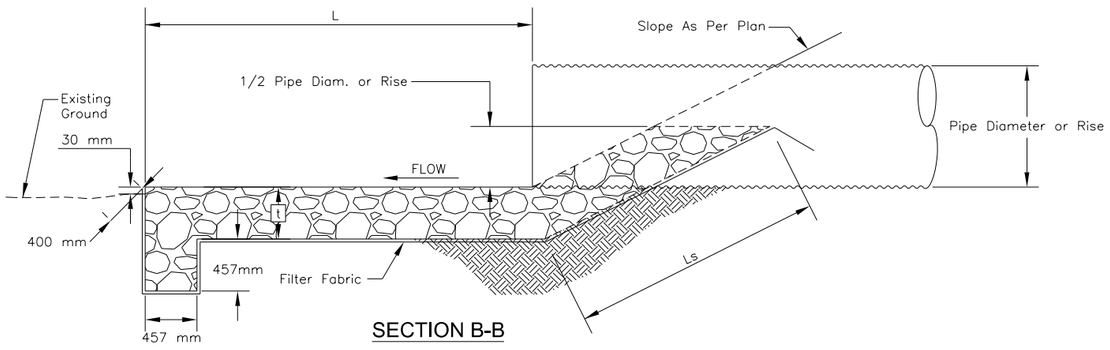
PLAN - SINGLE BARREL

ITEM 25112-2200: PLACED RIPRAP, CLASS 2

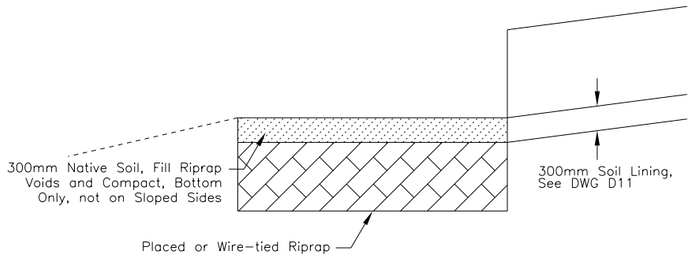
STA	STRUCTURE	LOCATION	Ws [m]	Wd1 [m]	Wd2 [m]	ESTIMATED LENGTH L [m]	Ls [m]	THICKNESS t [mm]	VOLUME [m^3]	COMMENT
1+840.800	1-1067 mm x 737 mm @ 82°	OUTLET	1.067	2.287	3.507	5.984	2.242	457	9.17	
2+506.300	1-914 mm @ 140°	OUTLET	0.914	2.134	3.354	4.730	2.780	457	7.48	
2+541.000	1-1067 mm x 737 mm @ 90°	OUTLET	1.067	2.287	3.507	3.660	2.242	457	6.10	
2+571.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
2+592.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
2+612.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
2+632.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
2+653.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
2+683.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.048	2.780	457	5.37	
4+130.000	3-914 mm x 24.994 m @ 135°	OUTLET	0.914	8.688	9.908	3.660	2.780	457	17.10	
4+505.000	1067 mm x 737 mm @ 90°	OUTLET	1.067	2.287	3.507	3.048	2.242	457	5.29	
4+772.000	1067 mm x 737 mm @ 78°	OUTLET	1.067	2.287	3.507	3.048	2.242	457	5.29	
5+512.400	1-2438 mm @ 90°	OUTLET	2.438	3.658	4.878	3.720	7.415	457	11.39	BURIED
								TOTAL	97.88	

ITEM 25303-1000: WIRE ENCLOSED RIPRAP

STA	STRUCTURE	LOCATION	Ws [m]	Wd1 [m]	Wd2 [m]	ESTIMATED LENGTH L [m]	Ls [m]	THICKNESS t [mm]	VOLUME [m^3]	COMMENT
0+133.000	2-914 mm @ 101°	OUTLET	0.914	5.411	6.631	11.746	2.780	457	33.87	
0+447.000	4-3048 mm S x 1524 mm R CBC @ 90°	OUTLET	17.800	19.020	20.240	10.900	4.635	457	100.37	
1+030.000	1-914 mm @ 113°	OUTLET	0.914	2.134	3.354	4.570	2.780	457	7.28	
1+595.000	1-1067 mm @ 76°	OUTLET	1.067	2.287	3.507	17.107	3.245	457	24.46	
3+165.000	1-2438 mm @ 76°	OUTLET	2.067	8.200	11.200	6.600	0.000	457	29.26	BURIED
4+960.000	2-914 mm @ 90°	OUTLET	0.914	5.411	6.631	3.660	2.780	457	11.62	
4+980.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
5+000.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
5+020.000	1-914 mm @ 90°	OUTLET	0.914	2.134	3.354	3.660	2.780	457	6.14	
5+125.800	2-914 mm @ 90°	OUTLET	0.914	5.411	6.631	3.660	2.780	457	11.62	
								TOTAL	236.89	



SECTION B-B



BURIED RIPRAP

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

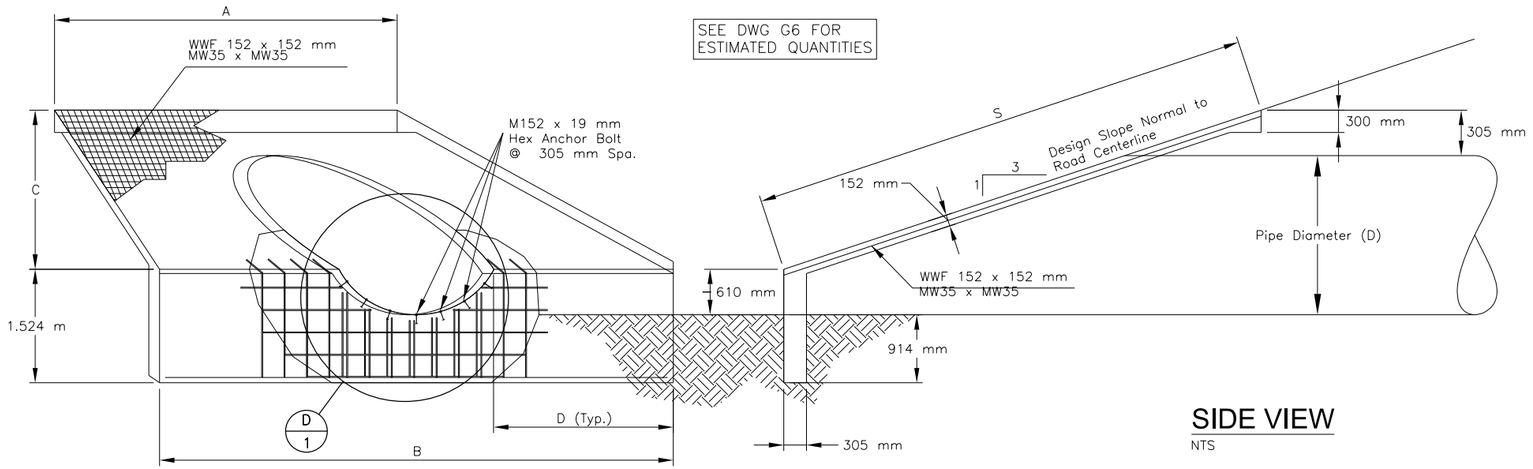
CULVERT RIPRAP DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D8	

Registered Professional Engineer (Utah) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26

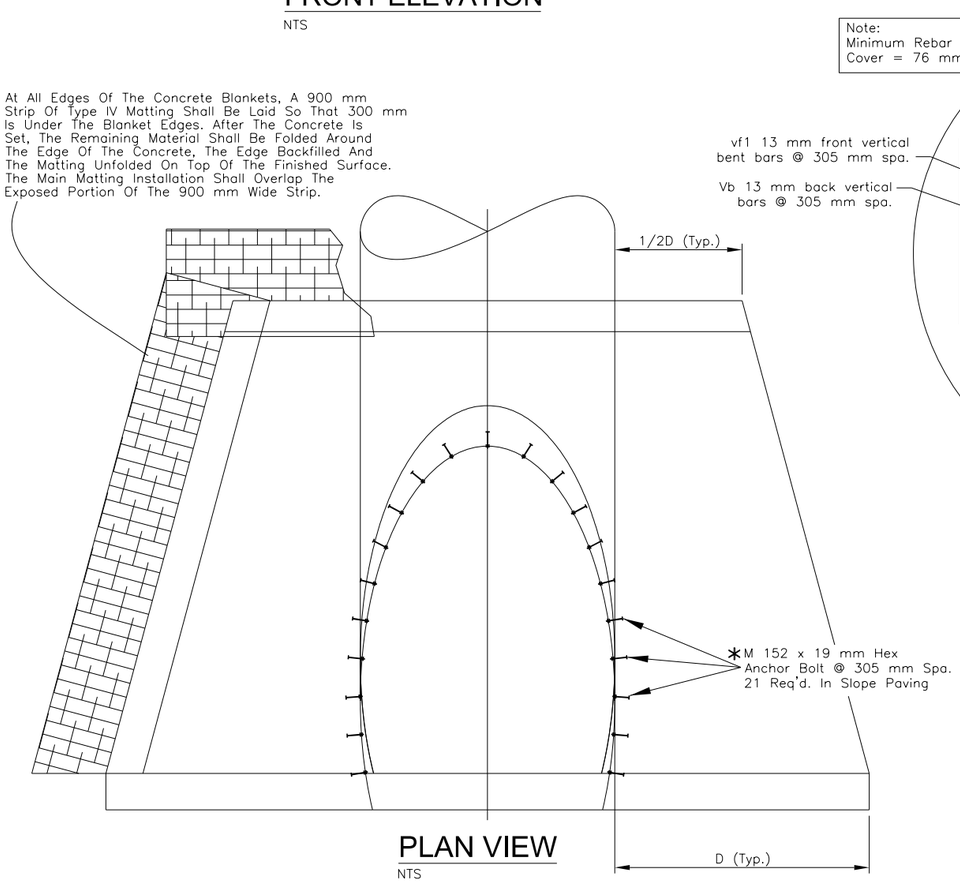
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	38	109



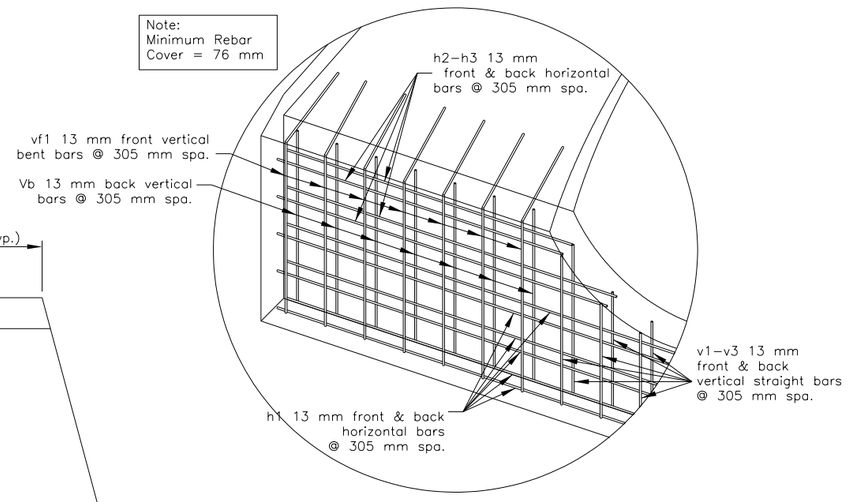
FRONT ELEVATION
NTS

SIDE VIEW
NTS



PLAN VIEW
NTS

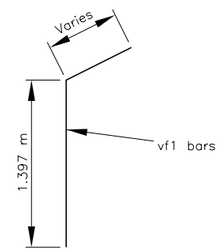
*NOTE: Anchor Bolts Shall Be Bent/Fabricated As Needed to Align With The Concrete Slope Blanket Prior To Bolting To The Culvert. The Culvert Wall Shall Not Be Deformed/Bent To Align Bolts



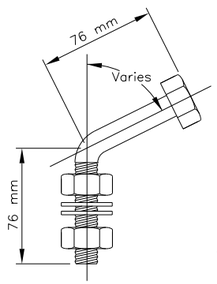
DETAIL D/1
NTS

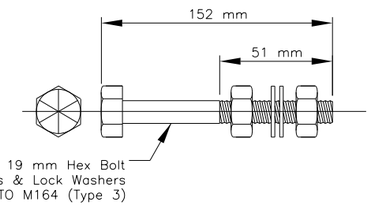
GENERAL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP–14).
2. ALL CONCRETE SHALL BE CLASS A(AE) WITH CLASS 1 FINISH. CHAMFER ALL EXPOSED EDGES 19 mm. THE CONCRETE SHALL CONFORM TO SECTION 552 "STRUCTURAL CONCRETE" OF FP–14. F'c = 20.68 MPa.
3. REINFORCING STEEL SHALL CONFORM TO AASHTO SPECIFICATION M–31 (ASTM A 615M), GRADE 420, AND SECTION 554 OF FP–14. FURNISHING AND PLACEMENT OF REBARS, ANCHOR BOLT, AND WELDED WIRE FABRIC SHALL BE CONSIDERED INCIDENTAL TO CONTRACT BID ITEM 60101–0000.
4. ALL STRUCTURE EXCAVATION AND EMBANKMENT AROUND THE CONCRETE BLANKET SHALL BE DONE TO NEAT LINES AND WILL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.
5. THE CONTRACTOR SHALL BE REQUIRED TO MAKE ANY NECESSARY FIELD ADJUSTMENTS TO FIT EXISTING FIELD CONDITIONS, AS DIRECTED BY THE COR/COTR. NO ADDITIONAL PAYMENT SHALL BE MADE FOR SUCH ADJUSTMENTS.
6. IF UNSUITABLE MATERIAL IS FOUND AT THE FOOTING LOCATION AND ELEVATIONS, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH APPROVED UNCLASSIFIED BACKFILL AS DETERMINED BY THE COR/COTR. ALL UNCLASSIFIED BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T99 METHOD C, BEFORE AND AFTER FOOTINGS ARE PLACED. THE UNCLASSIFIED BACKFILL MATERIAL SHALL CONFORM TO SECTION 208 AND 209 OF FP–14. FURNISHING AND PLACEMENT OF UNCLASSIFIED BACKFILL SHALL BE ACCORDANCE WITH SECTION 109.02(s).
7. ALL FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE COR/COTR PRIOR TO PLACEMENT OF FORMS, REINFORCING STEEL AND SUBSEQUENT CONCRETE.
8. CHANNEL RESHAPING, CLEANING, AND EXCAVATION SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND AS DETERMINED BY THE COR/COTR. ANY WASTE MATERIAL SHALL BE USED AS BORROW WHERE NEEDED IN OTHER PROJECT LOCATIONS AS DESIGNATED AND APPROVED BY THE COR/COTR. ALL CHANNEL EXCAVATION, CLEANING AND RESHAPING SHALL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.
9. IN NO CASE SHALL ANY BACKFILL BE PLACED UNTIL THE CONCRETE HAS ATTAINED A COMPRESSIVE STRENGTH OF 17.24 MPa.
10. TABULATED CONCRETE, WELDED WIRE FABRIC, AND REINFORCING STEEL ESTIMATED QUANTITIES ARE FOR ONE (1) SIDED BLANKET AT A GIVEN STATION AND SIZE OF STRUCTURE(S).
11. WHERE THE CONCRETE BLANKET CANNOT BE INSTALLED DUE TO SHALLOW DEPTH OF COVER OVER THE PIPE(S), AND/OR THE PARAPET HEIGHT IS ABOVE THE AGGREGATE BASE HINGE POINT, THE CONTRACTOR SHALL BE REQUIRED TO ADJUST THE PARAPET WALL HEIGHT TO 305 mm, AND INSTALL ADDITIONAL TWO (2) – #13M REBAR ON THE TOP WALL ACROSS THE ENTIRE LENGTH OF STRUCTURE. THIS WORK WILL BE CONSIDERED INCIDENTAL TO COMPLETION OF THE STRUCTURE.
12. EROSION CONTROL MATTING SHALL CONFORM TO SECTION 629 AND 713.17(k) OF THE FP–14 FOR TYPE IV–B MATERIAL, AND SHALL BE MEASURED AND PAID FOR UNDER ITEM 62901–1100. MATS SHALL BE TUCKED OR EMBEDDED INTO EMBANKMENT ALONG ALL EDGES AS SHOWN. SEE SHEET OF FOR EROSION CONTROL MAT INSTALLATION DETAILS.
13. MITER PIPE TO CONCRETE EDGE.
14. SEE DWG G6 FOR DIMENSIONS, BAR SCHEDULES AND QUANTITIES.



BENT BAR DETAIL
NTS





BENT AND STRAIGHT ANCHOR BOLT DETAIL

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

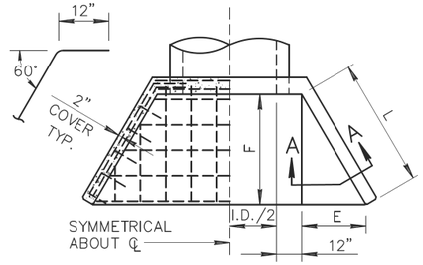
SINGLE BARREL PIPE CONCRETE SLOPE BLANKET DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D9	

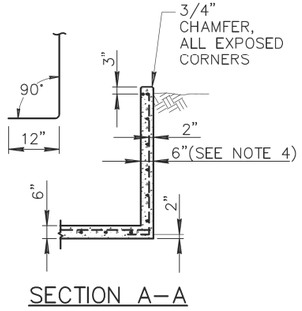
Registered Professional Engineer (Utah) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26

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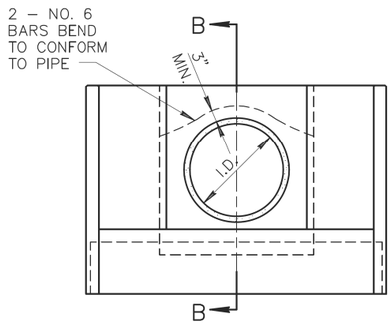
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	39	109



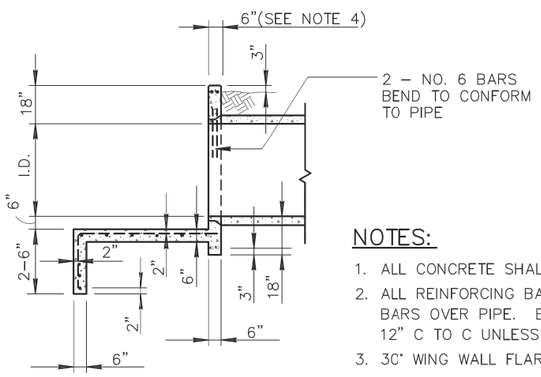
PLAN



SECTION A–A



ELEVATION



SECTION B–B

PIPE I.D.	DIMENSIONS		
	L	E	F (APPROX)
18"	2'–0"	1'–0"	1'–9"
24"	2'–0"	1'–0"	1'–9"
30"	3'–0"	1'–6"	2'–7"
36"	4'–0"	2'–0"	3'–6"
42"	5'–0"	2'–6"	4'–4"
48"	6'–0"	3'–0"	5'–2"
54"	7'–0"	3'–6"	6'–1"
60"	8'–0"	4'–0"	6'–11"

NOTES:

1. ALL CONCRETE SHALL BE CLASS 'A' PER SECT. 725.
2. ALL REINFORCING BARS SHALL BE NO. 4 EXCEPT NO. 6 BARS OVER PIPE. BAR SPACING APPROXIMATELY 12" C TO C UNLESS OTHERWISE NOTED.
3. 30° WING WALL FLARE SHOWN; 45° NORMALLY DESIRABLE.
4. FOR WALLS REQUIRING SAFETY RAIL, MIN. WALL THICKNESS IS 8". SEE DETAIL 145 FOR ADDITIONAL REQUIREMENTS.

DETAIL NO.			REVISED	DETAIL NO.
501–4	MARICOPA ASSOCIATION of GOVERNMENTS STANDARD DETAIL ENGLISH	HEADWALL IRRIGATION 18" TO 60" PIPE	01–01–2020	501–4

SEE DWG D1 FOR LOCATIONS AND QUANTITIES

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

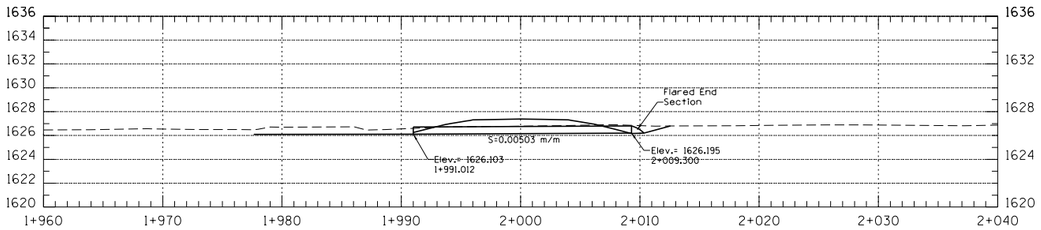
IRRIGATION PIPE HEADWALL DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D9A	

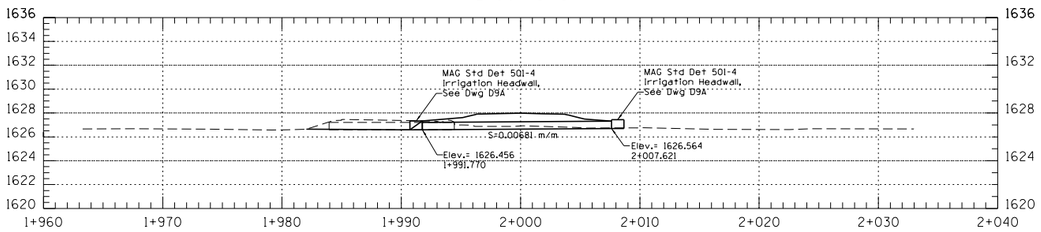
Registered Professional Engineer, Civil
CERTIFICATE NO.
25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA, U.S.A.

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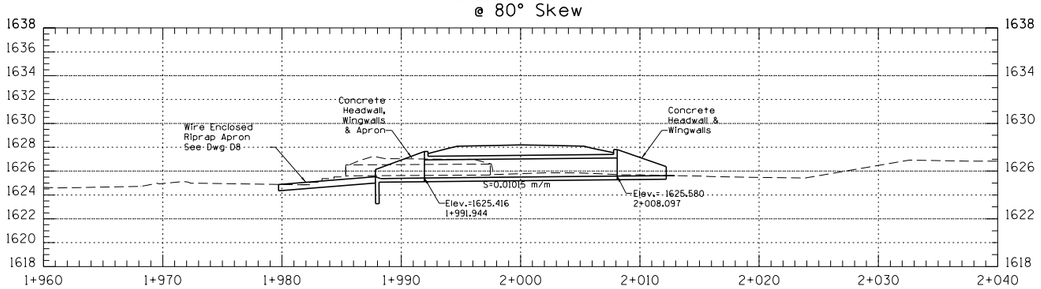
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	40	109



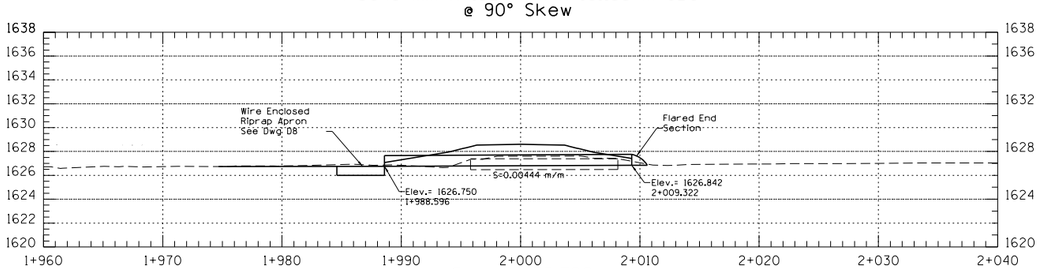
Sta. 0+683.000
1067 mm x 737 mm x 18.288 m CMPA
@ 90° Skew



Sta. 0+504.400
914 mm x 15.851 m CMP (Smooth Wall)
@ 80° Skew



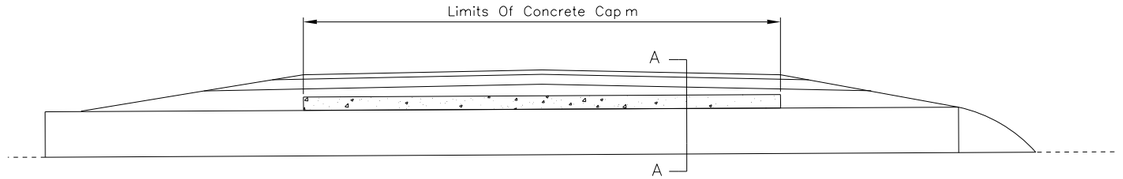
Sta. 0+447.000
4-3048 mm x 1524 mm x 16.153 m CBC
@ 90° Skew



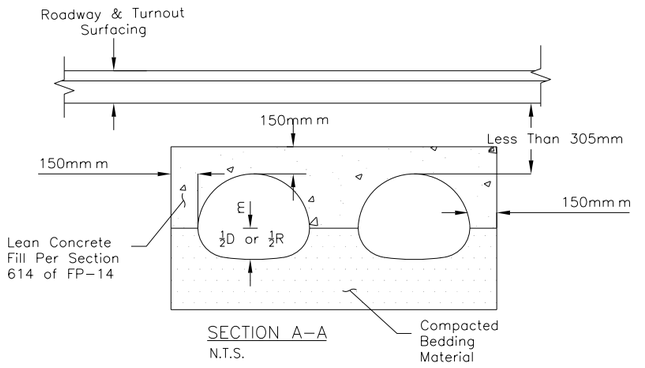
Sta. 0+133.700
2-914 mm x 20.762 m CMP
@ 104° Skew

GENERAL CULVERT NOTES

1. Refer to Plan & Profile Sheets and Culvert Cross Section Details for Type of Riprap at Culvert Outlets. See Sheet 63 For Culvert Riprap Details.
2. Drainage Pipe(s) Invert Elevations and Lengths are Approximate. Final Elevations and Lengths to be Field Determined By The Contractor as Part of the Revised Pipe List Submittal Package. Guidance on Developing a Revised Pipe List Will be Provided Upon Request of the Contractor.
3. At Pipe Cross Sections Drawn On A Skew, The Right-Of-Way Line is no Longer Located at the Standard Right-Of-Way Offset, But is Shifted Away (Outward) From the Centerline a Distance Based on the Skew Angle.
4. Left and Right Distances Shown Are Measured Along the Pipe Centerline.
5. The Revised Pipe List Survey Data Shall be Verified by the COTR/COR and Contractor's QCM Prior to Submittal to the Navajo Regional Office, Division of Transportation.



CONCRETE CAP FOR CULVERTS N.T.S.
Sta. 9+833.000



SECTION A-A
N.T.S.

CONCRETE CAP NOTES

1. All Materials and Labor Required To Cap Culverts Will Be Considered Incidental To The Culvert items.
2. If Aluminum Coated Pipes Are Used, Coat Pipe Surfaces In Contact With The Concrete With Asphalt Mastic.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

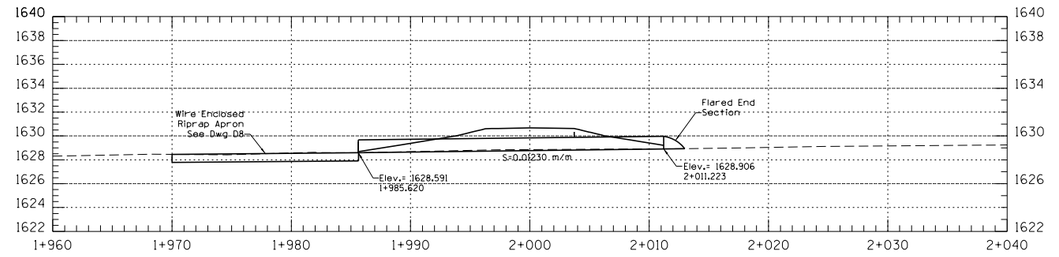
CULVERT CROSS SECTIONS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D10	

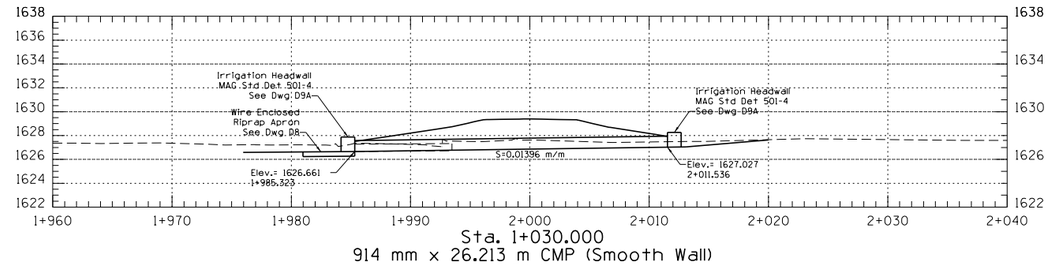
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona 5/4/26

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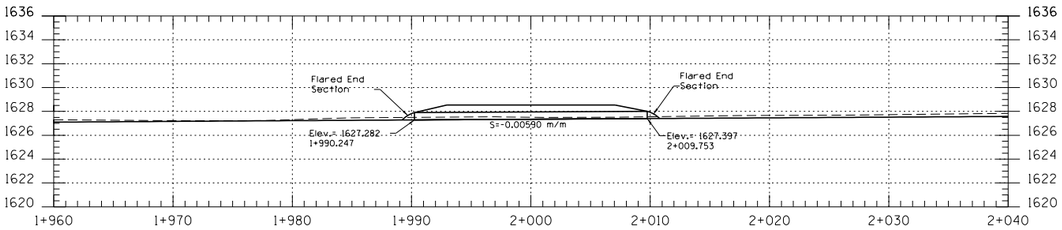
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	41	109



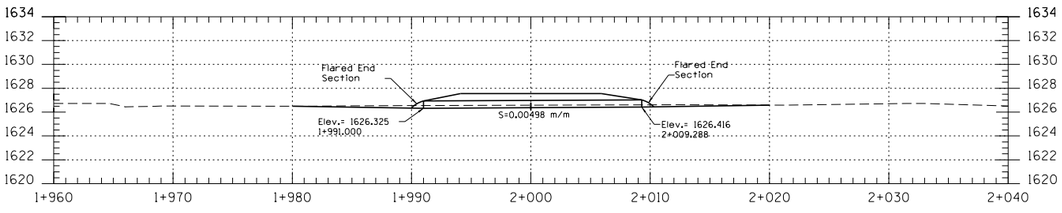
Sta. 1+595.000
2-914 mm x 25.603 m CMP
@ 76° Skew



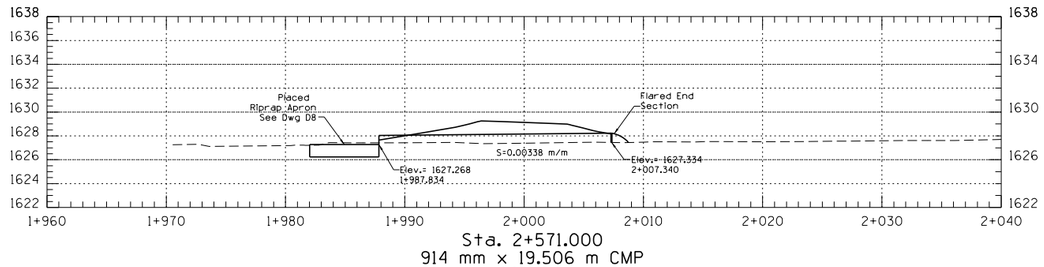
Sta. 1+030.000
914 mm x 26.213 m CMP (Smooth Wall)
@ 113° Skew



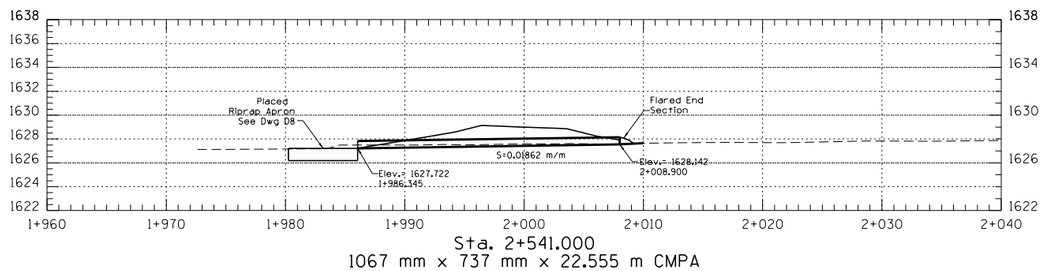
Sta. 0+883.000, 9.3 m Rt.
610 mm x 19.506 m CMP



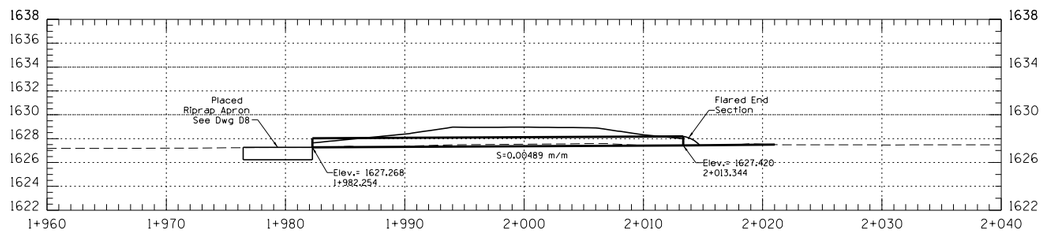
Sta. 0+720.000, 10.8 m Lt.
610 mm x 18.288 m CMP



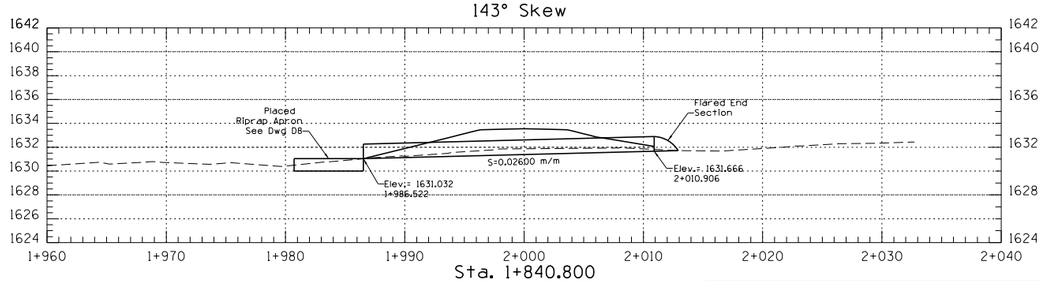
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914 mm x 19.506 m CMP
@ 90° Skew



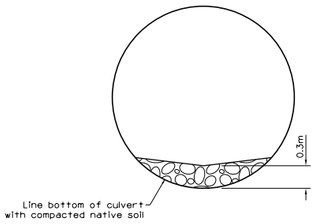
Sta. 2+541.000
1067 mm x 737 mm x 22.555 m CMPA
@ 90° Skew



Sta. 2+506.300
914 mm x 22.555 m CMP
143° Skew



Sta. 1+840.800
1067 mm x 767 mm x 24.384 m CMPA
@ 82° Skew



CULVERT SOIL LINING DETAIL

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

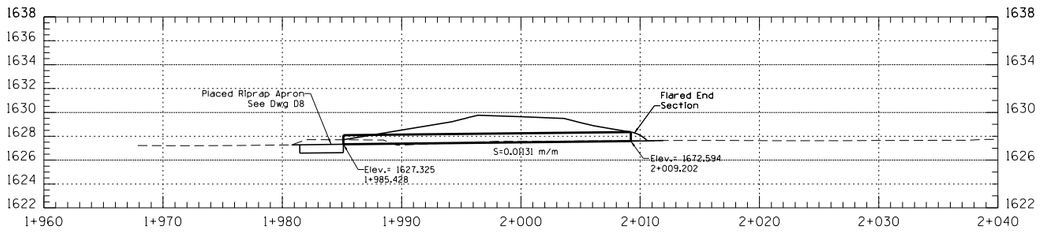
CULVERT CROSS SECTIONS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D11	

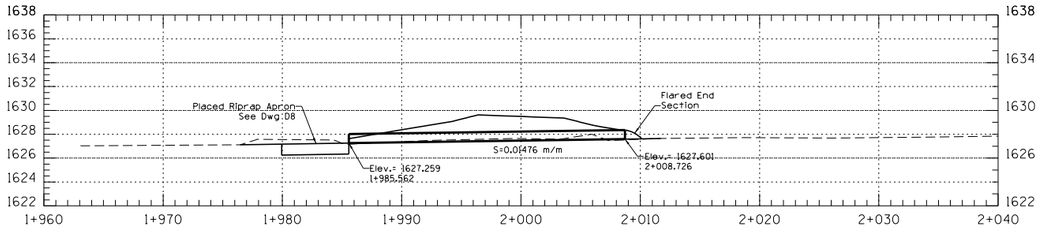
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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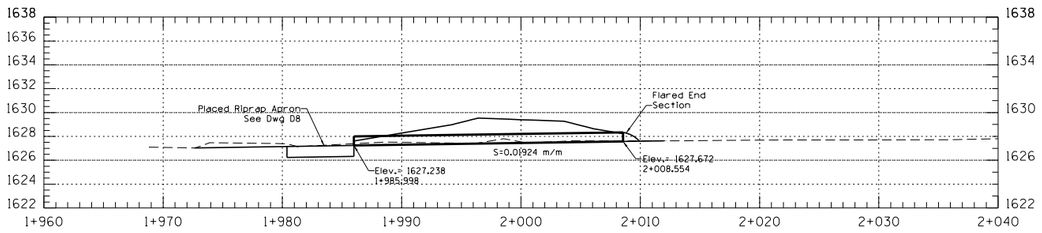
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
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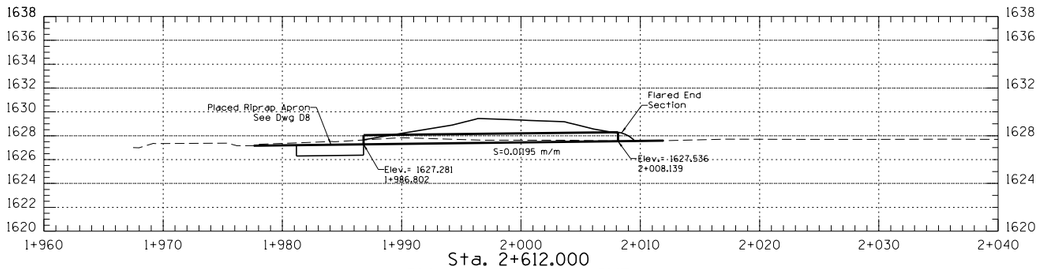
Sta. 2+683.000
914 mm x 23.774 m CMP
@ 90° Skew



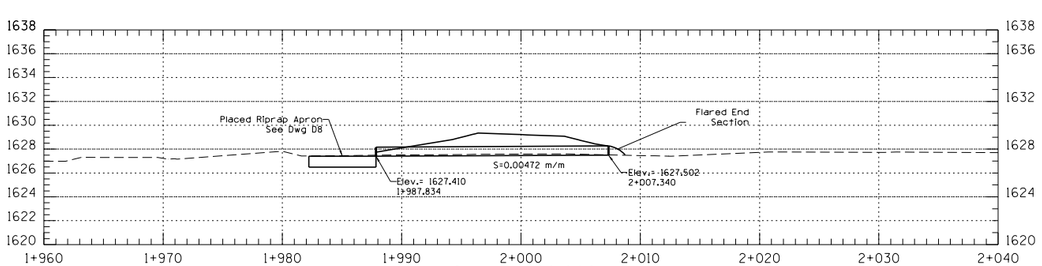
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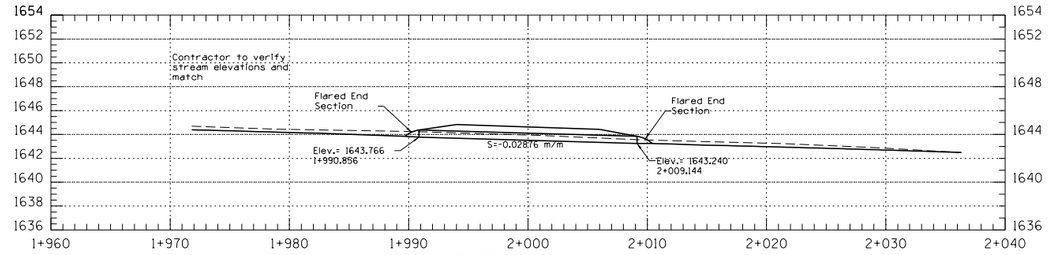
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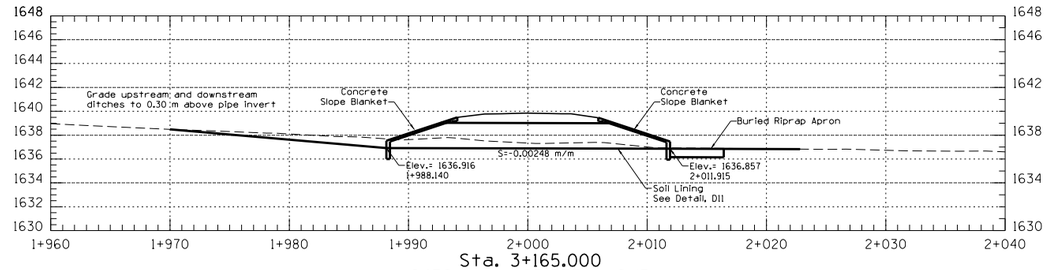
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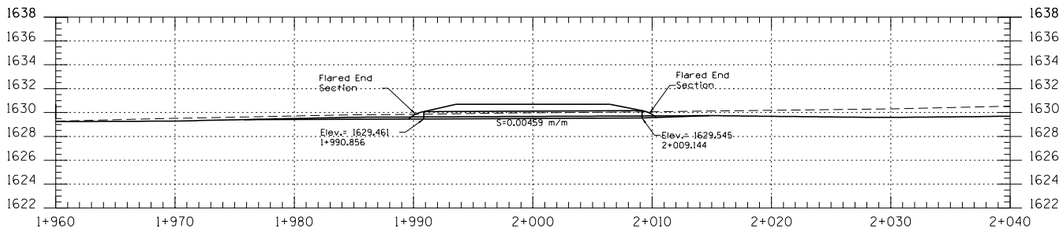
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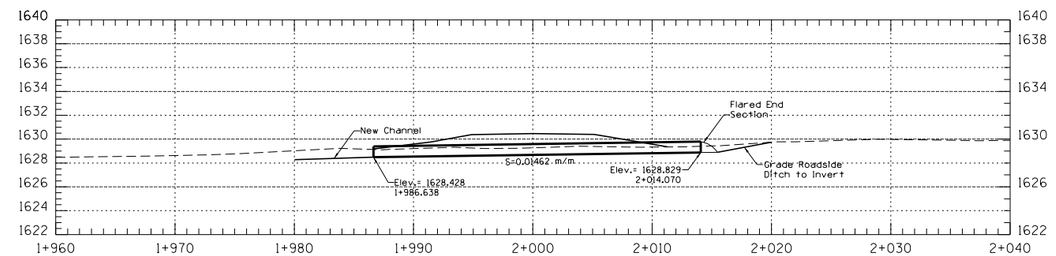
Sta. 3+660.000, 42.0 m Lt.
610 mm x 18.288 m CMP



Sta. 3+165.000
2438 mm x 23.775 m CMP
@ 90° Skew



Sta. 2+900.000, 10.3 m Lt.
610 mm x 18.288 m CMP



Sta. 2+861.200
2-914 mm x 23.774 m CMP
@ 45° Skew

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

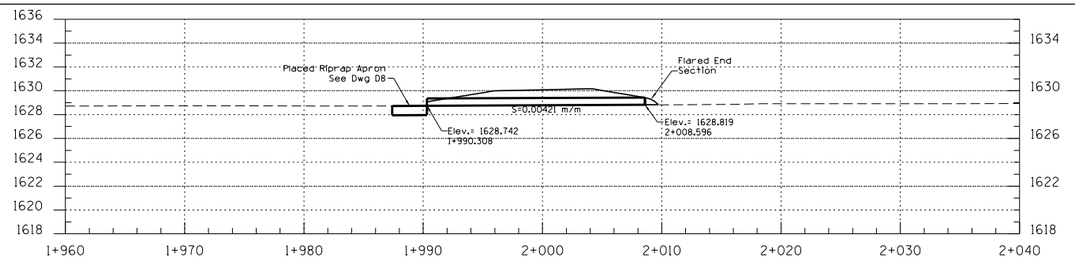
CULVERT CROSS SECTIONS

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DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D12	

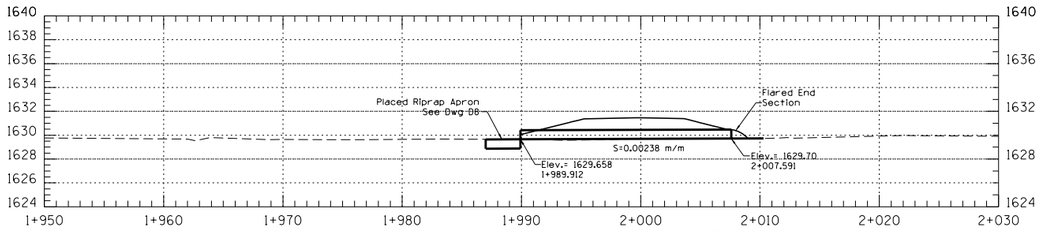
Registered Professional Engineer (Civil)
CERTIFICATE No.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26
ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D20.dgn

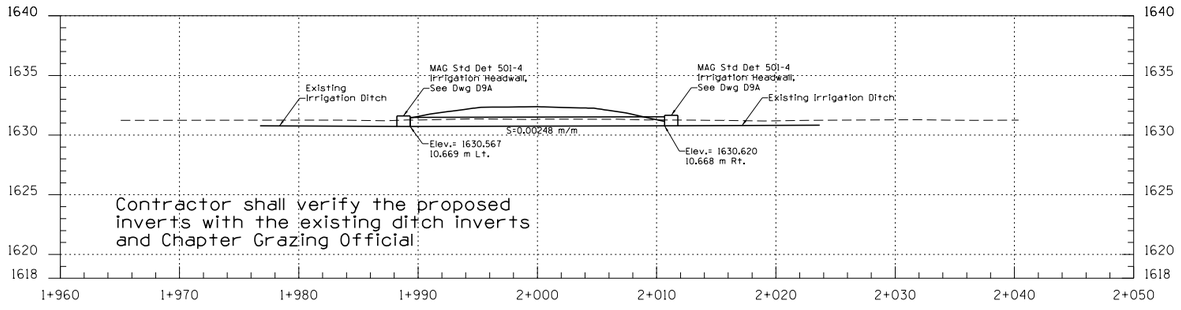
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	43	109



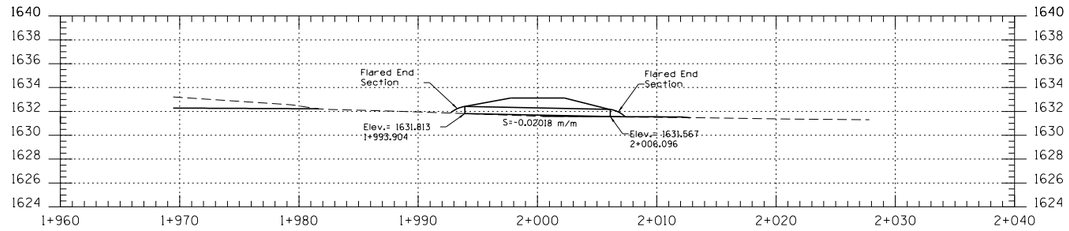
Sta. 4+772.000
1-1067 mm x 737 mm x 18.288 m CMPA
@ 78° Skew



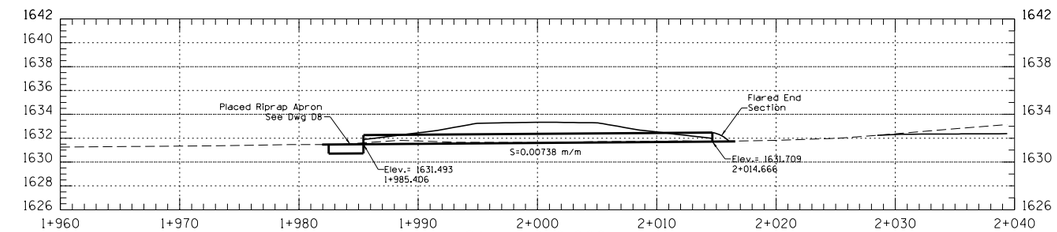
Sta. 4+505.300
1067 mm x 737 mm x 17.678 m CMPA
@ 90° Skew



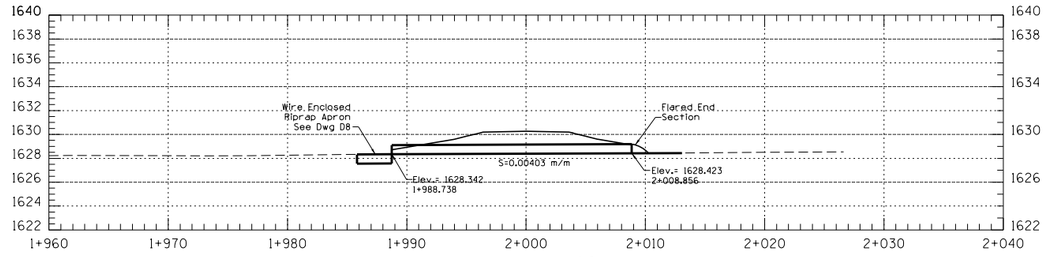
Sta. 4+178.800
1-914 mm x 21.336 m CMP (Smooth Wall)
@ 58° Skew



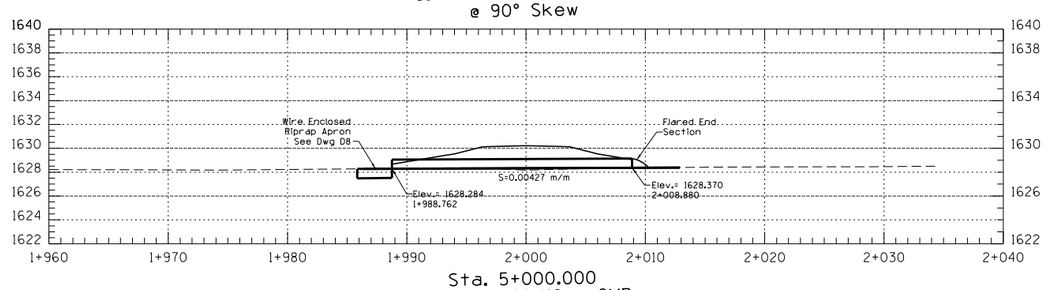
Sta. 4+130.000, 14.0 m Lt.
610 mm x 12.192 m CMP



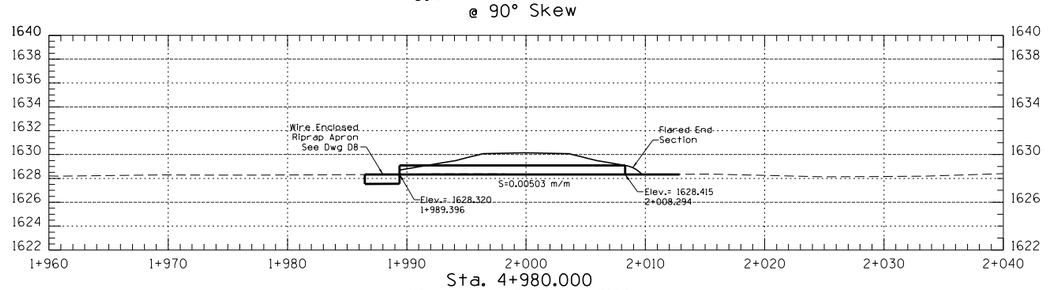
Sta. 4+130.000
3-914 mm x 24.994 m CMP
@ 135° Skew



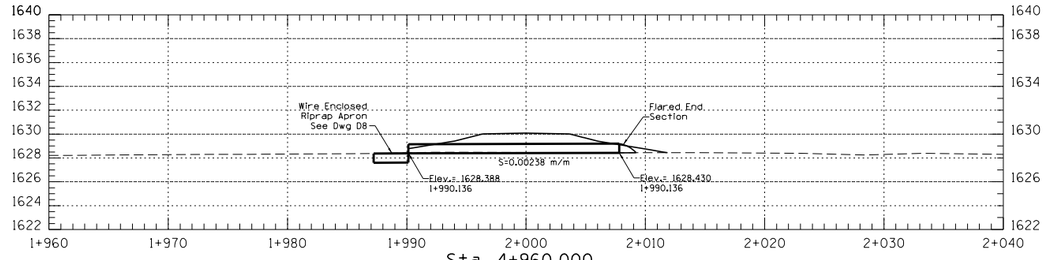
Sta. 5+020.000
914 mm x 20.118 m CMP
@ 90° Skew



Sta. 5+000.000
914 mm x 20.118 m CMP
@ 90° Skew



Sta. 4+980.000
914 mm x 18.898 m CMP
@ 90° Skew



Sta. 4+960.000
2-914 mm x 17.678 m CMP
@ 90° Skew

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

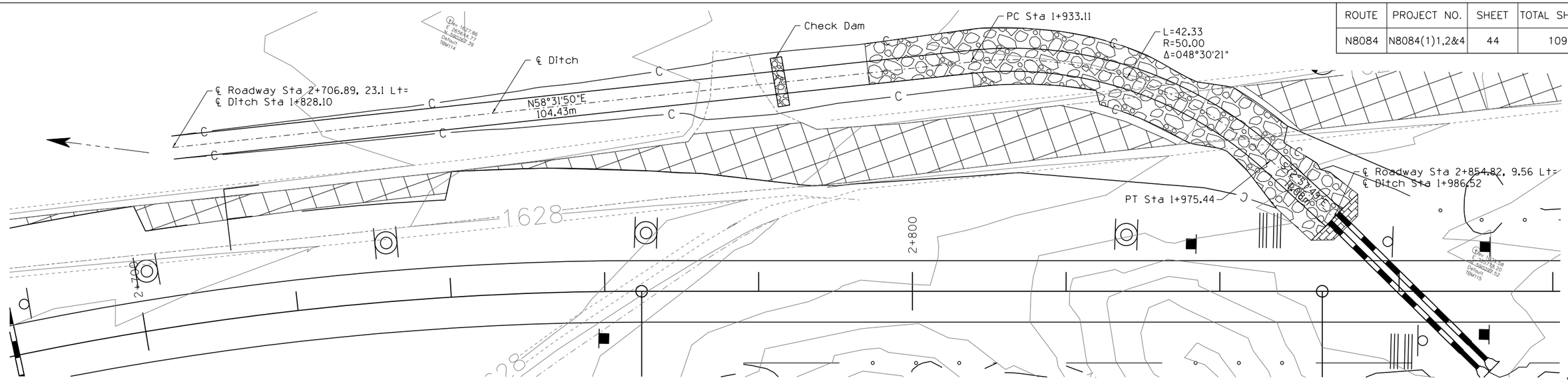
CULVERT CROSS SECTIONS

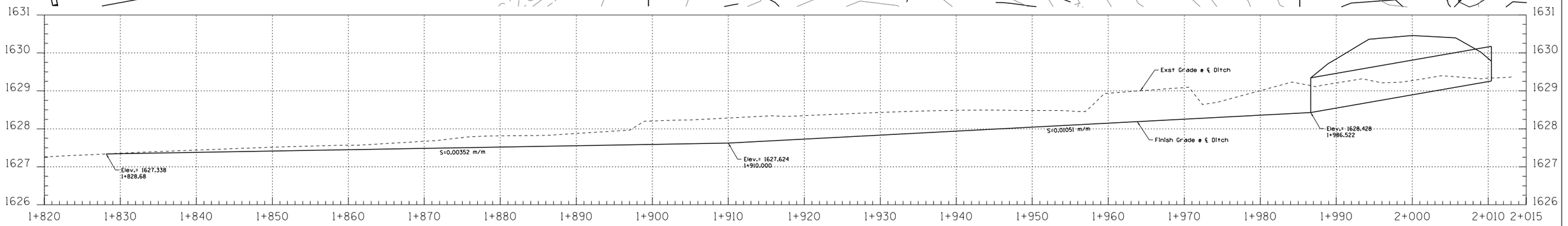
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D13	

Registered Professional Engineer (Civil)
CERTIFICATE NO.
25015
ANDREW JOHN
SPEAR
Date Signed 5/4/26
ARIZONA U.S.A.

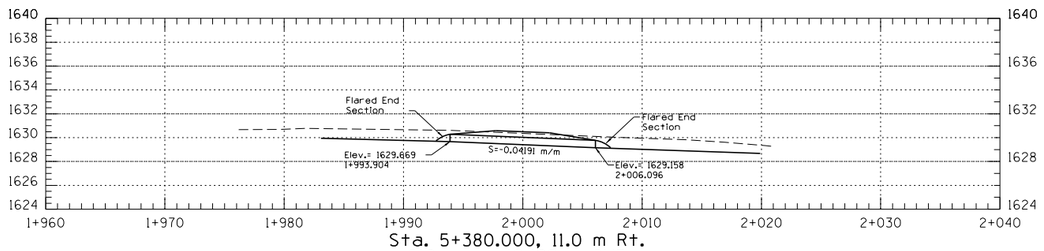
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	44	109

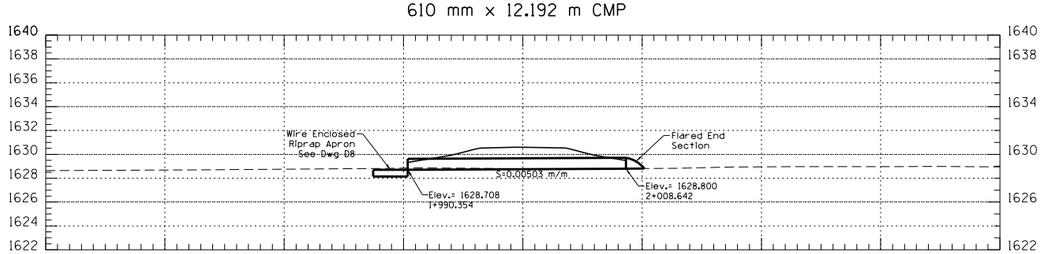




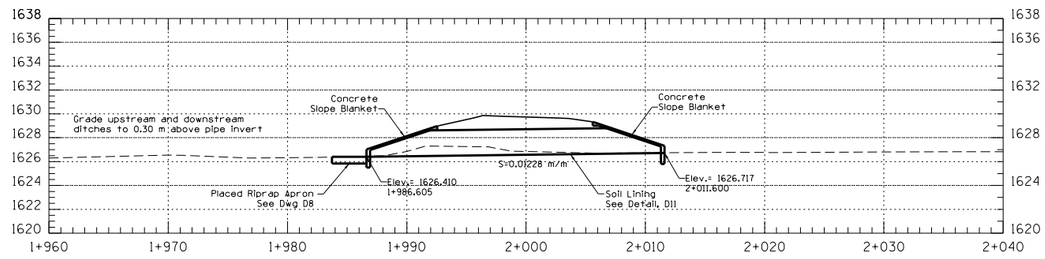
Sta. 2+861.200
Channel Lt.



Sta. 5+380.000, 11.0 m Rt.
610 mm x 12.192 m CMP



Sta. 5+125.800
2-914 mm x 18.288 m CMP
@ 90° Skew



Sta. 5+512.400
2438 mm x 24.995 m CMP
@ 90° Skew

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

CULVERT CROSS SECTIONS

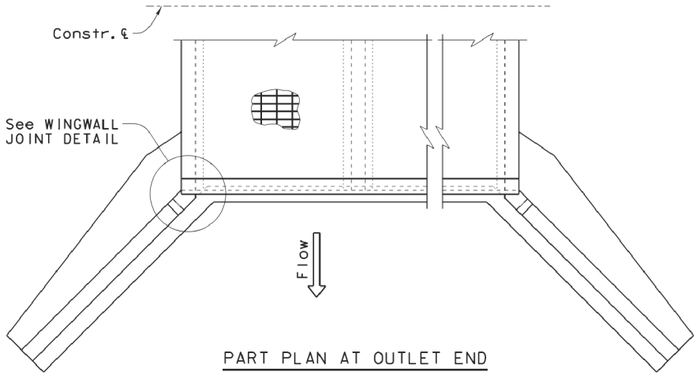
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: D14	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 NAVAJO NATION

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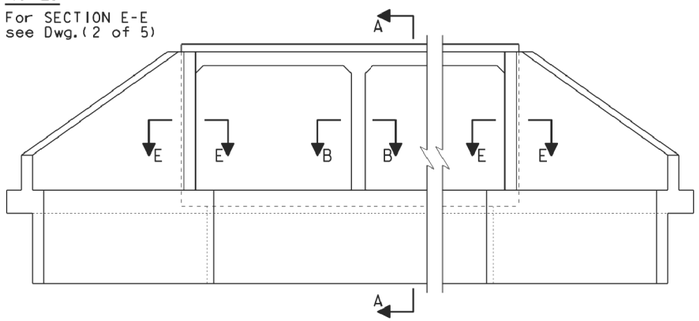
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N8084	N8084(1)1,2&4	45	109

NOTE: UNITS IN US CUSTOMARY



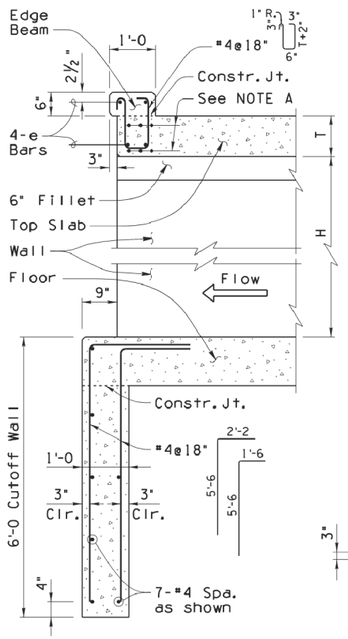
PART PLAN AT OUTLET END

NOTE:
For SECTION E-E see Dwg.(2 of 5)

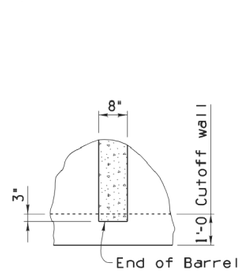


ELEVATION AT OUTLET END

NOTE A:
Use 3-#7 @3" spa. top and bott bars for culverts skewed 6° to 30°.
Use 3-#8 @3" spa. top and bott bars for culverts skewed 31° to 45°.
Culverts skewed over 45° require a special edge beam design.
Edge beam reinforcing quantity shall be added to table quantities.



SECTION A-A



SECTION B-B

e Bars			
Skew ∠	Span		
	6' & 8'	10'	12'
0° to 20°	#6	#6	#6
25° & 30°	#6	#6	#7
35°	#6	#7	#8
40° & 45°	#6	#7	#9

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest Edition.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 7th Edition 2014.

Loading Class - HL-93.

Design:
Soil weight = 120 p.c.f.

All Concrete shall be Class "S" (f'c = 3000 psi).

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All bends and hooks shall meet the requirements of AASHTO LRFD Article 5.10. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2" clear cover unless noted otherwise.

Chamfer all exposed corners ¾" unless noted otherwise.

Compact backfill for footing and wing base minimum 100 percent of ASTM D698 maximum dry density.

All structures shall have formed Construction joints in the top slab and walls (optional in floor slab) and spaced not more than 38'-6" apart or as shown in Project Plans. Joints shall be perpendicular to the centerline of the box. Reinforcing steel shall project 1'-6 thru the joint. The joint shall be made with a ¼" plywood bulkhead which shall be left in place or the alternate joint detail shown on Dwg.(2 of 5) may be used.

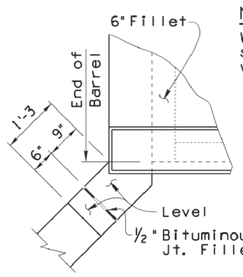
See Project Plans for culvert layout, invert elevations, finished grade elevations, headwall, apron, and other site specific details.

Dimensions shall not be scaled from drawings.

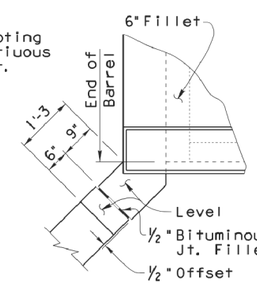
Pay item quantities of concrete and reinforcing steel include all labor and materials for box culvert, footing, headwalls, and aprons.
Total Quantities include Barrel and Headwall Quantities shown in Tables (plus added quantity for apron when used). Barrel Quantities Table is per linear foot of box (multiply by length of box to obtain barrel total). Headwall Quantities Table includes wings, edge beam, and cutoff wall.

Culverts measuring 20 ft and greater to the inside faces of exterior walls, along the roadway centerline, shall be assigned a structure number. The structure number shall be referenced in the culvert summary sheet and drainage details.

NOTE:
For Dimensions, Quantities and additional Details, see SD 6.01 (2 to 5).



NOTE:
Wing wall footing shall be contiuous with no joint.



WINGWALL JOINT DETAIL
(For Barrel Height < 8 Ft.)

WINGWALL JOINT DETAIL
(For Barrel Height ≥ 8 Ft.)

NOTE:
Special design sections shall be adjoined with standard barrels when necessary.

Culvert barrels always begin and end with Table No. I.

Thickness of top and bottom slabs vary with depths of fill as shown.

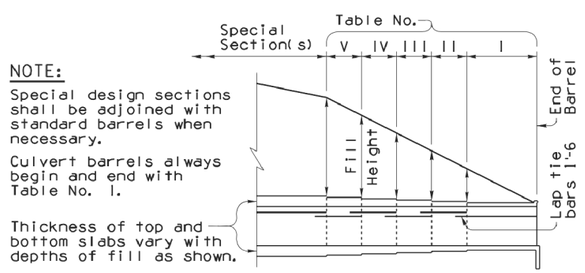


DIAGRAM SHOWING TABLE NO. TO BE USED FOR VARIOUS FILL HEIGHTS

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	S.U.H.	2-12
2	General updates	D.B.B.	5-15
3			
4			

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS MISCELLANEOUS DETAILS
ROUTE / PROJECT NO. / FA NO. / LOCATION	DRAWING NO. SD 6.01 (1 of 5) / SHEET NO. OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S1	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

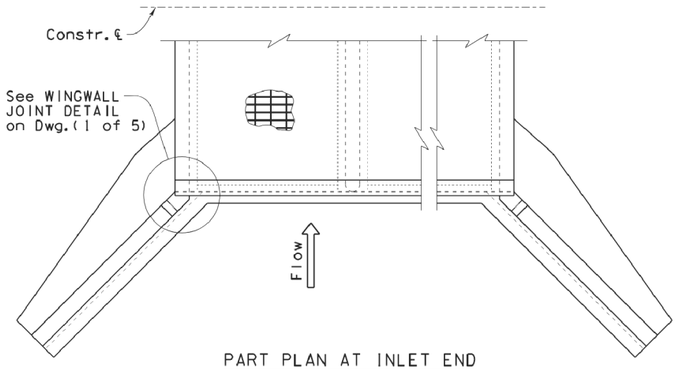
Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

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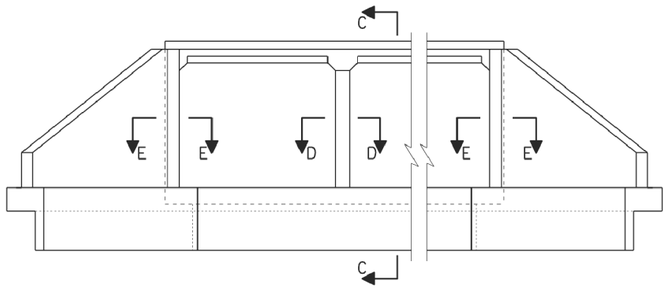
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	46	109

NOTE: UNITS IN US CUSTOMARY



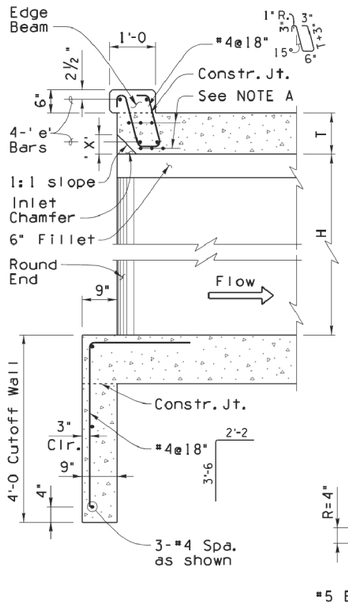
PART PLAN AT INLET END



ELEVATION AT INLET END

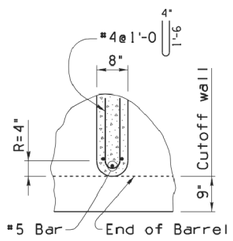
NOTE A:

Use 3-#7 @3" spa. top and bott bars for culverts skewed 6° to 30°.
Use 3-#8 @3" spa. top and bott bars for culverts skewed 31° to 45°.
Culverts skewed over 45° require a special edge beam design.
Edge beam reinforcing quantity shall be added to table quantities.

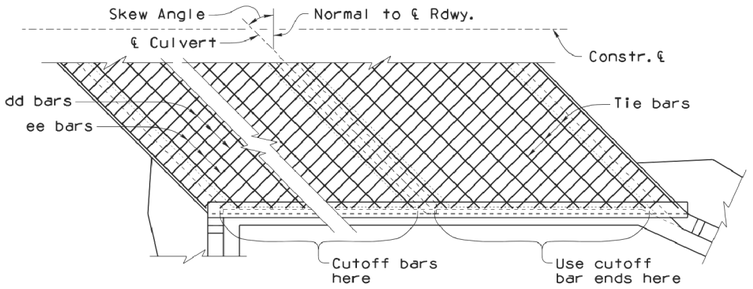


SECTION C-C

Span 'S'	Dim.'X'
6'	3"
8'	4"
10'	5"
12'	6"



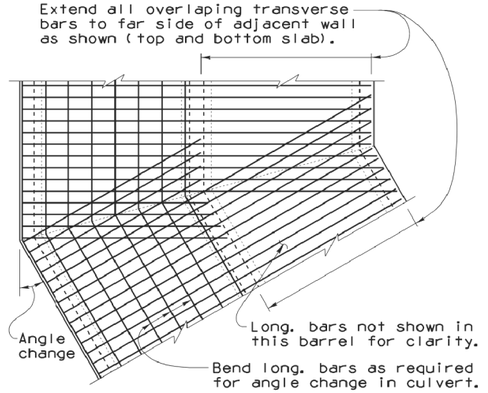
SECTION D-D



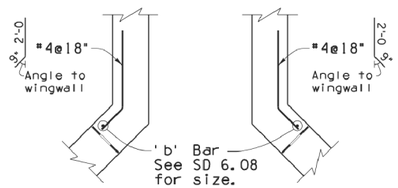
PART PLAN - SKEWED CULVERT
(Showing Reinf. Steel Placement)

NOTE:

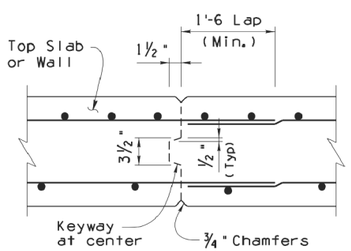
For 'e' Bars table, see Dwg.(1 of 5)



PART PLAN - ANGLED CULVERT
(Showing Reinf. Steel Placement)



SECTION E-E



ALT. CONSTRUCTION JOINT DETAIL

NOTE:

For General Notes, Dimensions, Quantities and additional Details, see SD 6.01 (1 & 3,4,5).

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	S.J.M.	2-12
2			
3			
4			

Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

DESIGN APPROVED: Shafi U. Hasan	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION: Jean A. Nehme	REINFORCED CONCRETE BOX CULVERTS MISCELLANEOUS DETAILS
ROUTE / PROJECT NO. / F.A. NO. / LOCATION	DRAWING NO. SD 6.01 (2 of 5) / SHEET NO. OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S2	

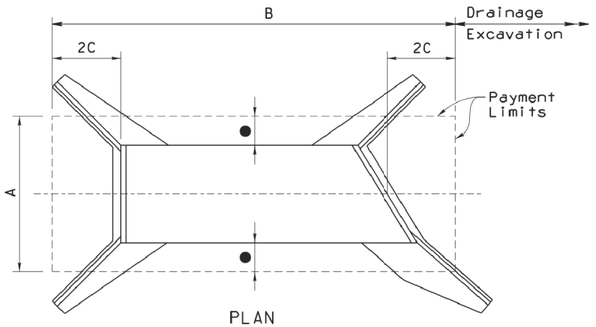
Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

20-JAN-2016 16:28 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD6.01-1 to 5\sd601-2_1916.dgn

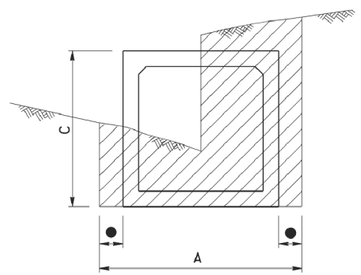
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	47	109

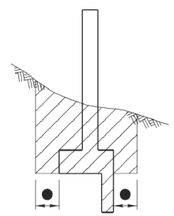
NOTE: UNITS IN US CUSTOMARY



PLAN



SECTION

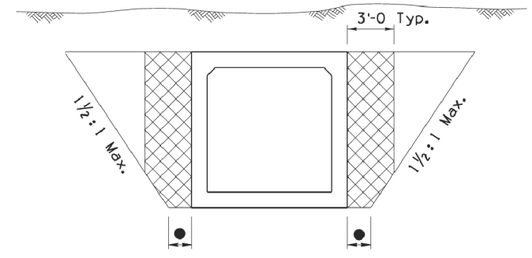


SECTION AT WING

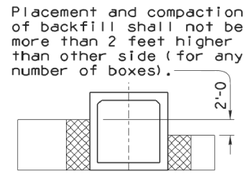
STRUCTURAL EXCAVATION - PAYMENT LIMITS

NOTE:

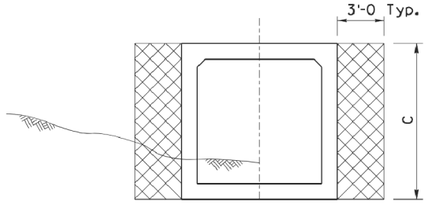
Payment limits shown include structural excavation for headwalls, cutoffwalls, wingwalls, end sections, etc.



SECTION



PLACEMENT DETAIL

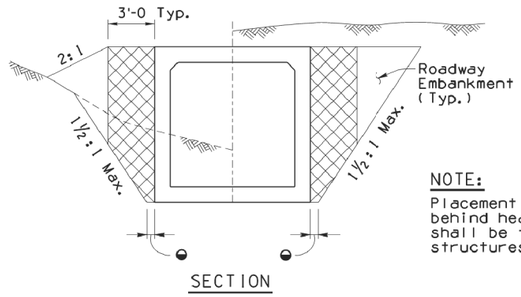


SECTION

STRUCTURE BACKFILL - MEASUREMENT

NOTE:

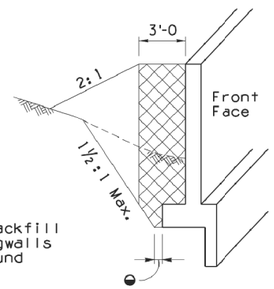
Computation of structure backfill quantities is based on the area of a typical installation times the total length of structure plus 2C.
Use C for box extensions on each end extended.
No measurment is necessary for wing arms.



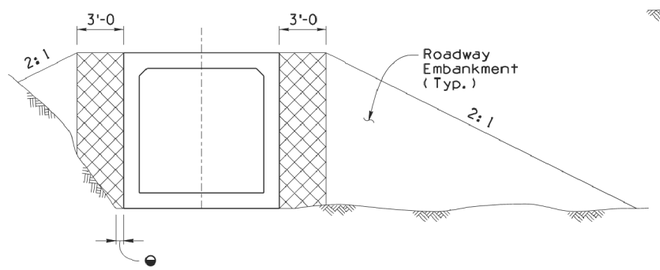
SECTION

NOTE:

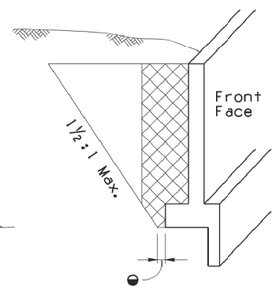
Placement of structure backfill behind headwalls and wingwalls shall be the same as around structures.



VIEW OF WING



SECTION



VIEW OF WING

STRUCTURE BACKFILL - PLACEMENT

LEGEND

A = Width
B = Length
C = Height of barrel or headwall without cutoff wall.
● = 6" Max. in rock and trench, 1'-6 max. all others
◒ = 6" Min. in rock and trench, 1'-6 min. all others
Indicates Structural Excavation
Indicates Structure Backfill
Indicates Roadway Embankment

NOTE:

For General Notes, Dimensions, Quantities and additional Details, see SD 6.01 (1,2,3 & 5).

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	SAVK	2-12
2			
3			
4			

Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability by a licensed professional engineer. Contents within the inner border line shall not be altered.

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS STRUCTURAL EXCAVATION & STRUCTURE BACKFILL
ROUTE / PROJECT NO. / FA NO.	DRAWING NO. SD 6.01 (4 of 5)
LOCATION	SHEET NO. OF

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S3	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

20-JAN-2016 16:33 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD6.01-1 to 5\sd601-4_1916.dgn

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	48	109

NOTE: UNITS IN US CUSTOMARY

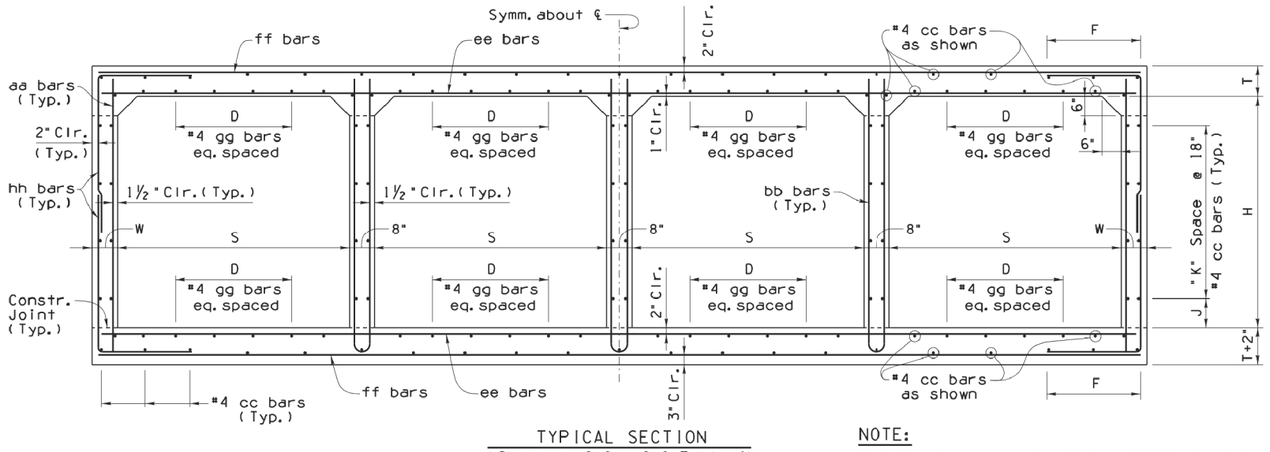
TABLE I
0'-10' FILL

Span "S"	Height "H"	Top Slab "T"	Walls "W"	aa Bar Size	aa Spacing	aa Length	bb Bar Size	bb Spacing	bb Length	cc Number ⌖	ee Bar Size	ee Spacing	ee Length	ff Bar Size	ff Spacing	ff Length	gg Number ⌖	gg D	hh Bar Size	hh Spacing	hh Length	hh F
6'	3'	9½"	8"	5	12"	4'-4	5	12"	8'-9	88	5	8"	26'-11	5	8"	26'-11	40	3'-0	4	8"	5'-1	2'-5
	4'	9½"	8"	5	12"	5'-4	5	12"	10'-9	98	5	8"	26'-11	5	8"	26'-11	40	3'-0	4	8"	5'-7	2'-5
	5'	9½"	8"	5	12"	6'-4	5	12"	12'-9	98	5	8"	26'-11	5	8"	26'-11	40	3'-0	4	8"	6'-1	2'-5
	6'	9½"	8"	5	12"	7'-4	5	12"	14'-9	108	5	8"	26'-11	5	8"	26'-11	40	3'-0	4	8"	6'-7	2'-5
	7'	9½"	8"	5	12"	8'-4	5	12"	16'-9	118	5	8"	26'-11	5	8"	26'-11	40	3'-0	4	8"	7'-1	2'-5
8'	3'	9½"	9"	5	12"	4'-4	5	12"	8'-8	98	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	5'-6	2'-6
	4'	9½"	9"	5	12"	5'-4	5	12"	10'-8	88	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	6'-0	2'-6
	5'	9½"	9"	5	12"	6'-4	5	12"	12'-8	98	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	6'-6	2'-6
	6'	9½"	9"	5	12"	7'-4	5	12"	14'-8	108	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	7'-0	2'-6
	7'	9½"	9"	5	12"	8'-4	5	12"	16'-8	118	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	7'-5	2'-6
	8'	9½"	9"	5	12"	9'-4	5	12"	18'-8	118	5	7"	35'-1	6	8"	35'-1	56	4'-0	5	8"	8'-0	2'-6
10'	3'	10½"	11"	5	12"	4'-6	5	12"	8'-11	88	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	5'-9	2'-8
	4'	10½"	11"	5	12"	5'-6	5	12"	10'-11	98	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	6'-3	2'-8
	5'	10½"	11"	5	12"	6'-6	5	12"	12'-11	98	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	6'-9	2'-8
	6'	10½"	11"	5	12"	7'-6	5	12"	14'-11	108	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	7'-3	2'-8
	7'	10½"	11"	5	12"	8'-6	5	12"	16'-11	118	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	7'-9	2'-8
	8'	10½"	11"	5	12"	9'-6	5	12"	18'-11	118	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	8'-3	2'-8
	9'	10½"	11"	5	12"	10'-6	5	12"	20'-11	128	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	8'-9	2'-8
	10'	10½"	11"	5	12"	11'-6	5	12"	22'-11	138	5	6"	43'-5	6	6"	43'-5	64	5'-0	5	6"	9'-3	2'-8
12'	8'	12½"	13"	5	12"	9'-10	5	12"	19'-7	118	6	7"	51'-9	7	7"	51'-9	88	6'-0	6	7"	8'-6	2'-10
	9'	12½"	13"	5	12"	10'-10	5	12"	21'-7	128	6	7"	51'-9	7	7"	51'-9	88	6'-0	6	7"	9'-0	2'-10
	10'	12½"	13"	5	12"	11'-10	5	12"	23'-7	138	6	7"	51'-9	7	7"	51'-9	88	6'-0	6	7"	9'-6	2'-10
	11'	12½"	13"	5	12"	12'-10	5	12"	25'-7	138	6	7"	51'-9	7	7"	51'-9	88	6'-0	6	7"	10'-0	2'-10
	12'	12½"	13"	5	12"	13'-10	5	12"	27'-7	148	6	7"	51'-9	7	7"	51'-9	88	6'-0	6	7"	10'-6	2'-10

TABLE II
10'-15' FILL

Span "S"	Height "H"	Top Slab "T"	Walls "W"	aa Bar Size	aa Spacing	aa Length	bb Bar Size	bb Spacing	bb Length	cc Number ⌖	ee Bar Size	ee Spacing	ee Length	ff Bar Size	ff Spacing	ff Length	gg Number ⌖	gg D	hh Bar Size	hh Spacing	hh Length	hh F
6'	3'	8"	8"	5	12"	4'-1	5	12"	8'-3	88	5	8"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-0	2'-5
	4'	8"	8"	5	12"	5'-1	5	12"	10'-3	98	5	8"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-6	2'-5
	5'	8"	8"	5	12"	6'-1	5	12"	12'-3	98	5	8"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-0	2'-5
	6'	8"	8"	5	12"	7'-1	5	12"	14'-3	108	5	8"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-6	2'-5
	7'	8"	8"	5	12"	8'-1	5	12"	16'-3	118	5	8"	26'-11	5	7"	26'-11	32	3'-0	4	7"	7'-0	2'-5
8'	3'	10½"	9"	5	12"	4'-6	5	12"	9'-1	88	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	5'-3	2'-6
	4'	10½"	9"	5	12"	5'-6	5	12"	11'-1	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	5'-9	2'-6
	5'	10½"	9"	5	12"	6'-6	5	12"	13'-1	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-3	2'-6
	6'	10½"	9"	5	12"	7'-6	5	12"	15'-1	108	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-9	2'-6
	7'	10½"	9"	5	12"	8'-6	5	12"	17'-1	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	7'-3	2'-6
	8'	10½"	9"	5	12"	9'-6	5	12"	19'-1	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	5	7"	7'-9	2'-6
10'	3'	12½"	11"	5	12"	4'-10	5	12"	9'-7	88	5	6"	43'-5	6	7"	43'-5	48	5'-0	5	7"	5'-10	2'-8
	4'	12½"	11"	5	12"	5'-10	5	12"	11'-7	98	5	6"	43'-5	6	7"	43'-5	48	5'-0	5	7"	6'-4	2'-8
	5'	12½"	11"	5	12"	6'-10	5	12"	13'-7	98	5	6"	43'-5	6	7"	43'-5	48	5'-0	5	7"	6'-10	2'-8
	6'	12½"	11"	5	12"	7'-10	5	12"	15'-7	108	5	6"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-4	2'-8
	7'	12½"	11"	5	12"	8'-10	5	12"	17'-7	118	5	6"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-10	2'-8
	8'	12½"	11"	5	12"	9'-10	5	12"	19'-7	118	5	6"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-4	2'-8
	9'	12½"	11"	5	12"	10'-10	5	12"	21'-7	128	5	6"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-10	2'-8
	10'	12½"	11"	5	12"	11'-10	5	12"	23'-7	138	5	6"	43'-5	7	7"	43'-5	48	5'-0	5	7"	9'-4	2'-8
12'	8'	15"	13"	5	12"	10'-3	5	12"	20'-4	118	6	7"	51'-9	7	7"	51'-9	56	6'-0	5	7"	8'-9	2'-11
	9'	15"	13"	5	12"	11'-3	5	12"	22'-4	128	6	7"	51'-9	7	7"	51'-9	56	6'-0	5	7"	9'-3	2'-11
	10'	15"	13"	5	12"	12'-3	5	12"	24'-4	138	6	7"	51'-9	7	7"	51'-9	56	6'-0	6	7"	9'-9	2'-11
	11'	15"	13"	5	10"	13'-3	5	12"	26'-4	138	6	7"	51'-9	7	7"	51'-9	56	6'-0	6	7"	10'-9	3'-5
	12'	15"	13"	5	10"	14'-3	5	12"	28'-4	148	6	7"	51'-9	7	7"	51'-9	56	6'-0	6	7"	11'-3	3'-5

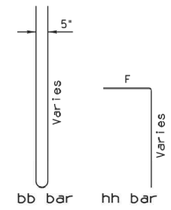
⌖ Total number of bars in the cross-section.



TYPICAL SECTION
(Shown as 6'-0 x 6'-0 Table I)

NOTE:
Reinforcing shown for 6'-0 x 6'-0 Table I box.
Use the appropriate table to determine the reinforcing requirements of selected box.

Height "H"	"J" Dim.	"K" Spaces
3'	9"	1
4'	6"	2
5'	12"	2
6'	9"	3
7'	6"	4
8'	12"	4
9'	9"	5
10'	6"	6
11'	12"	6
12'	9"	7



BENDS

NOTE:
For General Notes, Dimensions, and additional Details, see SD 6.01 (1 to 4). For Quantities and Tables III thru V see SD 6.04 (2 of 2).

New box culverts shall not be constructed using 3' or 4' heights without special approval from ADOT Bridge Group. Tables referencing these sizes are provided for extension of existing box culverts only.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	SJM.	2-12
2	Added 3'x3' height for existing box extensions only	DBB.	5-15
3			
4			

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS FOUR BARREL (0' - 15' FILLS)
ROUTE / PROJECT NO. / F.A. NO.	DRAWING NO. SD 6.04 (1 of 2)
LOCATION	SHEET NO. OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S4	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

21-JAN-2016 17:03 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD604-1 to 2\sd604-1_1916.dgn

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D25.dgn

No'e to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without consideration of the building site and conditions by a licensed professional engineer. Contents within the inner border line shall not be altered.

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	49	109

NOTE: UNITS IN US CUSTOMARY

TABLE III
15'-20' FILL

Span "S"	Height "H"	Top Slab "T"	Walls "W"	aa Bar Size	aa Spacing	aa Length	bb Bar Size	bb Spacing	bb Length	cc Number ⌖	ee Bar Size	ee Spacing	ee Length	ff Bar Size	ff Spacing	ff Length	gg Number ⌖	gg D	hh Bar Size	hh Spacing	hh Length	hh F
6'	3'	9½"	8"	5	12"	4'-4	5	12"	8'-9	88	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-1	2'-5
	4'	9½"	8"	5	12"	5'-4	5	12"	10'-9	98	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-7	2'-5
	5'	9½"	8"	5	12"	6'-4	5	12"	12'-9	98	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-1	2'-5
	6'	9½"	8"	5	12"	7'-4	5	12"	14'-9	108	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-7	2'-5
	7'	9½"	8"	5	10"	8'-4	5	12"	16'-9	118	5	7"	26'-11	5	6"	26'-11	32	3'-0	4	6"	7'-1	2'-5
8'	3'	12"	9"	5	12"	4'-9	5	12"	9'-7	88	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	5'-5	2'-6
	4'	12"	9"	5	12"	5'-9	5	12"	11'-7	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	5'-11	2'-6
	5'	12"	9"	5	12"	6'-9	5	12"	13'-7	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-5	2'-6
	6'	12"	9"	5	12"	7'-9	5	12"	15'-7	108	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-11	2'-6
	7'	12"	9"	5	12"	8'-9	5	12"	17'-7	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	5	7"	7'-5	2'-6
	8'	12"	9"	5	10"	9'-9	5	12"	19'-7	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	5	7"	7'-11	2'-6
10'	3'	15"	11"	5	12"	5'-3	5	12"	10'-5	88	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	6'-0	2'-8
	4'	15"	11"	5	12"	6'-3	5	12"	12'-5	98	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	6'-6	2'-8
	5'	15"	11"	5	12"	7'-3	5	12"	14'-5	98	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-0	2'-8
	6'	15"	11"	5	12"	8'-3	5	12"	16'-5	108	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-6	2'-8
	7'	15"	11"	5	12"	9'-3	5	12"	18'-5	118	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-0	2'-8
	8'	15"	11"	5	12"	10'-3	5	12"	20'-5	118	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-6	2'-8
	9'	15"	11"	5	12"	11'-3	5	12"	22'-5	128	6	8"	43'-5	7	7"	43'-5	48	5'-0	5	7"	9'-0	2'-8
	10'	15"	11"	5	12"	12'-3	5	12"	24'-5	138	6	8"	43'-5	7	7"	43'-5	48	5'-0	6	7"	9'-6	2'-9
12'	8'	18"	13"	5	12"	10'-9	5	12"	21'-1	118	6	6"	51'-9	7	6"	51'-9	56	6'-0	5	6"	9'-6	3'-5
	9'	18"	13"	5	12"	11'-9	5	12"	23'-1	128	6	6"	51'-9	7	6"	51'-9	56	6'-0	5	6"	10'-0	3'-5
	10'	18"	13"	5	10"	12'-9	5	12"	25'-1	138	6	6"	51'-9	7	6"	51'-9	56	6'-0	5	6"	10'-7	3'-5
	11'	18"	13"	5	10"	13'-9	5	12"	27'-1	138	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-1	3'-5
	12'	18"	13"	5	10"	14'-9	5	12"	29'-1	148	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-7	3'-5

TABLE IV
20'-25' FILL

Span "S"	Height "H"	Top Slab "T"	Walls "W"	aa Bar Size	aa Spacing	aa Length	bb Bar Size	bb Spacing	bb Length	cc Number ⌖	ee Bar Size	ee Spacing	ee Length	ff Bar Size	ff Spacing	ff Length	gg Number ⌖	gg D	hh Bar Size	hh Spacing	hh Length	hh F
6'	3'	11"	8"	5	12"	4'-7	5	12"	9'-2	88	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-3	2'-5
	4'	11"	8"	5	12"	5'-7	5	12"	11'-2	98	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	5'-9	2'-5
	5'	11"	8"	5	12"	6'-7	5	12"	13'-2	98	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-3	2'-5
	6'	11"	8"	5	12"	7'-7	5	12"	15'-2	108	5	7"	26'-11	5	7"	26'-11	32	3'-0	4	7"	6'-9	2'-5
	7'	11"	8"	5	10"	8'-7	5	12"	17'-2	118	5	7"	26'-11	5	7"	26'-11	32	3'-0	5	7"	7'-3	2'-5
8'	3'	14"	9"	5	12"	5'-1	5	12"	10'-1	88	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	5'-7	2'-6
	4'	14"	9"	5	12"	6'-1	5	12"	12'-1	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-1	2'-6
	5'	14"	9"	5	12"	7'-1	5	12"	14'-1	98	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	6'-7	2'-6
	6'	14"	9"	5	12"	8'-1	5	12"	16'-1	108	5	7"	35'-1	6	7"	35'-1	40	4'-0	4	7"	7'-1	2'-6
	7'	14"	9"	5	10"	9'-1	5	12"	18'-1	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	5	7"	7'-7	2'-6
	8'	14"	9"	5	10"	10'-1	5	12"	20'-1	118	5	7"	35'-1	6	7"	35'-1	40	4'-0	5	7"	8'-1	2'-6
10'	3'	17"	11"	5	12"	5'-7	5	12"	10'-11	88	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	6'-3	2'-9
	4'	17"	11"	5	12"	6'-7	5	12"	12'-11	98	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	6'-9	2'-9
	5'	17"	11"	5	12"	7'-7	5	12"	14'-11	98	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-3	2'-9
	6'	17"	11"	5	12"	8'-7	5	12"	16'-11	108	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	7'-9	2'-9
	7'	17"	11"	5	12"	9'-7	5	12"	18'-11	118	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-3	2'-9
	8'	17"	11"	5	12"	10'-7	5	12"	20'-11	118	6	7"	43'-5	7	7"	43'-5	48	5'-0	5	7"	8'-9	2'-9
	9'	17"	11"	5	12"	11'-7	5	12"	22'-11	128	6	7"	43'-5	7	7"	43'-5	48	5'-0	6	7"	9'-3	2'-9
	10'	17"	11"	5	10"	12'-7	5	12"	24'-11	138	6	7"	43'-5	7	7"	43'-5	48	5'-0	6	7"	9'-9	2'-9
12'	8'	20½"	13"	5	12"	11'-2	5	12"	22'-1	118	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	9'-3	2'-11
	9'	20½"	13"	5	12"	12'-2	5	12"	24'-1	128	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	9'-9	2'-11
	10'	20½"	13"	5	10"	13'-2	5	12"	26'-1	138	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	10'-3	2'-11
	11'	20½"	13"	5	10"	14'-2	5	12"	28'-1	138	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-3	3'-5
	12'	20½"	13"	5	9"	15'-2	5	12"	30'-1	148	6	6"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-9	3'-5

⌖ Total number of bars in the cross-section.

TABLE V
25'-30' FILL

Span "S"	Height "H"	Top Slab "T"	Walls "W"	aa Bar Size	aa Spacing	aa Length	bb Bar Size	bb Spacing	bb Length	cc Number ⌖	ee Bar Size	ee Spacing	ee Length	ff Bar Size	ff Spacing	ff Length	gg Number ⌖	gg D	hh Bar Size	hh Spacing	hh Length	hh F
6'	3'	12½"	8"	5	12"	4'-10	5	12"	9'-10	88	5	7"	26'-11	5	6"	26'-11	32	3'-0	4	6"	5'-4	2'-5
	4'	12½"	8"	5	12"	5'-10	5	12"	11'-10	98	5	7"	26'-11	5	6"	26'-11	32	3'-0	4	6"	5'-10	2'-5
	5'	12½"	8"	5	12"	6'-10	5	12"	13'-10	98	5	7"	26'-11	5	6"	26'-11	32	3'-0	4	6"	6'-4	2'-5
	6'	12½"	8"	5	12"	7'-10	5	12"	15'-10	108	5	7"	26'-11	5	6"	26'-11	32	3'-0	4	6"	6'-10	2'-5
	7'	12½"	8"	5	10"	8'-10	5	12"	17'-10	118	5	7"	26'-11	5	6"	26'-11	32	3'-0	5	6"	7'-4	2'-5
8'	3'	16"	9"	5	12"	5'-5	5	12"	10'-11	88	5	6"	35'-1	6	6"	35'-1	40	4'-0	4	6"	6'-0	2'-6
	4'	16"	9"	5	12"	6'-5	5	12"	12'-11	98	5	6"	35'-1	6	6"	35'-1	40	4'-0	4	6"	6'-6	2'-6
	5'	16"	9"	5	12"	7'-5	5	12"	14'-11	98	5	6"	35'-1	6	6"	35'-1	40	4'-0	4	6"	6'-9	2'-6
	6'	16"	9"	5	12"	8'-5	5	12"	16'-11	108	5	6"	35'-1	6	6"	35'-1	40	4'-0	4	6"	7'-3	2'-6
	7'	16"	9"	5	10"	9'-5	5	12"	18'-11	118	5	6"	35'-1	6	6"	35'-1	40	4'-0	5	6"	7'-9	2'-6
	8'	16"	9"	5	10"	10'-5	5	12"	20'-11	118	5	6"	35'-1	6	6"	35'-1	40	4'-0	5	6"	8'-3	2'-6
10'	3'	19"	11"	5	12"	5'-11	5	12"	11'-6	88	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	6'-6	2'-9
	4'	19"	11"	5	12"	6'-11	5	12"	13'-6	98	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	7'-0	2'-9
	5'	19"	11"	5	12"	7'-11	5	12"	15'-6	98	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	7'-6	2'-9
	6'	19"	11"	5	12"	8'-11	5	12"	17'-6	108	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	8'-0	2'-9
	7'	19"	11"	5	12"	9'-11	5	12"	19'-6	118	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	8'-6	2'-9
	8'	19"	11"	5	12"	10'-11	5	12"	21'-6	118	6	6"	43'-5	7	6"	43'-5	48	5'-0	5	6"	9'-0	2'-9
	9'	19"	11"	5	10"	11'-11	5	12"	23'-6	128	6	6"	43'-5	7	6"	43'-5	48	5'-0	6	6"	9'-6	2'-9
	10'	19"	11"	5	9"	12'-11	5	12"	25'-6	138	6	6"	43'-5	7	6"	43'-5	48	5'-0	6	6"	10'-0	2'-9
12'	8'	23"	13"	5	12"	11'-7	5	12"	22'-7	118	7	7"	51'-9	7	6"	51'-9	56	6'-0	6	6"	10'-0	3'-5
	9'	23"	13"	5	10"	12'-7	5	12"	24'-7	128	7	7"	51'-9	7	6"	51'-9	56	6'-0	6	6"	10'-6	3'-5
	10'	23"	13"	5	10"	13'-7	5	12"	26'-7	138	7	7"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-0	3'-5
	11'	23"	13"	5	10"	14'-7	5	12"	28'-7	138	7	7"	51'-9	7	6"	51'-9	56	6'-0	6	6"	11'-6	3'-5
	12'	23"	13"	5	7"	15'-7	5	12"	30'-7	148	7	7"	51'-9	7	6"	51'-9	56	6'-0	6	6"	12'-0	3'-5

QUANTITIES PER LINEAR FT. OF BARREL (FOUR BARREL)

Span "S"	Height "H"	Table I Concrete C.Y.	Table I Reinf. Steel Lbs.	Table II Concrete C.Y.	Table II Reinf. Steel Lbs.	Table III Concrete C.Y.	Table III Reinf. Steel Lbs.	Table IV Concrete C.Y.	Table IV Reinf. Steel Lbs.	Table V Concrete C.Y.	Table V Reinf. Steel Lbs.
6'	3'	2.179	310.7	1.926	317.9	2.179	332.3	2.432	334.9	2.685	358.0
	4'	2.302	327.8	2.049	335.2	2.302	349.6	2.556	352.2	2.809	375.7
	5'	2.426	338.1	2.173	345.8	2.426	360.3	2.679	362.9	2.932	386.8
	6'	2.549	355.1	2.296	363.1	2.549	377.6	2.802	380.2	3.056	404.5
	7'	2.673	372.2	2.420	380.4	2.673	419.9	2.926	419.7	3.179	447.8
8'	3'	2.727	450.3	2.946	453.4	3.275	456.3	3.713	459.3	4.151	518.8
	4'	2.856	468.4	3.076	470.7	3.404	473.6	3.843	476.6	4.281	536.5
	5'	2.986	479.9	3.205	481.4	3.534	484.2	3.972	487.2	4.410	547.5
	6'	3.116	498.1	3.335	498.7	3.664	501.5	4.102	504.6	4.540	565.2
	7'	3.245	515.7	3.465	516.0	3.793	537.9	4.231	545.2	4.670	610.1
	8'	3.375	527.7	3.594	546.6	3.923	553.9	4.361	557.5	4.799	623.1
10'	3'	3.575	628.8	4.116	658.0	4.792	677.2	5.333	709.1	5.874	809.2
	4'	3.717	648.0	4.258	676.6	4.934	695.8	5.475	727.7	6.016	828.4
	5'	3.859	660.5	4.400	688.5	5.076	707.7	5.617	739.6	6.158	840.9
	6'	4.001	679.0	4.542	707.1	5.218	726.3	5.759	758.2	6.300	860.1
	7'	4.142	698.9	4.684	725.7	5.360	744.9	5.901	776.8	6.442	879.3
	8'	4.284	711.4	4.826	737.6	5.502	756.8	6.043	788.7	6.584	891.9
	9'	4.426	730.6	4.968	756.2	5.644	775.4	6.185	836.5	6.726	950.9
	10'	4.568	749.8	5.110	774.8	5.786	823.9	6.327	861.9	6.868	975.9
12'	8'	5.619	936.0	6.424	892.9	7.390	1017.9	8.195	1053.8	9.000	1116.9
	9'	5.773	956.2	6.578	911.5	7.544	1037.1	8.349	1074.8	9.154	1143.2
	10'	5.927	976.3	6.733	960.7	7.699	1062.3	8.504	1101.4	9.309	1164.7
	11'	6.082	989.8	6.887	984.9	7.853	1115.9	8.658	1122.1	9.463	1179.4
	12'	6.236	1010.0	7.041	1005.5	8.007	1137.4	8.812	1147.8	9.617	1217.6

New box culverts shall not be constructed using 3' or 4' heights without special approval from ADOT Bridge Group. Tables referencing these sizes are provided for extension of existing box culverts only.

NOTE:
For General Notes, Dimensions, and additional Details, see SD 6.01 (1 to 4). For Typical Section and Details, see SD 6.04 (1 of 2).

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	SJM.	2-12
2	Added 3'-0" height for existing box extensions only	DBB.	5-15
3			
4			

Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability by a licensed professional engineer. Contents within the inner border line shall not be altered.

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS FOUR BARREL (15' - 30' FILLS)
ROUTE / PROJECT NO. / F.A. NO.	DRAWING NO. SD 6.04 (2 of 2)
LOCATION	SHEET NO. OF

21-JAN-2016 17:06 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD604-1 to 2\sd604-2_1916.dgn

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D26.dgn

NAVAJO DIVISION OF TRANSPORTATION DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S5	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	50	109

NOTE: UNITS IN US CUSTOMARY

INLET WINGS

Span	Height	0°Skew				5°Skew				10°Skew				15°Skew				20°Skew				25°Skew				30°Skew				35°Skew				40°Skew				45°Skew			
		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.	
		I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s
6'	3'	5.41	0.86	394	80	5.47	0.87	405	80	5.53	0.88	409	81	5.80	0.89	436	83	6.14	0.92	462	85	6.53	0.95	487	88	6.62	1.00	503	93	6.60	1.05	496	98	6.87	1.13	507	105	7.28	1.22	542	113
	4'	7.11	0.86	516	80	7.46	0.87	540	80	7.57	0.88	544	81	7.97	0.89	583	83	8.38	0.92	602	85	8.81	0.95	640	88	9.05	1.00	671	93	9.03	1.05	660	98	9.33	1.13	676	105	9.80	1.22	719	113
	5'	9.32	0.86	666	80	9.56	0.87	688	80	9.83	0.88	698	81	10.44	0.89	752	83	11.03	0.92	796	85	11.65	0.95	840	88	11.77	1.00	852	93	11.92	1.05	862	98	12.11	1.13	879	105	12.66	1.22	907	113
	6'	11.95	0.86	846	80	12.18	0.87	861	80	12.60	0.88	883	81	13.07	0.89	910	83	14.06	0.92	978	85	14.73	0.95	1025	88	14.89	1.00	1041	93	15.07	1.05	1059	98	15.45	1.13	1076	105	16.22	1.22	1129	113
	7'	14.99	0.86	1144	80	15.23	0.87	1169	80	15.67	0.88	1191	81	16.32	0.89	1169	83	17.26	0.92	1238	85	18.19	0.95	1306	88	18.38	1.00	1338	93	18.41	1.05	1340	98	19.11	1.13	1383	105	20.11	1.22	1447	113
8'	3'	5.70	1.13	440	105	5.77	1.14	453	106	5.83	1.15	457	107	6.11	1.17	493	109	6.46	1.21	522	112	6.86	1.25	549	116	6.97	1.31	559	121	6.96	1.38	560	128	7.26	1.48	573	137	7.71	1.60	611	149
	4'	7.41	1.13	541	105	7.76	1.14	565	106	7.88	1.15	570	107	8.28	1.17	613	109	8.71	1.21	635	112	9.15	1.25	670	116	9.40	1.31	697	121	9.40	1.38	696	128	9.72	1.48	713	137	10.23	1.60	758	149
	5'	9.62	1.13	691	105	9.86	1.14	713	106	10.14	1.15	724	107	10.76	1.17	782	109	11.35	1.21	829	112	11.99	1.25	874	116	12.13	1.31	880	121	12.30	1.38	898	128	12.51	1.48	910	137	13.09	1.60	946	149
	6'	12.25	1.13	908	105	12.48	1.14	922	106	12.91	1.15	949	107	13.39	1.17	985	109	14.39	1.21	1058	112	15.07	1.25	1108	116	15.24	1.31	1118	121	15.45	1.38	1144	128	15.86	1.48	1163	137	16.65	1.60	1219	149
	7'	15.29	1.13	1169	105	15.54	1.14	1194	106	15.99	1.15	1217	107	16.64	1.17	1202	109	17.59	1.21	1272	112	18.54	1.25	1331	116	18.75	1.31	1361	121	18.79	1.38	1376	128	19.52	1.48	1421	137	20.55	1.60	1487	149
	8'	22.19	1.13	1272	105	22.92	1.14	1341	106	23.44	1.15	1373	107	24.54	1.17	1454	109	26.21	1.21	1536	112	27.46	1.25	1637	116	27.73	1.31	1678	121	28.23	1.38	1690	128	28.87	1.48	1759	137	30.33	1.60	1844	149
10'	3'	6.01	1.40	484	130	6.08	1.41	497	131	6.15	1.43	502	132	6.43	1.45	532	135	6.79	1.49	563	139	7.21	1.55	594	144	7.33	1.62	610	150	7.34	1.71	634	188	7.66	1.83	658	201	8.14	1.99	697	217
	4'	7.72	1.40	587	130	8.07	1.41	612	131	8.20	1.43	617	132	8.60	1.45	656	135	9.04	1.49	679	139	9.50	1.55	718	144	9.77	1.62	747	150	9.79	1.71	774	188	10.13	1.83	802	201	10.67	1.99	849	217
	5'	9.93	1.40	740	130	10.18	1.41	763	131	10.46	1.43	774	132	11.09	1.45	827	135	11.69	1.49	876	139	12.35	1.55	926	144	12.50	1.62	938	150	12.69	1.71	980	188	12.92	1.83	1003	201	13.54	1.99	1038	217
	6'	12.56	1.40	960	130	12.80	1.41	974	131	13.23	1.43	1003	132	13.73	1.45	1033	135	14.74	1.49	1109	139	15.44	1.55	1164	144	15.62	1.62	1179	150	15.84	1.71	1230	188	16.27	1.83	1260	201	17.10	1.99	1317	217
	7'	15.61	1.40	1224	130	15.86	1.41	1250	131	16.32	1.43	1274	132	16.98	1.45	1248	135	17.94	1.49	1326	139	18.90	1.55	1390	144	19.13	1.62	1426	150	19.19	1.71	1466	188	19.94	1.83	1521	201	21.00	1.99	1588	217
	8'	22.53	1.40	1329	130	23.26	1.41	1400	131	23.79	1.43	1433	132	24.90	1.45	1509	135	26.59	1.49	1594	139	27.85	1.55	1700	144	28.14	1.62	1746	150	28.65	1.71	1783	188	29.32	1.83	1858	201	30.81	1.99	1949	217
	9'	27.10	1.40	1696	130	27.89	1.41	1777	131	28.51	1.43	1813	132	29.59	1.45	1889	135	31.58	1.49	1994	139	33.16	1.55	2059	144	33.52	1.62	2119	150	34.13	1.71	2161	188	34.99	1.83	2229	201	37.02	1.99	2373	217
	10'	32.19	1.40	1986	130	32.69	1.41	2024	131	33.64	1.43	2086	132	35.14	1.45	2186	135	37.00	1.49	2309	139	39.02	1.55	2460	144	39.57	1.62	2534	150	40.08	1.71	2610	188	41.61	1.83	2724	201	43.56	1.99	2845	217
12'	8'	22.90	1.69	1358	156	23.64	1.69	1431	157	24.18	1.71	1464	159	25.30	1.74	1535	162	27.01	1.79	1634	196	28.30	1.86	1738	204	28.60	1.95	1784	213	29.13	2.06	1795	265	29.82	2.20	1853	334	31.36	2.38	1961	361
	9'	27.51	1.69	1727	156	28.27	1.69	1809	157	28.90	1.71	1836	159	29.99	1.74	1923	162	32.01	1.79	2034	196	33.61	1.86	2098	204	33.99	1.95	2157	213	34.62	2.06	2173	265	35.50	2.20	2237	334	37.57	2.38	2371	361
	10'	32.56	1.69	2017	156	33.07	1.69	2055	157	34.04	1.71	2118	159	35.55	1.74	2211	162	37.44	1.79	2350	196	39.48	1.86	2499	204	40.05	1.95	2557	213	40.58	2.06	2624	265	42.13	2.20	2733	334	44.12	2.38	2857	361
	11'	38.57	1.69	2712	156	39.08	1.69	2769	157	40.14	1.71	2826	159	41.99	1.74	2936	162	44.34	1.79	3066	196	46.53	1.86	3210	204	46.83	1.95	3279	213	47.71	2.06	3377	265	49.46	2.20	3521	334	51.86	2.38	3732	361
	12'	45.28	1.69	3461	156	45.88	1.69	3529	157	47.13	1.71	3648	159	48.97	1.74	3754	162	52.07	1.79	3964	196	54.07	1.86	4114	204	54.80	1.95	4184	213	55.90	2.06	4269	265	57.84	2.20	4381	334	61.21	2.38	4679	361

OUTLET WINGS

Span	Height	0°Skew				5°Skew				10°Skew				15°Skew				20°Skew				25°Skew				30°Skew				35°Skew				40°Skew				45°Skew			
		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.	
		I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s	I Bbl.	△c	I Bbl.	△s
6'	3'	8.58	1.55	639	135	8.74	1.56	657	135	8.75	1.58	658	137	8.96	1.61	667	140	9.17	1.65	685	143	9.16	1.71	679	149	9.29	1.79	703	156	9.25	1.90	695	165	9.62	2.03	711	177	10.19	2.20	763	191
	4'	11.40	1.55	837	135	11.58	1.56	843	135	11.60	1.58	845	137	11.65	1.61	853	140	11.97	1.65	867	143	11.89	1.71	862	149	12.21	1.79	905	156	12.19	1.90	892	165	12.58	2.03	714	177	13.21	2.20	874	191
	5'	14.49	1.55	1043	135	14.71	1.56	1062	135	14.74	1.58	1060	137	14.78	1.61	1062	140	15.34	1.65	1098	143	15.28	1.71	1099	149	15.43	1.79	1120	156	15.62	1.90	1131	165	15.86	2.03	1150	177	16.57	2.20	1195	191
	6'	17.97	1.55	1241	135	17.99	1.56	1235	135	18.26	1.58	1278	137	18.51	1.61	1281	140	18.92	1.65	1314	143	18.85	1.71	1317	149	19.04	1.79	1342	156	19.26	1.90	1362	165	19.75	2.03	1584	177	20.67	2.20	1453	191
	7'	21.70	1.55	1493	135	21.82	1.56	1512	135	22.09	1.58	1584	137	22.38	1.61	1611	140	23.06	1.65	1656	143	22.81	1.71	1631	149	23.03	1.79	1672	156	23.05	1.90	1673	165	23.90	2.03	1725	177	25.06	2.20	1805	191
8'	3'	9.12	2.02	706	177	9.29	2.03	723	178	9.31	2.05	726	180	9.53	2.09	751	184	9.76	2.15	770	189	9.76	2.23	764	196	9.91	2.34	776	204	9.91	2.47	783	216	10.32	2.64	801	231	10.95	2.86	857	251
	4'	11.96	2.02	877	177	12.14	2.03	883	178	12.17	2.05	885	180	12.23	2.09	908	184	12.56	2.15	919	189	12.50	2.23	915	196	12.85	2.34	947	204	12.85	2.47	952	216	13.29	2.64	975	231	13.98	2.86	1038	251
	5'	15.06	2.02	1083	177	15.28	2.03	1102	178	15.31	2.05	1100	180	15.36	2.09	1117	184	15.94	2.15	1154	189	15.90	2.23	1155	196	16.08	2.34	1164	204	16.30	2.47	1190	216	16.58	2.64	1205	231	17.34	2.86	1259	251
	6'	18.55	2.02	1316	177	18.57	2.03	1310	178	18.84	2.05	1360	180	19.11	2.09	1385	184	19.53	2.15	1419	189	19.48	2.23	1423	196	19.69	2.34	1435	204	19.94	2.47	1470	216	20.48	2.64	1496	231	21.45	2.86	1569	251
	7'	22.28	2.02	1534	177	22.41	2.03	1553	178	22.68	2.05	1625	180	22.99	2.09	1670	184	23.68	2.15	1712	189	23.44	2.23	1679	196	23.69	2.34	1711	204	23.74	2.47	1733	216	24.64	2.64	1787	231	25.85	2.86	1870	251
	8'	30.92	2.02	1924	177	31.11	2.03	1901	178	31.48	2.05	1930	180	31.62	2.09	1958	184	32.45	2.15	1996	189	32.50	2.23	2019	196	32.81	2.34	2062	204	33.35	2.47	2084	216	34.09	2.64	2158	231	35.76	2.86	2264	251
10'	3'	9.69	2.51	775	220	9.86	2.52	794	221	9.89	2.55	794	223	10.12	2.59	805	228	10.37	2.67	825	235	10.40	2.77	824	243	10.57	2.89	849	254	10.60	3.06	874	298	11.05	3.27	911	318	11.74	3.54	961	344
	4'	12.54	2.51	949	220	12.72	2.52	956	221	12.76	2.55	958	223	12.83	2.59	967	228	13.73	2.67	980	235	13.14	2.77	978	243	13.51	2.89	1021	254	13.55	3.06	1047	298	14.03	3.27	1089	318	14.77	3.54	1147	344
	5'	15.65	2.51	1160	220	15.87	2.52	1179	221	15.91	2.55	1177	223	15.97	2.59	1181	228	16.57	2.67	1218	235	16.54	2.77	1223	243	16.79	2.89	1244	254	17.00	3.06	1289	289	17.32	3.27	1323	318	18.15	3.54	1384	344
	6'	19.14	2.51	1396	220	19.17	2.52	1389	221	19.44	2.55	1434	223	19.72	2.59	1452	228	20.16	2.67	1488	235	20.13	2.77	1495	243	20.36	2.89	1520	254	20.65	3.06	1573	298	21.23	3.27	1617	318	22.27	3.54	1684	344
	7'	22.88	2.51	1617	220	23.01	2.52	1636	221	23.29	2.55	1710	223	23.61	2.59	1738	228	24.32	2.67	1784	235	24.10	2.77	1754	243	24.38	2.89	1799	254	24.46	3.06	1839	298	25.40	3.27	1912	318	26.67	3.54	1989	344
	8'	31.56	2.51	2011	220	31.75	2.52	1988	221	32.13	2.55	2018	223	32.27	2.59	2032	228	33.13	2.67	2072	235	33.19	2.77	2097	243	33.53	2.89	2154	254	34.10	3.06	2193	298	34.89	3.27	2281	318	36.62	3.54	2387	344
	9'	37.18	2.51	2325	220	37.38	2.52	2357	221	37.48	2.55	2342	223	38.21	2.59	2395	228	39.20	2.67	2454	235	38.96	2.77	2490	243	39.37	2.89	2559	254	40.04	3.06	2604	298	41.01	3.27	2687	318	43.32	3.54	2848	344
	10'	43.26	2.51	2781	220	43.54	2.52	2767	221	43.61	2.55	2801	223	44.42	2.59	2844	228	45.49	2.67	2910	235	45.27	2.77	2924	243	45.87	2.89	3008	254	46.44	3.06	3087	298	48.13	3.27	3218	318	50.32	3.54	3354	344
12'	8'	32.22	2.98	2038	264	32.41	2.99	2025	265	32.79	3.02	2056	268	32.95	3.08	2073	274	33.82	3.17	2126	311	33.90	3.29	2159	323	34.26	3.44	2207	337	34.87	3.64	2230	397	35.70	3.89	2294	475	37.49	4.21	2424	513
	9'	37.85	2.98	2373	264	38.05	2.99	2405	265	38.15	3.02	2390	268	38.90	3.08	2446	274	39.90	3.17	2505	311	39.68	3.29	2552	323	40.11	3.44	2614	337	40.81	3.64	2641	397	41.83	3.89	2712	475	44.21	4.21	2871	513
	10'	43.94	2.98	2829	264	44.21	2.99	2815	265	44.29	3.02	2850	268	45.12	3.08	2896	274	46.20	3.17	2975	311	46.00	3.29	2987	323	46.62	3.44	3048	337	47.22	3.64	3125	397	48.96	3.89	3245	475	51.21	4.21	3392	513
	11'	50.88	2.98	3330	264	51.13	2.99	3362	265	51.25	3.02	3360	268	52.34	3.08	3422	274	53.70	3.17	3536	311	53.70	3.29	3747	323	53.85	3.44	3803	337	54.81	3.64	3911	397	56.73	3.89	4067	475	59.38	4.21	4300	513
	12'	58.80	2.98	4507	264	58.86	2.99	4482	265	59.56	3.02	4558	268	60.40	3.08	4593	274	61.49	3.17	4699	311	61.50	3.29	4669	323	62.28	3.44	4742	337	63.44	3.64	4837	397	65.55	3.89	4960	475	69.28	4.21	5287	513

△c = inlet or outlet concrete quantity per additional barrel.

△s = inlet or outlet steel quantity per additional barrel.

Note to Designer:
This procedure presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original issue	SJJAX.	2-12
2	Added 3'x5' height for existing box extensions only	D.B.B.	5-15
3			
4			

NOTES:

All quantities are for headwalls of barrels shown in Table No. 1 (0-10' Fill).
Quantities are shown for single barrel culvert only.
Multi-barrel culvert headwall quantities are obtained by adding, for each additional barrel, △s and △c to the inlet and outlet quantities.

NOTE:

For General Notes, Dimensions, and additional Details, see SD 6.01 (1 & 2 of 5). For Headwall Details see SD 6.08 (1 to 8).

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS HEADWALL QUANTITIES 4 : 1 SLOPE
ROUTE / PROJECT NO. / T.A. NO. / DRAWING NO.	SD 6.09 (2 of 3)
LOCATION / SHEET NO.	OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S6	

Registered Professional Engineer, CERTIFICATE NO. 25015, ANDREW JOHN SPEAR, Date Signed 5/4/26, ARIZONA, U.S.A.

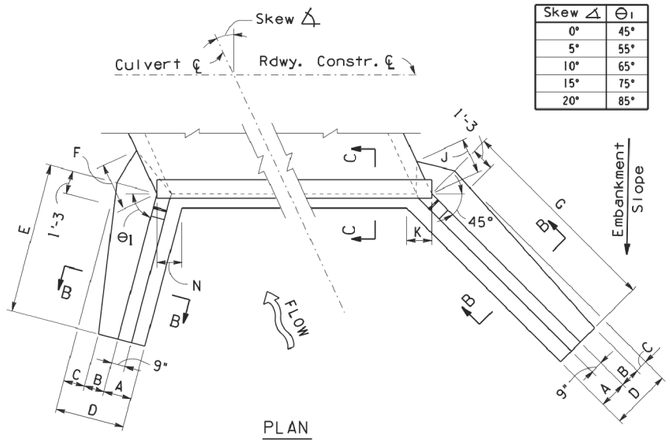
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22-JAN-2016 10:36 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD609-1 to 3\sd609-2_0116.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	51	109

NOTE: UNITS IN US CUSTOMARY

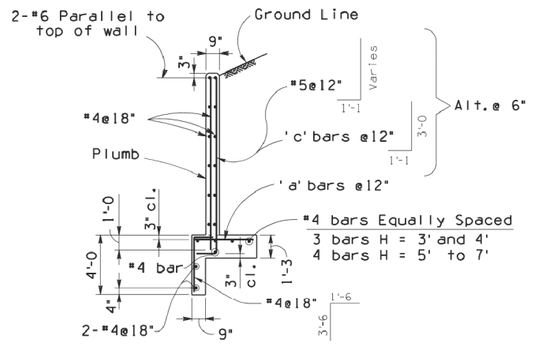
Skew ∠	Θ1
0°	45°
5°	55°
10°	65°
15°	75°
20°	85°



PLAN

NOTE:

For SECTION C-C, see SD 6.01 (2 of 5).



SECTION B-B

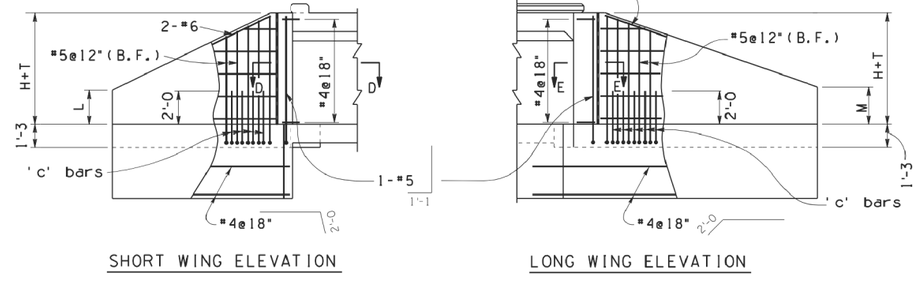
2 : 1 Slope Dimensions	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3
	C	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1
	D	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10
	E	6'-0	7'-6	8'-6	10'-0	11'-6	5'-6	7'-0	8'-6	10'-0	11'-0	5'-6	7'-0	8'-6	9'-6	11'-0	5'-6	7'-0	8'-6	10'-0	11'-0	6'-0	7'-6	8'-6	10'-0	11'-6
	F	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	2'-11	3'-8	4'-4	1'-5	2'-1	2'-11	3'-7	4'-3	1'-4	2'-0	2'-9	3'-5	4'-1
	G	6'-0	7'-6	8'-6	10'-0	11'-6	6'-0	7'-6	9'-6	10'-6	12'-0	6'-6	8'-0	9'-6	11'-0	12'-6	7'-0	8'-6	10'-0	12'-0	13'-6	7'-6	9'-0	11'-0	12'-6	14'-6
	J	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	2'-11	3'-8	4'-4	1'-5	2'-1	2'-11	3'-7	4'-3	1'-4	2'-0	2'-9	3'-5	4'-1
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	1'-11	2'-5	3'-1	3'-6	4'-0	1'-10	2'-2	2'-5	3'-0	3'-7	1'-7	1'-11	2'-3	2'-9	3'-1	1'-5	1'-8	1'-11	2'-3	2'-9	1'-1	1'-4	1'-10	2'-1	2'-4
	M	1'-11	2'-5	3'-1	3'-6	4'-0	1'-11	2'-5	2'-11	3'-4	3'-10	1'-9	2'-3	2'-8	3'-2	3'-8	1'-7	2'-1	2'-6	2'-10	3'-3	1'-5	1'-11	2'-2	2'-8	2'-11
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

4 : 1 Slope Dimensions	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-1	1'-4	1'-8	9"	1'-0	1'-1	1'-3	1'-7	9"	1'-0	1'-1	1'-2	1'-6	9"	1'-0	1'-1	1'-2	1'-5	9"	1'-0	1'-1	1'-2	1'-3
	C	4"	7"	1'-0	1'-3	1'-5	4"	7"	1'-0	1'-4	1'-6	4"	7"	1'-0	1'-5	1'-7	4"	7"	1'-0	1'-5	1'-8	4"	7"	1'-0	1'-5	1'-10
	D	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7
	E	8'-0	9'-6	11'-6	13'-6	15'-6	8'-0	10'-0	11'-6	13'-6	15'-6	8'-0	10'-0	12'-0	14'-0	16'-0	8'-6	10'-6	12'-6	14'-6	16'-6	9'-0	11'-0	13'-6	15'-6	17'-6
	F	1'-3	1'-11	2'-8	3'-4	4'-1	1'-3	1'-11	2'-7	3'-4	4'-0	1'-2	1'-11	2'-7	3'-3	4'-0	1'-2	1'-10	2'-6	3'-3	3'-11	1'-2	1'-10	2'-5	3'-1	3'-9
	G	8'-0	9'-6	11'-6	13'-6	15'-6	8'-6	10'-6	12'-6	14'-6	16'-6	9'-0	11'-0	13'-0	15'-6	17'-6	9'-6	12'-0	14'-6	16'-6	19'-0	10'-6	13'-0	15'-6	18'-6	21'-0
	J	1'-3	1'-11	2'-8	3'-4	4'-1	1'-3	1'-11	2'-7	3'-4	4'-0	1'-2	1'-11	2'-7	3'-3	4'-0	1'-2	1'-10	2'-6	3'-3	3'-11	1'-2	1'-10	2'-5	3'-1	3'-9
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	2'-8	3'-5	4'-0	4'-8	5'-4	2'-5	3'-0	3'-8	4'-4	4'-11	2'-3	2'-10	3'-4	3'-11	4'-5	2'-0	2'-6	3'-1	3'-7	4'-1	1'-10	2'-4	2'-8	3'-2	3'-8
	M	2'-8	3'-5	4'-0	4'-8	5'-4	2'-7	3'-2	3'-10	4'-6	5'-2	2'-6	3'-1	3'-9	4'-4	5'-0	2'-5	2'-11	3'-6	4'-2	4'-8	2'-2	2'-9	3'-4	3'-10	4'-4
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

6 : 1 Slope Dimensions	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-3	1'-7	2'-0	9"	1'-0	1'-2	1'-7	1'-11	9"	1'-0	1'-1	1'-6	1'-10	9"	1'-0	1'-1	1'-4	1'-8	9"	1'-0	1'-1	1'-3	1'-7
	C	3"	6"	9"	11"	1'-0	3"	6"	10"	11"	1'-1	3"	6"	11"	1'-0	1'-2	3"	6"	11"	1'-2	1'-4	3"	6"	11"	1'-3	1'-5
	D	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6
	E	8'-6	11'-0	13'-0	15'-0	17'-0	9'-0	11'-0	13'-6	15'-6	17'-6	9'-6	11'-6	14'-0	16'-6	18'-6	10'-0	12'-6	15'-0	17'-6	19'-6	11'-0	13'-6	16'-0	19'-0	21'-6
	F	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-9	2'-6	3'-2	3'-10	1'-1	1'-9	2'-5	3'-1	3'-9	1'-0	1'-8	2'-4	3'-0	3'-8
	G	8'-6	11'-0	13'-0	15'-0	17'-0	9'-6	11'-6	14'-0	16'-0	18'-6	10'-0	12'-6	15'-0	17'-6	20'-0	11'-0	14'-0	16'-6	19'-6	22'-0	12'-6	15'-6	18'-6	21'-6	24'-6
	J	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-9	2'-6	3'-2	3'-10	1'-1	1'-9	2'-5	3'-1	3'-9	1'-0	1'-8	2'-4	3'-0	3'-8
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	3'-1	3'-9	4'-6	5'-4	6'-1	2'-10	3'-7	4'-3	4'-11	5'-8	2'-8	3'-4	3'-11	4'-7	5'-3	2'-5	3'-1	3'-8	4'-3	4'-11	2'-3	2'-10	3'-5	3'-11	4'-6
	M	3'-1	3'-9	4'-6	5'-4	6'-1	2'-11	3'-8	4'-5	5'-2	5'-11	2'-11	3'-7	4'-4	5'-0	5'-8	2'-9	3'-5	4'-1	4'-9	5'-6	2'-7	3'-3	3'-11	4'-6	5'-2
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

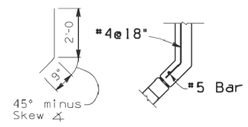
'c' bars			
Height H	Slope	Short Wing	Long Wing
		0° to 10°	0° to 20°
7'	2 : 1	3 - #5	3 - #5
	2 : 1	5 - #5	5 - #5

'a' bars			
Height H	Short Wing		Long Wing
	0° to 10°	15° & 20°	0° to 20°
3'	#4	#4	#4
4'	#4	#4	#4
5'	#4	#4	#4
6'	#5	#4	#5
7'	#6	#4	#6

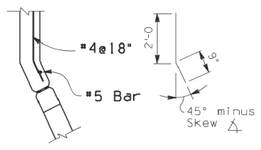


SHORT WING ELEVATION

LONG WING ELEVATION



SECTION D-D



SECTION E-E

NOTE:

For General Notes, Dimensions, and additional Details, see SD 6.01 (2 of 5). For Headwall Quantities see SD 6.09 (1 to 3).

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	AJS	2-12
2	Added 3'-0" height for existing box extensions only	DBB	5-15
3			
4			

Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D28.dgn

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS INLET WINGS - SKEW 0° TO 20° CULVERT HEIGHT 3' TO 7'
ROUTE / PROJECT NO. / FA NO.	DRAWING NO. SD 6.08 (3 of 8)
LOCATION	SHEET NO. OF

22-JAN-2016 10:05 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD608-1 to 8\sd608-3.0116.dgn

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

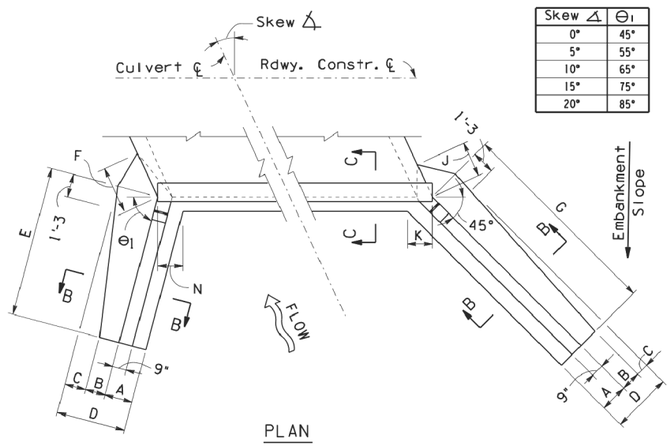
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S7	

Registered Professional Engineer CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	52	109

NOTE: UNITS IN US CUSTOMARY

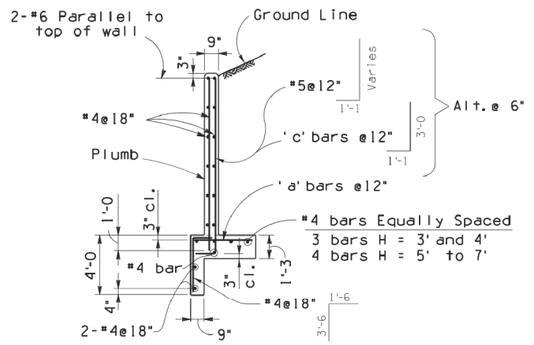
Skew ∠	Θ1
0°	45°
5°	55°
10°	65°
15°	75°
20°	85°



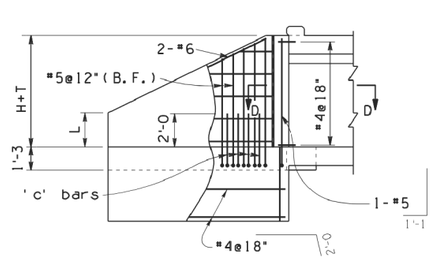
PLAN

NOTE:

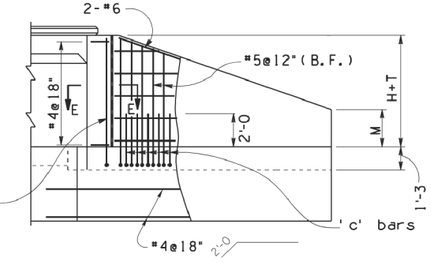
For SECTION C-C, see SD 6.01 (2 of 5).



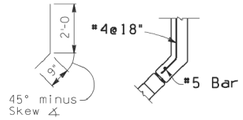
SECTION B-B



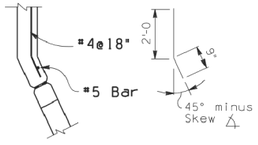
SHORT WING ELEVATION



LONG WING ELEVATION



SECTION D-D



SECTION E-E

	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
2 : 1 Slope	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3	9"	1'-0	1'-1	1'-2	1'-3
	C	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1	6"	9"	1'-3	1'-8	2'-1
	D	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10	2'-9	3'-3	3'-10	4'-4	4'-10
	E	6'-0	7'-6	8'-6	10'-0	11'-6	5'-6	7'-0	8'-6	10'-0	11'-0	5'-6	7'-0	8'-6	9'-6	11'-0	5'-6	7'-0	8'-6	10'-0	11'-0	6'-0	7'-6	8'-6	10'-0	11'-6
	F	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	2'-11	3'-8	4'-4	1'-5	2'-1	2'-11	3'-7	4'-3	1'-4	2'-0	2'-9	3'-5	4'-1
	G	6'-0	7'-6	8'-6	10'-0	11'-6	6'-0	7'-6	9'-6	10'-6	12'-0	6'-6	8'-0	9'-6	11'-0	12'-6	7'-0	8'-6	10'-0	12'-0	13'-6	7'-6	9'-0	11'-0	12'-6	14'-6
	J	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	3'-0	3'-8	4'-5	1'-5	2'-2	2'-11	3'-8	4'-4	1'-5	2'-1	2'-11	3'-7	4'-3	1'-4	2'-0	2'-9	3'-5	4'-1
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	1'-11	2'-5	3'-1	3'-6	4'-0	1'-10	2'-2	2'-5	3'-0	3'-7	1'-7	1'-11	2'-3	2'-9	3'-1	1'-5	1'-8	1'-11	2'-3	2'-9	1'-1	1'-4	1'-10	2'-1	2'-4
	M	1'-11	2'-5	3'-1	3'-6	4'-0	1'-11	2'-5	2'-11	3'-4	3'-10	1'-9	2'-3	2'-8	3'-2	3'-8	1'-7	2'-1	2'-6	2'-10	3'-3	1'-5	1'-11	2'-2	2'-8	2'-11
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
4 : 1 Slope	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-1	1'-4	1'-8	9"	1'-0	1'-1	1'-3	1'-7	9"	1'-0	1'-1	1'-2	1'-6	9"	1'-0	1'-1	1'-2	1'-5	9"	1'-0	1'-1	1'-2	1'-3
	C	4"	7"	1'-0	1'-3	1'-5	4"	7"	1'-0	1'-4	1'-6	4"	7"	1'-0	1'-5	1'-7	4"	7"	1'-0	1'-5	1'-8	4"	7"	1'-0	1'-5	1'-10
	D	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7	2'-7	3'-1	3'-7	4'-1	4'-7
	E	8'-0	9'-6	11'-6	13'-6	15'-6	8'-0	10'-0	11'-6	13'-6	15'-6	8'-0	10'-0	12'-0	14'-0	16'-0	8'-6	10'-6	12'-6	14'-6	16'-6	9'-0	11'-0	13'-6	15'-6	17'-6
	F	1'-3	1'-11	2'-8	3'-4	4'-1	1'-3	1'-11	2'-7	3'-4	4'-0	1'-2	1'-11	2'-7	3'-3	4'-0	1'-2	1'-10	2'-6	3'-3	3'-11	1'-2	1'-10	2'-5	3'-1	3'-9
	G	8'-0	9'-6	11'-6	13'-6	15'-6	8'-6	10'-6	12'-6	14'-6	16'-6	9'-0	11'-0	13'-0	15'-6	17'-6	9'-6	12'-0	14'-6	16'-6	19'-0	10'-6	13'-0	15'-6	18'-6	21'-0
	J	1'-3	1'-11	2'-8	3'-4	4'-1	1'-3	1'-11	2'-7	3'-4	4'-0	1'-2	1'-11	2'-7	3'-3	4'-0	1'-2	1'-10	2'-6	3'-3	3'-11	1'-2	1'-10	2'-5	3'-1	3'-9
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	2'-8	3'-5	4'-0	4'-8	5'-4	2'-5	3'-0	3'-8	4'-4	4'-11	2'-3	2'-10	3'-4	3'-11	4'-5	2'-0	2'-6	3'-1	3'-7	4'-1	1'-10	2'-4	2'-8	3'-2	3'-8
	M	2'-8	3'-5	4'-0	4'-8	5'-4	2'-7	3'-2	3'-10	4'-6	5'-2	2'-6	3'-1	3'-9	4'-4	5'-0	2'-5	2'-11	3'-6	4'-2	4'-8	2'-2	2'-9	3'-4	3'-10	4'-4
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-3⅝	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

	Skew ∠	0°					5°					10°					15°					20°				
	Height H	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'	3'	4'	5'	6'	7'
6 : 1 Slope	A	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6	1'-6
	B	9"	1'-0	1'-3	1'-7	2'-0	9"	1'-0	1'-2	1'-7	1'-11	9"	1'-0	1'-1	1'-6	1'-10	9"	1'-0	1'-1	1'-4	1'-8	9"	1'-0	1'-1	1'-3	1'-7
	C	3"	6"	9"	11"	1'-0	3"	6"	10"	11"	1'-1	3"	6"	11"	1'-0	1'-2	3"	6"	11"	1'-2	1'-4	3"	6"	11"	1'-3	1'-5
	D	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6	2'-6	3'-0	3'-6	4'-0	4'-6
	E	8'-6	11'-0	13'-0	15'-0	17'-0	9'-0	11'-0	13'-6	15'-6	17'-6	9'-6	11'-6	14'-0	16'-6	18'-6	10'-0	12'-6	15'-0	17'-6	19'-6	11'-0	13'-6	16'-0	19'-0	21'-6
	F	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-9	2'-6	3'-2	3'-10	1'-1	1'-9	2'-5	3'-1	3'-9	1'-0	1'-8	2'-4	3'-0	3'-8
	G	8'-6	11'-0	13'-0	15'-0	17'-0	9'-6	11'-6	14'-0	16'-0	18'-6	10'-0	12'-6	15'-0	17'-6	20'-0	11'-0	14'-0	16'-6	19'-6	22'-0	12'-6	15'-6	18'-6	21'-6	24'-6
	J	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-10	2'-6	3'-3	3'-11	1'-1	1'-9	2'-6	3'-2	3'-10	1'-1	1'-9	2'-5	3'-1	3'-9	1'-0	1'-8	2'-4	3'-0	3'-8
	K	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½
	L	3'-1	3'-9	4'-6	5'-4	6'-1	2'-10	3'-7	4'-3	4'-11	5'-8	2'-8	3'-4	3'-11	4'-7	5'-3	2'-5	3'-1	3'-8	4'-3	4'-11	2'-3	2'-10	3'-5	3'-11	4'-6
	M	3'-1	3'-9	4'-6	5'-4	6'-1	2'-11	3'-8	4'-5	5'-2	5'-11	2'-11	3'-7	4'-4	5'-0	5'-8	2'-9	3'-5	4'-1	4'-9	5'-6	2'-7	3'-3	3'-11	4'-6	5'-2
	N	1'-4½	1'-4½	1'-4½	1'-4½	1'-4½	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-3⅜	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-4¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼	1'-5¼

'c' bars			
Height H	Slope	Short Wing 0° to 10°	Long Wing 0° to 20°
7'	2 : 1	3 - #5	3 - #5
	2 : 1	5 - #5	5 - #5

'a' bars			
Height H	Short Wing 0° to 10°	Short Wing 15° & 20°	Long Wing 0° to 20°
3'	#4	#4	#4
4'	#4	#4	#4
5'	#4	#4	#4
6'	#5	#4	#5
7'	#6	#4	#6

NOTE:

For General Notes, Dimensions, and additional Details, see SD 6.01 (2 of 5). For Headwall Quantities see SD 6.09 (1 to 3).

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original issue	SJJM.	2-12
2	Added 3'-7" height for existing box extensions only	D.B.B.	5-15
3			
4			

Note to Designers:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

DESIGN APPROVED: Cerina Aman
APPROVED FOR DISTRIBUTION:

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP STRUCTURE DETAIL

REINFORCED CONCRETE BOX CULVERTS
INLET WINGS - SKEW 0° to 20°
CULVERT HEIGHT 3' to 7'

ROUTE	PROJECT NO.	FA NO.	DRAWING NO.
			SD 6.08 (3 of 8)
LOCATION			SHEET NO. OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S8	

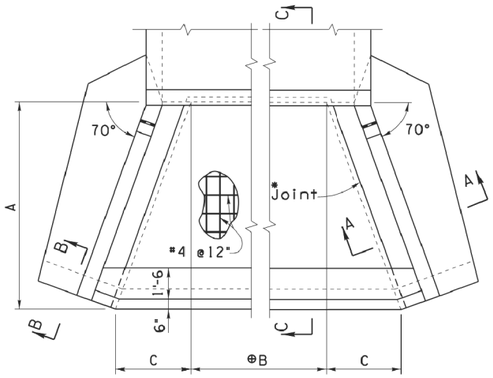
Registered Professional Engineer, CERTIFICATE NO. 25015, ANDREW JOHN SPEAR, State of ARIZONA, 5/4/26

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-D28a.dgn

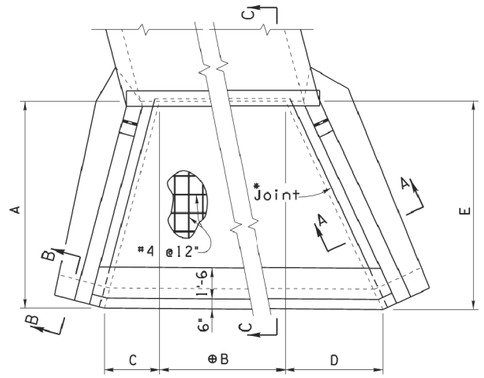
22-JAN-2016 10:05 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD608-1 to 8\sd608-3.0116.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	53	109

NOTE: UNITS IN US CUSTOMARY



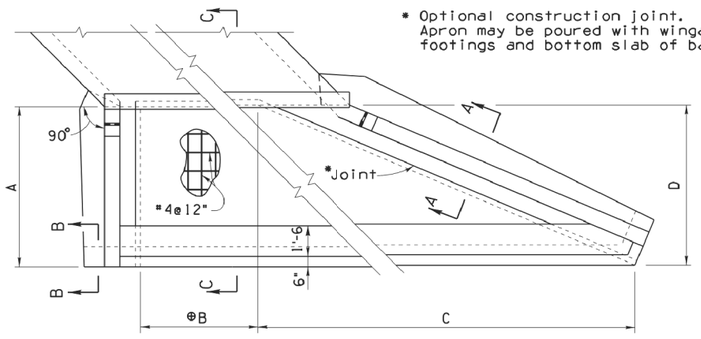
PLAN
Apron for 0° skew box culvert



PLAN
Apron for 0° to 15° skew box culvert

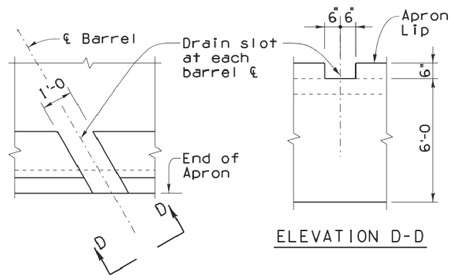
Span	△									
	0° Skew	5° Skew	10° Skew	15° Skew	20° Skew	25° Skew	30° Skew	35° Skew	40° Skew	45° Skew
6'	6'-8	6'-8¼	6'-9¼	6'-10⅛	7'-1⅛	7'-4¼	7'-8⅜	8'-1⅝	8'-8⅜	9'-5⅞
8'	8'-9	8'-9⅜	8'-10⅝	9'-0¾	9'-3¾	9'-7⅞	10'-1¾	10'-8⅛	11'-5⅛	12'-4½
10'	10'-11	10'-11½	11'-1	11'-3⅝	11'-7⅜	12'-0½	12'-7¼	13'-3⅞	14'-3	15'-5¼
12'	13'-1	13'-1⅝	13'-3⅜	13'-6½	13'-11⅛	14'-5¼	15'-1¼	15'-11⅝	17'-1	18'-6

⊕Dimension varies with number of barrels. △equals length to be added to dimension 'B ' for each additional barrel.



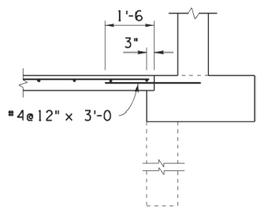
PLAN
Apron for 20° to 45° skew box culvert

* Optional construction joint.
Apron may be poured with wingall footings and bottom slab of barrel.

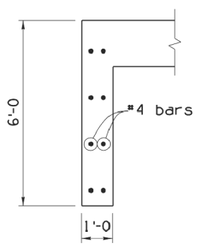


APRON DRAIN DETAIL

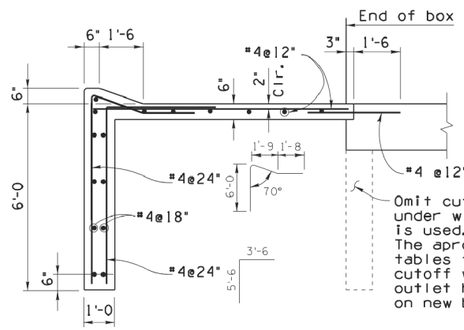
ELEVATION D-D



SECTION A-A



SECTION B-B



Omit cutoff wall at end of box and under wingwall footing when apron is used.
The apron quantities shown in the tables take into consideration the cutoff walls being omitted along outlet headwall and shall be used on new box culverts only.

SECTION C-C

NOTE:
For General Notes, Dimensions, and additional Details, see SD 6.01 (1 & 2 of 5). For Apron Dimensions and Quantities see SD 6.11 (2 to 4).

DESIGN APPROVED	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STRUCTURE DETAIL	
APPROVED FOR DISTRIBUTION	REINFORCED CONCRETE BOX CULVERTS OUTLET APRON DETAILS	
ROUTE / PROJECT NO. / F.A. NO.		DRAWING NO. SD 6.11 (1 of 4)
LOCATION		SHEET NO. OF

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1	Original Issue	SJJ/KL	2-12
2			
3			
4			

Note to Designer:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability by a licensed professional engineer. Contents within the inner border lines shall not be altered.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S9	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 Arizona U.S.A.

22-JAN-2016 10:54 G:\Bridge\CADD\Standards\SD_Sheets\SD 6 Drainage Stuctures\SD 6.01-6.11 Series\SD611-1 to 4\sd611-1_0116.dgn

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	54	109

NOTE: UNITS IN US CUSTOMARY

DIMENSIONS

Span	Hgt.	0° Skew			5° Skew					10° Skew					15° Skew					20° Skew				25° Skew				30° Skew				35° Skew				40° Skew				45° Skew			
		A	B	C	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
6'	3'	9'-10⅞	4'-8¼	3'-7¼	10'-0⅝	4'-8½	2'-8¼	4'-8¾	10'-1¾	10'-1¼	4'-9⅛	1'-9⅞	5'-8¼	9'-10⅝	10'-1⅞	4'-10⅛	10⅝*	6'-11	9'-10½	10'-0	4'-11⅞	8'-2⅜	9'-9¼	9'-0	5'-2⅝	9'-6½	9'-6½	8'-6	5'-6⅜	10'-11⅞	9'-2¼	7'-6	5'-10⅜	12'-4⅞	8'-8¼	7'-0	6'-4½	14'-4½	8'-3⅝	7'-0	6'-11⅞	16'-6⅛	7'-8⅜
	4'	12'-3⅞	4'-8¼	4'-5½	12'-5½	4'-8½	3'-4⅞	5'-9½	12'-5	12'-6⅞	4'-9⅞	2'-2⅝	6'-11¼	12'-0⅞	12'-1	4'-10⅛	1'-0⅝	8'-4⅞	11'-11	12'-0	4'-11¾	9'-9¾	11'-8¼	11'-0	5'-2⅝	11'-3⅞	11'-3¾	10'-6	5'-6⅜	13'-2⅞	11'-1⅜	9'-6	5'-10⅜	14'-10⅜	10'-4⅞	9'-0	6'-4½	16'-11⅝	9'-9⅝	8'-6	6'-11⅛	19'-8⅛	9'-2⅛
	5'	14'-7¼	4'-8¼	5'-3¾	14'-10½	4'-8½	3'-11⅞	6'-10⅛	14'-8⅞	14'-6½	4'-9⅞	2'-6¾	8'-5¼	14'-7⅛	14'-6⅞	4'-10⅛	1'-3¼	9'-9⅜	13'-11⅝	14'-6	4'-11¾	11'-8⅞	13'-11⅞	13'-6	5'-2⅝	13'-5¼	13'-5¼	12'-6	5'-6⅜	15'-6½	13'-0½	11'-6	5'-10⅜	17'-8¾	12'-5	10'-6	6'-4½	20'-0	11'-6⅜	10'-0	6'-11⅞	22'-10¼	10'-7⅛
	6'	16'-11½	4'-8¼	6'-2⅛	16'-9¾	4'-8½	4'-6	7'-10⅞	16'-11⅜	17'-0	4'-9⅞	3'-0	9'-8⅛	16'-9¾	17'-0⅜	4'-10⅛	1'-5⅞	11'-6	16'-5½	17'-0	4'-11⅞	13'-4⅛	15'-10⅞	15'-6	5'-2⅝	15'-6⅝	15'-6⅝	14'-6	5'-6⅜	17'-10⅝	14'-11⅝	13'-6	5'-10⅜	20'-2¼	14'-1⅝	12'-6	6'-4½	23'-0⅜	13'-3⅝	12'-0	6'-11⅛	26'-0¼	12'-1⅝
	7'	19'-3⅝	4'-8¼	7'-0⅜	19'-2¾	4'-8½	5'-1¾	8'-11½	19'-2½	19'-5⅝	4'-9⅞	3'-5½	10'-11¼	18'-11¾	19'-6⅛	4'-10⅛	1'-8½	12'-11¼	18'-5⅝	19'-6	4'-11⅞	15'-3¼	18'-2⅛	17'-6	5'-2⅝	17'-8⅛	17'-8⅛	16'-6	5'-6⅜	20'-1⅝	16'-10¼	15'-0	5'-10⅜	22'-7⅞	15'-10¼	14'-0	6'-4½	26'-0⅞	15'-0⅝	13'-6	6'-11⅞	29'-2⅜	13'-7⅜
8'	3'	9'-10⅞	6'-10¼	3'-7¼	10'-0⅝	6'-10½	2'-8¼	4'-8¾	10'-1¾	10'-1¼	6'-11½	1'-9⅞	5'-8¼	9'-10⅝	10'-1⅞	7'-1⅞	10⅝*	6'-11	9'-10½	10'-0	7'-3⅜	8'-2⅜	9'-9¼	9'-0	7'-7⅜	9'-6½	9'-6½	8'-6	8'-0⅜	10'-11⅜	9'-2¼	7'-6	8'-6⅝	12'-4⅞	8'-8¼	7'-0	9'-2⅛	14'-4½	8'-3⅝	7'-0	9'-11⅞	16'-6⅛	7'-8⅜
	4'	12'-3⅞	6'-10¼	4'-5½	12'-5½	6'-10½	3'-4⅞	5'-9½	12'-5	12'-6⅞	6'-11½	2'-2⅝	6'-11¼	12'-0⅞	12'-1	7'-1⅛	1'-0⅝	8'-4⅞	11'-11	12'-0	7'-3⅜	9'-9¾	11'-8¼	11'-0	7'-7⅜	11'-3⅞	11'-3¾	10'-6	8'-0⅜	13'-2⅞	11'-1⅜	9'-6	8'-6⅝	14'-10⅜	10'-4⅞	9'-0	9'-2⅛	16'-11⅝	9'-9⅝	8'-6	9'-11⅛	19'-8⅛	9'-2⅛
	5'	14'-7¼	6'-10¼	5'-3¾	14'-10½	6'-10½	3'-11⅞	6'-10⅛	14'-8⅞	14'-6½	6'-11½	2'-6¾	8'-5¼	14'-7⅛	14'-6⅞	7'-1⅛	1'-3¼	9'-9⅜	13'-11⅝	14'-6	7'-3⅜	11'-8⅞	13'-11⅞	13'-6	7'-7⅜	13'-5¼	13'-5¼	12'-6	8'-0⅜	15'-6½	13'-0½	11'-6	8'-6⅝	17'-8¾	12'-5	10'-6	9'-2⅛	20'-0	11'-6⅜	10'-0	9'-11⅞	22'-10¼	10'-7⅛
	6'	16'-11½	6'-10¼	6'-2⅛	16'-9¾	6'-10½	4'-6	7'-10⅞	16'-11⅜	17'-0	6'-11½	3'-0	9'-8⅛	16'-9¾	17'-0⅜	7'-1⅛	1'-5⅞	11'-6	16'-5½	17'-0	7'-3⅜	13'-4⅛	15'-10⅞	15'-6	7'-7⅜	15'-6⅝	15'-6⅝	14'-6	8'-0⅜	17'-10⅝	14'-11⅝	13'-6	8'-6⅝	20'-2¼	14'-1⅝	12'-6	9'-2⅛	23'-0⅜	13'-3⅝	12'-0	9'-11⅛	26'-0¼	12'-1⅝
	7'	19'-3⅝	6'-10¼	7'-0⅜	19'-2¾	6'-10½	5'-1¾	8'-11½	19'-2½	19'-5⅝	6'-11½	3'-5½	10'-11¼	18'-11¾	19'-6⅛	7'-1⅛	1'-8½	12'-11¼	18'-5⅝	19'-6	7'-3⅜	15'-3¼	18'-2⅛	17'-6	7'-7⅜	17'-8⅛	17'-8⅛	16'-6	8'-0⅜	20'-1⅝	16'-10¼	15'-0	8'-6⅝	22'-7⅞	15'-10¼	14'-0	9'-2⅛	26'-0⅞	15'-0⅝	13'-6	9'-11⅞	29'-2⅜	13'-7⅜
	8'	21'-9⅞	5'-9½	7'-11⅜	21'-9¼	5'-9¾	5'-10	10'-1⅜	21'-8¼	22'-0⅛	5'-10½	3'-10⅜	12'-3⅞	21'-4¾	21'-7⅛	5'-11⅞	1'-10⅜	14'-6⅞	20'-9⅝	21'-6	6'-1½	17'-1¾	20'-5¼	20'-0	6'-4⅞	19'-9⅝	19'-9⅝	18'-6	6'-9	22'-10¾	19'-2½	17'-0	7'-2⅞	26'-1⅞	18'-3¼	16'-0	7'-8⅜	29'-5	16'-11⅞	15'-0	8'-3¾	33'-9½	15'-9⅛
10'	3'	9'-10⅞	9'-0¼	3'-7¼	10'-0⅝	9'-0⅝	2'-8¼	4'-8¾	10'-1¾	10'-1¼	9'-1⅞	1'-9⅞	5'-8¼	9'-10⅝	10'-1⅞	9'-4	10⅝*	6'-11	9'-10½	10'-0	9'-7	8'-2⅜	9'-9¼	9'-0	10'-0	9'-6½	9'-6½	8'-6	10'-6⅜	10'-11⅜	9'-2¼	7'-6	11'-2⅜	12'-4⅞	8'-8¼	7'-0	12'-0⅜	14'-4½	8'-3⅝	7'-0	13'-0⅞	16'-6⅛	7'-8⅜
	4'	12'-3⅞	9'-0¼	4'-5½	12'-5½	9'-0⅝	3'-4⅞	5'-9½	12'-5	12'-6⅞	9'-1⅞	2'-2⅝	6'-11¼	12'-0⅞	12'-1	9'-4	1'-0⅝	8'-4⅞	11'-11	12'-0	9'-7	9'-9¾	11'-8¼	11'-0	10'-0	11'-3⅞	11'-3¾	10'-6	10'-6⅜	13'-2⅞	11'-1⅜	9'-6	11'-2⅜	14'-10⅜	10'-4⅞	9'-0	12'-0⅜	16'-11⅝	9'-9⅝	8'-6	13'-0⅞	19'-8⅛	9'-2⅛
	5'	14'-7¼	9'-0¼	5'-3¾	14'-10½	9'-0⅝	3'-11⅞	6'-10⅛	14'-8⅞	14'-6½	9'-1⅞	2'-6¾	8'-5¼	14'-7⅛	14'-6⅞	9'-4	1'-3¼	9'-9⅜	13'-11⅝	14'-6	9'-7	11'-8⅞	13'-11⅞	13'-6	10'-0	13'-5¼	13'-5¼	12'-6	10'-6⅜	15'-6½	13'-0½	11'-6	11'-2⅜	17'-8¾	12'-5	10'-6	12'-0⅜	20'-0	11'-6⅜	10'-0	13'-0⅞	22'-10¼	10'-7⅛
	6'	16'-11½	9'-0¼	6'-2⅛	16'-9¾	9'-0⅝	4'-6	7'-10⅞	16'-11⅜	17'-0	9'-1⅞	3'-0	9'-8⅛	16'-9¾	17'-0⅜	9'-4	1'-5⅞	11'-6	16'-5½	17'-0	9'-7	13'-4⅛	15'-10⅞	15'-6	10'-0	15'-6⅝	15'-6⅝	14'-6	10'-6⅜	17'-10⅝	14'-11⅝	13'-6	11'-2⅜	20'-2¼	14'-1⅝	12'-6	12'-0⅜	23'-0⅜	13'-3⅝	12'-0	13'-0⅞	26'-0¼	12'-1⅝
	7'	19'-3⅝	9'-0¼	7'-0⅜	19'-2¾	9'-0⅝	5'-1¾	8'-11½	19'-2½	19'-5⅝	9'-1⅞	3'-5½	10'-11¼	18'-11¾	19'-6⅛	9'-4	1'-8½	12'-11¼	18'-5⅝	19'-6	9'-7	15'-3¼	18'-2⅛	17'-6	10'-0	17'-8⅛	17'-8⅛	16'-6	10'-6⅜	20'-1⅝	16'-10¼	15'-0	11'-2⅜	22'-7⅞	15'-10¼	14'-0	12'-0⅜	26'-0⅞	15'-0⅝	13'-6	13'-0⅞	29'-2⅜	13'-7⅜
	8'	21'-9⅞	7'-11½	7'-11⅜	21'-9¼	7'-11¾	5'-10	10'-1⅜	21'-8¼	22'-0⅛	8'-0⅜	3'-10⅜	12'-3⅞	21'-4¾	21'-7⅛	8'-2⅝	1'-10⅜	14'-6⅞	20'-9⅝	21'-6	8'-5¼	17'-1¾	20'-5¼	20'-0	8'-9⅞	19'-9⅝	19'-9⅝	18'-6	9'-3	22'-10¾	19'-2½	17'-0	9'-9⅞	26'-1⅞	18'-3¼	16'-0	10'-6⅜	29'-5	16'-11⅞	15'-0	11'-4½	33'-9½	15'-9⅛
	9'	24'-2½	7'-9⅜	8'-9¾	24'-2½	7'-9⅝	6'-5⅜	11'-2¼	23'-11⅞	24'-0	7'-10¼	4'-2⅞	13'-1⅞	23'-6¾	24'-1⅛	8'-0⅝	2'-1¼	16'-3⅞	23'-3¾	24'-0	8'-2⅞	19'-1⅞	22'-9½	22'-0	8'-7⅞	21'-11¾	21'-11¾	20'-6	9'-0½	25'-3¼	21'-2⅝	19'-0	9'-7⅛	28'-7¾	20'-0⅞	17'-6	10'-3⅜	32'-6⅞	18'-9⅝	17'-0	11'-1⅞	37'-1½	17'-3¾
	10'	26'-7	7'-7¾	9'-8⅞	26'-7⅜	7'-7½	7'-1⅜	12'-3⅞	26'-3½	26'-5¾	7'-8½	4'-8	14'-10½	25'-9⅜	26'-7	7'-10⅞	2'-3⅜	17'-9½	25'-4⅞	26'-6	8'-0⅝	20'-9¾	24'-9⅜	24'-0	8'-4¾	24'-1⅞	24'-1⅞	22'-6	8'-9⅜	27'-7⅞	23'-2⅝	20'-6	9'-4⅜	31'-7⅜	22'-1⅝	19'-6	10'-0⅜	35'-8¾	20'-7½	18'-6	10'-9⅜	40'-5½	18'-10⅜
12'	8'	21'-9⅞	10'-3½	7'-11⅜	21'-9¼	10'-3⅞	5'-10	10'-1⅜	21'-8¼	22'-0⅛	10'-5¼	3'-10⅜	12'-3⅞	21'-4¾	21'-7⅛	10'-7⅝	1'-10⅜	14'-6⅞	20'-9⅝	21'-6	10'-11	17'-1¾	20'-5¼	20'-0	11'-4⅜	19'-9⅝	19'-9⅝	18'-6	11'-1⅜	22'-10¾	19'-2½	17'-0	12'-8⅜	26'-1⅞	18'-3¼	16'-0	13'-6⅜	29'-5	16'-11⅞	15'-0	14'-8⅛	33'-9½	15'-9⅛
	9'	24'-2½	10'-1	8'-9¾	24'-2½	10'-1⅜	6'-5⅜	11'-2¼	23'-11⅞	24'-0	10'-3⅞	4'-2⅞	13'-1⅞	23'-6¾	24'-1⅛	10'-5⅜	2'-1¼	16'-3⅞	23'-3¾	24'-0	10'-8¾	19'-1½	22'-9½	22'-0	11'-2	21'-11¾	21'-11¾	20'-6	11'-8⅜	25'-3¼	21'-2⅝	19'-0	12'-5⅜	28'-7¾	20'-0⅞	17'-6	13'-3⅜	32'-6⅞	18'-9⅝	17'-0	14'-4⅞	37'-1½	17'-3¾
	10'	26'-7	9'-11¼	9'-8⅛	26'-7⅜	9'-11⅝	7'-1⅜	12'-3⅞	26'-3½	26'-5¾	10'-1	4'-8	14'-10½	25'-9⅜	26'-7	10'-3⅞	2'-3⅜	17'-9½	25'-4⅞	26'-6	10'-6⅜	20'-9¼	24'-9⅜	24'-0	10'-11⅜	24'-1⅞	24'-1⅞	22'-6	11'-6¼	27'-7⅞	23'-2⅝	20'-6	12'-2⅜	31'-7⅜	22'-1⅝	19'-6	13'-0⅜	35'-8¾	20'-7½	18'-6	14'-1⅜	40'-5½	18'-10⅜
	11'	28'-11½	9'-9⅞	10'-6½	29'-0⅛	9'-9½	7'-9½	13'-4	28'-7⅜	28'-11⅞	9'-10¾	5'-1¼	16'-1⅞	27'-1⅛	29'-1	10'-0⅛	2'-6½	19'-3⅞	27'-6	29'-0	10'-4⅞	20'-9	27'-1¼	26'-6	10'-9⅞	26'-4⅞	26'-4⅞	24'-6	11'-3¾	30'-0⅝	25'-2¼	22'-6	11'-11⅞	34'-2	23'-11⅞	21'-0	12'-9⅜	38'-10⅝	22'-5⅜	20'-0	13'-10	43'-9⅝	20'-5⅞
	12'	31'-4	9'-7	11'-4⅞	31'-6⅞	9'-7⅞	8'-5⅜	14'-4⅞	30'-10⅞	31'-5⅞	9'-8⅝	5'-6½	17'-8⅞	30'-7⅜	31'-1	9'-10⅞	2'-8⅝	21'-0⅞	30'-0⅛	31'-0	10'-1⅞	24'-4⅞	29'-0⅞	28'-6	10'-6⅞	28'-2	28'-2	26'-6	11'-1⅞	32'-4⅝	27'-2⅜	24'-6	11'-9⅞	36'-8⅜	25'-8⅝	23'-0	12'-6⅞	41'-7⅛	24'-0⅛	22'-0	13'-6⅜	47'-7	22'-2¼

QUANTITIES

Span	Hgt.	0° Skew				5° Skew				10° Skew				15° Skew				20° Skew				25° Skew				30° Skew				35° Skew				40° Skew				45° Skew			
		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.		Conc. C.Y.		Steel lbs.	
		lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs	lBbl.	Δc	lBbl.	Δs
6'	3'	0.41	1.46	46	122	0.42	1.49	48	124	0.42	1.49	42	124	0.45	1.52	52	126	0.50	1.55	57	128	0.88	1.52	86	128	1.23	1.53	113	129	1.59	1.51	140	128	1.97	1.54	173	132	2.36	1.62	206	139
	4'	0.56	1.75	69	143	0.57	1.78	72	145	0.58	1.78	71	146	0.62	1.78	75	146	0.67	1.81	79	148	1.11	1.78	112	147	1.59	1.81	150	150	2.00	1.79	181	149	2.45	1.82	217	152	2.96	1.88	260	158
	5'	0.72	2.04	98	165	0.75	2.07	101	167	0.77	2.07	103	167	0.78	2.07	102	167	0.97	2.12	112	172	1.41	2.10	150	170	1.97	2.09	194	171	2.51	2.09	236	171	3.01	2.08	275	172	3.59	2.14	320	177
	6'	1.78	3.13	192	243	1.79	3.12	193	243	1.84	3.16	198	246	1.90	3.20	202	249	1.96	3.24	206	252	2.62	3.19	256	249	3.27	3.19	305	249	3.89	3.19	351	250	4.55	3.22	403	253	5.27	3.30	454	260
	7'	1.28	2.62	172	208	1.29	2.62	173	208	1.34	2.65	176	210	1.39	2.67	179	212	1.50	2.73	188	217	2.25	2.66	245	212	2.99	2.65	300	212	3.65	2.61	349	210	4.47	2.65	412	214	5.30	2.70	463	219
8'	3'	0.93	1.98	85	158	0.95	2.02	88	161	0.96	2.03	88	161	1.00	2.07	93	164	1.06	2.11	98	167	1.43	2.07	126	166	1.79	2.09	154	167	2.14	2.06	180	166	2.54	2.11	215	171	2.96	2.22	251	180
	4'	1.18	2.36	115	186	1.20	2.40	119	189	1.21	2.42	118	189	1.25	2.40	121	190	1.31	2.44	127	193	1.75	2.41	159	191	2.24	2.46	198	195	2.65	2.43	288	193	3.11	2.48	266	198	3.65	2.56	311	205
	5'	1.44	2.75	151	214	1.47	2.78	155	217	1.50	2.78	157	217	1.51	2.78	156	218	1.62	2.86	167	224	2.15	2.83	205	221	2.71	2.83	249	222	3.25	2.83	291	223	3.76	2.82	330	224	4.36	2.90	377	230
	6'	1.78	3.13	192	243	1.79	3.12	193	243	1.84	3.16	198	246	1.90	3.20	202	249	1.96	3.24	206	252	2.62	3.19	256	249	3.27	3.19	305	249	3.89	3.19	351	250	4.55	3.22	403	253	5.27	3.30	454	260
	7'	2.19	3.51	239	271	2.19	3.51	239	271	2.25	3.54	244	274	2.31	3.58	247	277	2.44	3.65	258	283	3.17	3.56	314	276	3.92	3.56	368	277	4.56	3.51	416	274	5.41	3.56	481	279	6.26	3.64	534	285
	8'	2.77	3.51	239	271	2.19	3.51	239	271	2.25	3.54	244	274	2.31	3.58	247	277	2.44	3.65	258	283	3.17	3.56	314	276	3.92	3.56	368	277	4.56	3.51	467	306	6.50	3.98	528	310	7.54	4.06	603	316
10'	3'	1.52	2.54	128	197	1.55	2.59	132	200	1.56	2.60	133	201	1.61	2.65	138	205	1.68	2.70	145	206	2.05	2.66	172	206	2.42	2.69	201	209	2.76	2.65	227	207	3.18	2.72	262	212	3.64	2.86	301	224
	4'	1.87	3.02	166	232	1.90	3.07	171	236	1.91	3.07	170	236	1.95	3.07	174	236	2.02	3.12	180	240	2.46	3.08	212	236	2.96	3.14	252	243	3.36	3.11	282	241	3.85	3.18	321	247	4.41	3.29	368	255
	5'	2.23	3.49	210	267	2.27	3.54	214	271	2.30	3.54	216	271	2.31	3.54	216	271	2.44	3.64	228	279	2.96	3.60	266	276	3.53	3.60	310	277	4.08	3.61	352	278	4.59	3.61	392	279	5.21	3.71	441	287
	6'	2.67	3.97	258	303	2.68	3.97	259	303	2.74	4.01	265	306	2.81	4.06	270	310	2.89	4.11	275	314	3.53	4.06	324	310	4.19	4.06	374	311	4.81	4.07	420	312	5.48	4.11	473	315	6.23	4.21	525	324
	7'	3.18	4.44	313	338	3.19	4.44	313	338	3.25	4.49	319	341	3.33	4.54	323	345	3.48	4.63	335	352	4.19	4.52	389	344	4.93	4.52	444	345	5.57	4.46	491	341	6.43	4.54	557	347	7.31	4.64	612	356
	8'	3.87	4.95	332	376	3.88	4.95	333	376	3.95	5.00	338	379	3.99	4.99	338	379	4.16	5.08	351	386	5.02	5.03	415	383	5.93	5.02	486	382	6.77	5.01	551	382	7.63	5.06	613	386	8.69	5.16	690	394
	9'	4.48	5.43	387	411	4.49	5.43	388	411	4.51	5.43	388	411	4.68	5.52	400	418	4.87	5.60	412	425	5.79	5.50	482	417	6.80	5.49	560	417	7.74	5.48	630	417	8.73	5.49	704	418	10.04	5.67	789	432
	10'	5.15	5.91	447	447	5.16	5.91	447	447	5.18	5.91	446	447	5.36	6.00	458	454	5.55	6.08	468	461	6.62	5.97	554	452	7.75	5.96	639	452	8.81	5.92	723	449	10.05	6.00	806	456	11.34	6.10	889	465
12'	8'	5.01	6.04	414	450	5.02	6.03	415	450	5.10	6.09	420	454	5.14	6.09	421	454	5.33	6.20	435	463	6.19	6.14	499	458	7.10	6.14	570	458	7.94	6.13	635	457	8.82	6.19	698	462	9.91	6.33	776	472
	9'	5.72	6.61	477	493	5.73	6.61	477	493	5.75	6.61	477	493	5.94	6.72	492	501	6.15	6.82	505	509	7.05	6.70	573	500	8.07	6.70	651	499	9.01	6.69	635	457	10.01	6.72	795	501	11.37	6.94	884	518
	10'	6.49	7.19	544	536	6.50	7.19	544	536	6.52	7.18	543	536	6.72	7.29	557	544	6.93	7.40	569	552	7.99	7.26	653	541	9.11	7.25	737	541	10.17	7.22	821	538	11.44	7.32	905	546	12.76	7.46	991	557
	11'	7.33	7.76	615	579	7.33	7.76	615	578	7.35	7.76	614	578	7.56	7.87	626	587	7.89	8.02	648	598	9.07	7.89	741	588	10.23	7.81	829	582	11.44	7.78	919	580	12.78	7.85	1016	585	14.23	7.98	1103	595
	12'	8.22	8.34	692	621	8.23	8.34	691	621	8.35	8.39	699	625	8.49	8.43	707	628	8.72	8.54	717	636	10.02	8.40	818	626	11.49	8.37	927	624	12.77	8.34	1023	622	14.26	8.41	1124	627	16.08	8.16	1245	643

Δc = Apron concrete quantity per additional barrel. Δs = Apron steel quantity per additional barrel.

Note to Designers:
The information presented in this Standard Detail has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

NO	DESCRIPTION OF REVISION	MADE BY	DATE
1	Original Issue	SJAM.	2-12
2	Added 3'-6.5' height for existing box extensions only	DBB.	5-15
3			
4			

DESIGN APPROVED

APPROVED FOR DISTRIBUTION

ARIZONA DEPARTMENT OF TRANSPORTATION
INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION
BRIDGE GROUP STRUCTURE DETAIL

REINFORCED CONCRETE BOX CULVERTS
OUTLET APRON - DIMENSIONS & QUANTITIES (4 : 1 SLOPE)

ROUTE	PROJECT NO.	FA NO.	DRAWING NO.
			SD 6.11 (3 of 4)
LOCATION			SHEET NO. OF

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

BOX CULVERT DETAILS

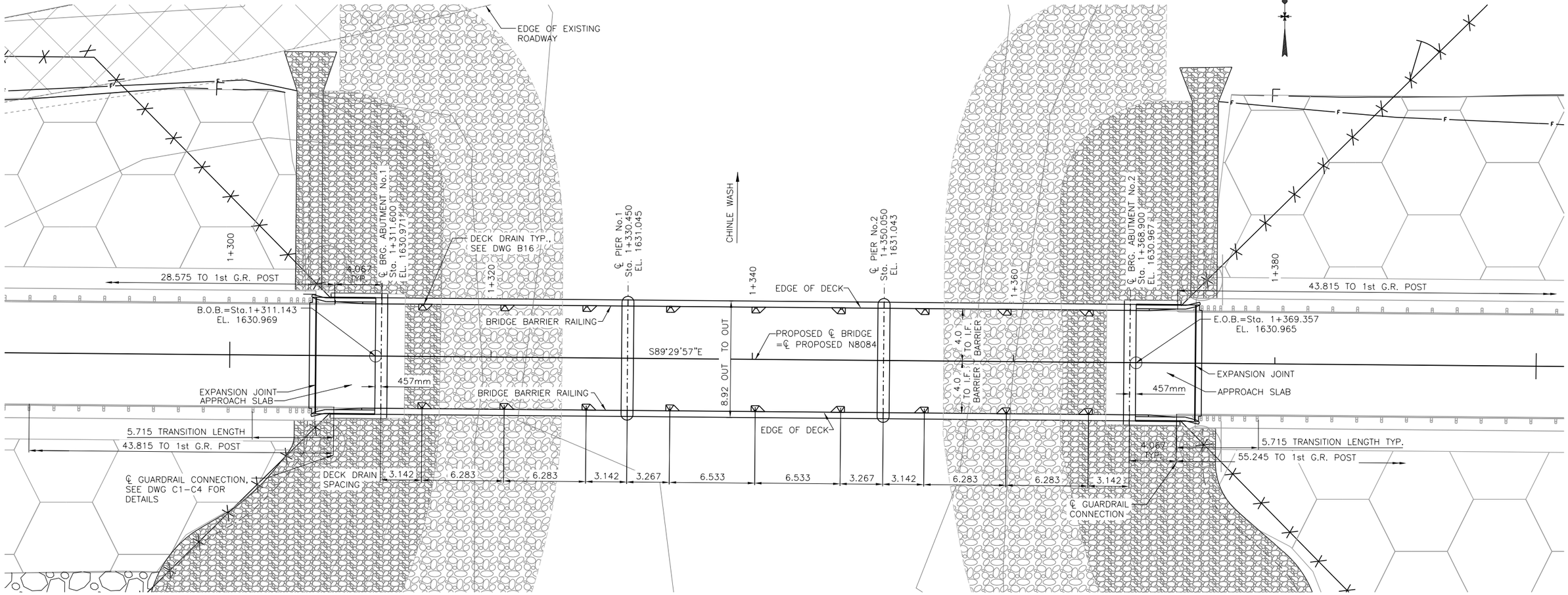
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: S10	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	55	109



STRUCTURE LOCATION PLAN

NO SCALE

APPROXIMATE QUANTITIES									
ITEM	CLASS A(AE) CONCRETE 4,500 PSI C.M.	REINFORCING STEEL KG	REINFORCING STEEL EPOXY KG	AASHTO TYPE II GIRDERS L.M.	TEST PILES(H-PILE) L.M.	H-PILES L.M.	BRIDGE BARRIER L.M.	CLASS A(AE) CONCRETE ENCASEMENT 4,500 PSI C.M.	APPROACH SLAB S.M.
ABUTMENT #1	20	1,598	-	-	15	60	10	35	33
PIER #1	30	2,078	-	-	14	70	-	28	-
PIER #2	30	2,078	-	-	14	70	-	28	-
ABUTMENT #2	20	1,598	-	-	15	60	10	35	33
WING WALLS	10	531	-	-	-	-			
SUPERSTRUCTURE	115	290	17,532	-	-	-	120		-
GIRDERS (AASHTO II)	-	-	7,237	240.00	-	-			
APPROACH SLAB	-	-	3,465	-	-	-			
TOTAL	225	8,174	28,234	240	58	260	140	126	66

STANDARD ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
BO	BOTTOM OF
BOB	BEGINNING OF BRIDGE
CIP	CAST IN PLACE
℄	CENTERLINE
CM	CUBIC METER
DET	DETAIL
DWG	DRAWING
EOS	EDGE OF SLAB
EL	ELEVATION
EOB	END OF BRIDGE
FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE ELEVATION
HGL	HYDRAULIC GRADE LINE
HW	HIGH WATER
IF	INSIDE FACE
L	LENGTH OF CURVE
LM	LINEAR METER
LT	LEFT
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
N	NORTH, NORTHING
NDOT	NAVAJO NATION DIVISION OF TRANSPORTATION
NE	NORTHEAST
NO	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OF	OUTSIDE FACE
OPP	OPPOSITE
PC	POINT OF CURVATURE
ℙ	PLATE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
RT	RIGHT
SE	SOUTHEAST
SHLDR	SHOULDER
SHT	SHEET
SM	SQUARE METER
SPEC	SPECIFICATIONS
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
SW	SOUTHWEST

GENERAL NOTES

1. FOR GUARDRAIL DETAILS, SEE DWG C1-C4.
2. FOR BRIDGE BARRIER DETAILS, SEE DWG B24-B27.
3. FOR APPROACH SLAB DETAILS, SEE DWG B23.
4. FOR EROSION PROTECTION DETAILS AND CONTOURS, SEE DWG B10.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

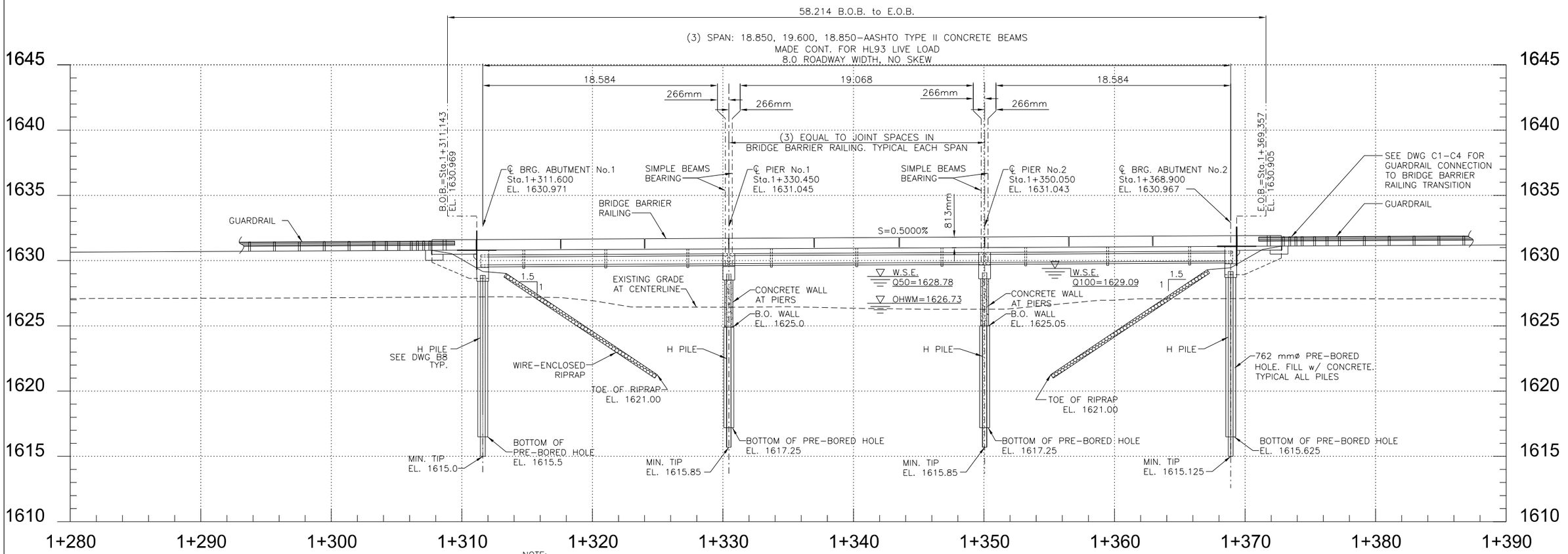
CHINLE WASH
STRUCTURE LOCATION PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B6	

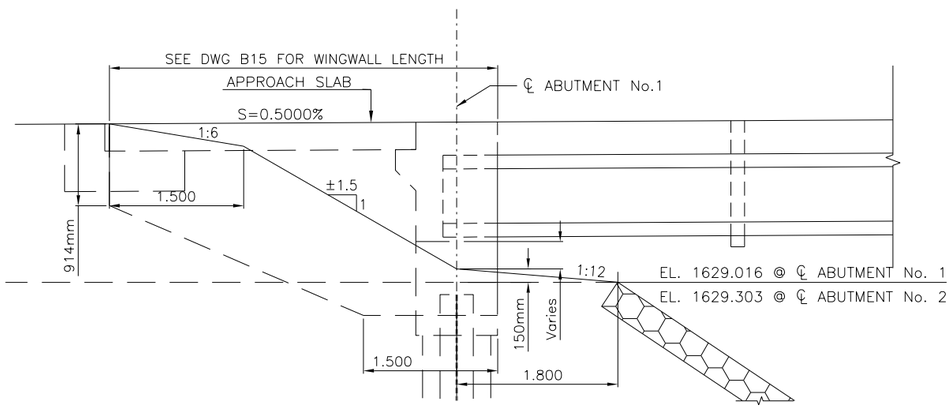
Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, USA

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	56	109



NOTE:
CONCRETE ENCASEMENT AROUND PILES IS INCIDENTAL TO BID ITEMS 55101–2000 STEEL H PILE 360x132, IN PLACE AND 55120–0000 TEST PILES.



EARTHWORK @ ABUTMENTS

NO SCALE

STRUCTURE LOCATION PROFILE ALONG C.L. CONSTRUCTION/ ROADWAY

NO SCALE

NOTE:
1. FOR GUARDRAIL DETAILS, SEE DWG C1–C4.
2. FOR BRIDGE BARRIER DETAILS, SEE DWG B24–B27.
3. FOR APPROACH SLAB DETAILS, SEE DWG B23.
4. FOR TYPICAL DETAIL OF EARTHWORK AT BRIDGES, SEE PROFILE VIEW ON DWG B10.

HYDRAULIC DATA–N8084	
WATERWAY:	Chinle Wash
Drainage Area =	594.83 km²
50 year Flow Rate	337.7 m³/s
H.W. EL. =	1628.78 m
V50 =	3.24 m/s
Freeboard =	923 mm
100 year Flow Rate	422.2 m³/s
H.W. EL. =	1629.09 m
V100 =	3.52 m/s
Freeboard =	612 mm
200 year Flow Rate =	494.3 m³/s
H.W. EL. =	1630.56 m
V200 =	1.03 m/s
Freeboard =	0 mm
Computed Abutment Scour Depth	5.06 m
Computed Pier Scour Depth	6.43 m

GENERAL NOTES

1. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS ARE IN METERS.
3. SLOPE GIVEN IN VERTICAL:HORIZONTAL FORMAT.
4. SEE DWG B6 FOR STANDARD ABBREVIATIONS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

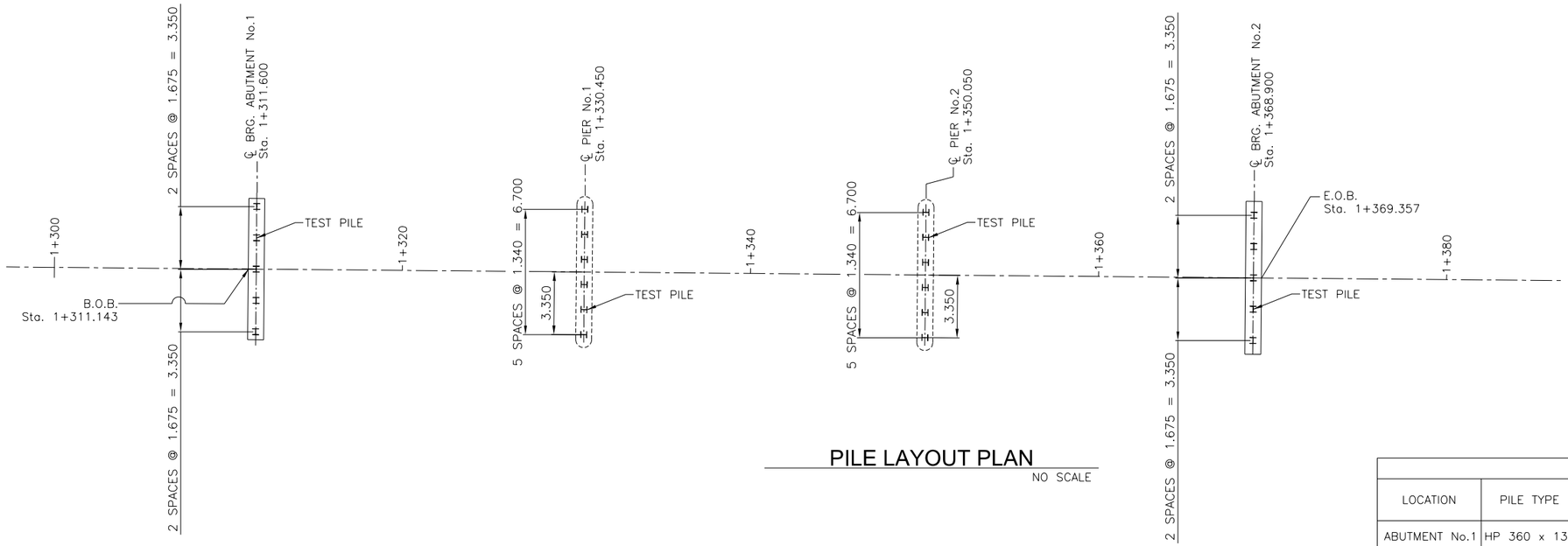
CHINLE WASH
STRUCTURE LOCATION PROFILE

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B7	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B02.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	57	109



PILE LAYOUT PLAN

NO SCALE

BORE HOLE LOCATION

B1–# = BORE HOLE NUMBER

⊕ = BORE HOLE LOCATION

BORE HOLE	ROADWAY ALIGNMENT	NORTHING	EASTING
B1–1	Sta. 1+277.71 1.23m Rt.	589186.08	264773.68
B1–2	Sta. 1+278.72 6.24m Rt.	589181.07	264774.64
B1–3	Sta. 1+312.74 6.78m Lt.	589193.79	264808.76
B1–4	Sta. 1+320.75 5.22m Rt.	589181.72	264816.67
B1–5	Sta. 1+350.75 7.79m Lt.	589194.46	264846.78
B1–6	Sta. 1+349.75 3.22m Lt.	589183.47	264845.69
B1–7	Sta. 1+393.77 14.80 Lt.	589201.10	264889.87
B1–8	Sta. 1+384.78 2.79 Lt.	589189.17	264880.77

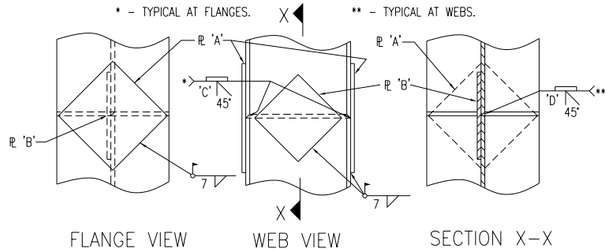
PILE REQUIREMENTS

LOCATION	PILE TYPE	TEST PILE QUANTITY	PRODUCTION PILE QUANTITY	ESTIMATED LENGTH*	MINIMUM PENETRATION ELEVATION (m)	PILE DESIGN LOAD (kN) (FACTORED)	ULTIMATE CAPACITY (kN)
ABUTMENT No.1	HP 360 x 132	1	4	14.1 m	1615.0	925	1,800
PIER No.1	HP 360 x 132	1	5	13.4 m	1615.85	1049	2,200
PIER No.2	HP 360 x 132	1	5	13.5 m	1615.85	1049	2,200
ABUTMENT No.2	HP 360 x 132	1	4	14.1 m	1615.125	925	1,800

* THE AVERAGE ESTIMATED LENGTH' INDICATED IN THE PILE REQUIREMENTS TABLE IS FOR ESTIMATING PURPOSES ONLY. THE ACTUAL PILE LENGTHS MAY BE DIFFERENT THAN THOSE INDICATED.

FOUNDATION NOTES

1. THE ABUTMENT PILING SHALL BE HP 360 x 132 H–PILES, CONFORMING TO AASHTO M 270, GRADE 345.
2. THE PIER PILING SHALL BE HP 360 x 132 H–PILES, CONFORMING TO AASHTO M 270, GRADE 345.
3. THIS BRIDGE PROJECT INCLUDES TEST PILES. SEE SUPPLEMENTAL SPECIFICATIONS SECTION 551 FOR DETAILS, INCLUDING DETERMINATION OF PILE QUANTITIES REQUIRED FOR PROJECT.
4. APPROVED TEST PILES SHALL BECOME PERMANENT PILES. TEST PILES WILL BE PAID UNDER BID ITEM 55120–0000.
5. FOR ADDITIONAL FOUNDATION NOTES: SEE BRIDGE GENERAL NOTE SHEET.
6. PRE–BORED HOLES ARE REQUIRED FOR ALL PILING. SEE DWG B7 FOR BOTTOM OF PRE–BORED HOLE ELEVATIONS. PRE–BORED HOLES TO BE 762mm IN DIAMETER.
7. CLASS A(AE) CONCRETE SHALL BE CAST AROUND PILES IN PRE–BORED HOLES. THE CONCRETE ENCASEMENT AROUND PILES IS INCIDENTAL TO BID ITEMS 55101–2000 STEEL H PILE 360x132, IN PLACE AND 55120–0000 TEST PILES.

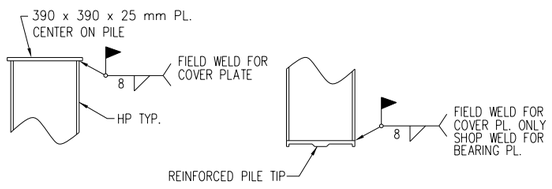


STEEL H–PILE SPLICE DETAIL (TYP.)

N.T.S.

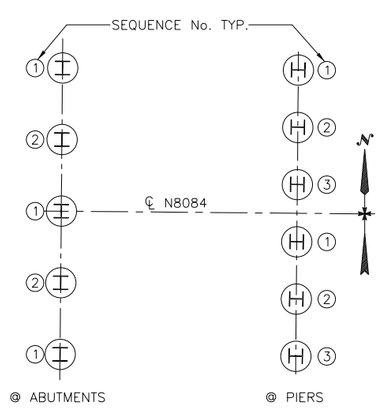
TABLE OF SPLICE PLATE DIMENSIONS AND WELD SIZES				
PILE SIZE	℄ 'A' (mm)	℄ 'B' (mm)	WELD SIZE 'C'	WELD SIZE 'D'
HP 360 x 132	250 x 250 x 13	200 x 200 x 13	13 mm	13 mm

NOTE: BEVEL ENDS OF PILES (WEB AND FLANGES) AS SHOWN PRIOR TO WELDING.



PILE COVER PLATE & PILE TIP DETAIL

N.T.S.



SEQUENCE OF PILE INSTALLATION

NO SCALE

INSTALL PILES AT EACH ABUTMENT AND PIER IN THE SEQUENCE SHOWN. FOR EACH SEQUENCE, PRE–BORE HOLES, DRIVE PILES, AND CAST CONCRETE ENCASEMENT TO THE ELEVATIONS SHOWN ON DWG B7. AFTER COMPLETION OF SEQUENCE 1, ALLOW 24 HOURS MINIMUM BEFORE STARTING SEQUENCE 2. AFTER COMPLETION OF SEQUENCE 2, ALLOW AN ADDITIONAL 24 HOURS MINIMUM BEFORE STARTING SEQUENCE 3.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

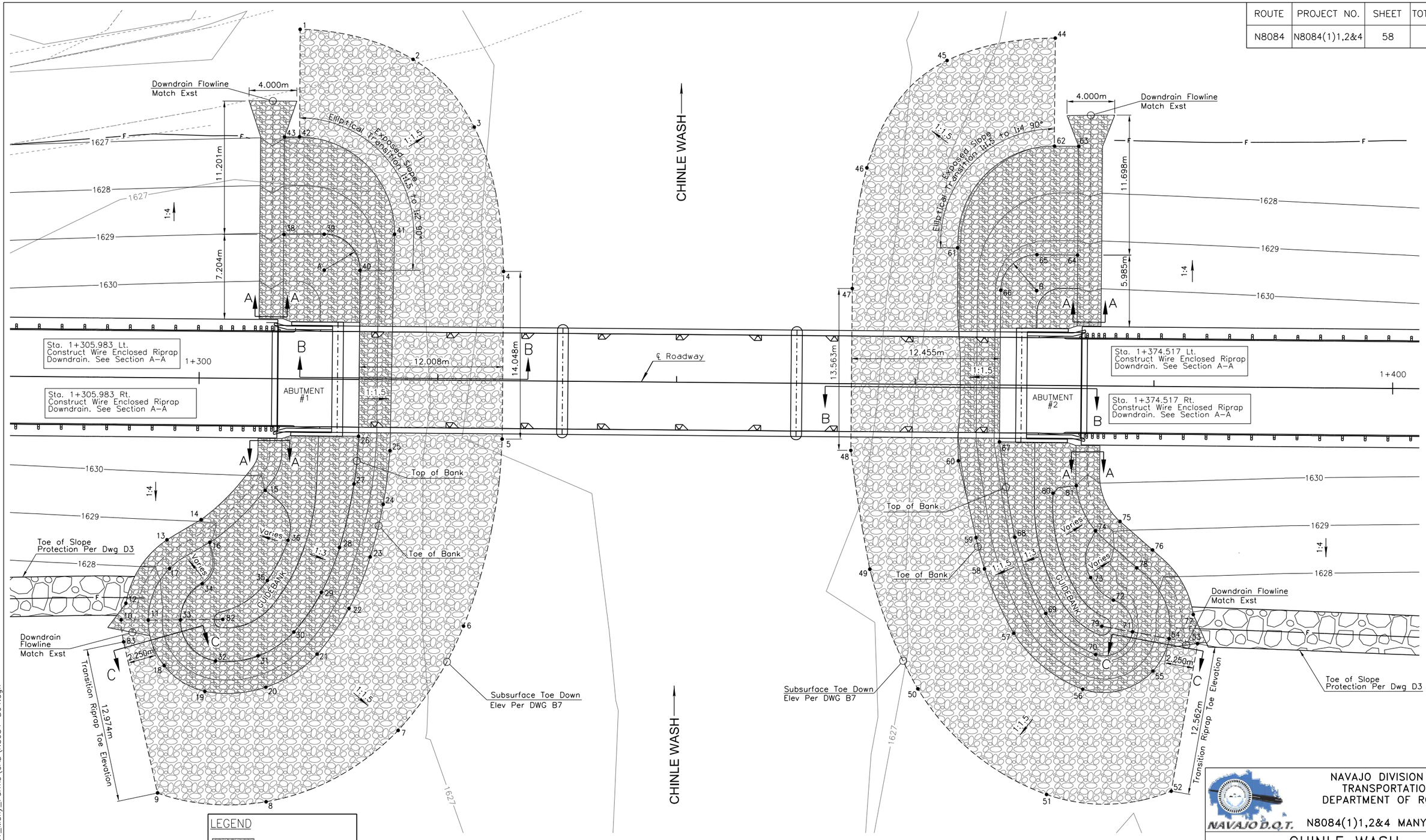
CHINLE WASH PILE LAYOUT AND FOUNDATION NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B8	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	58	109



WIRE ENCLOSED RIPRAP RADIUS POINTS			
POINT	STATION	OFFSET	RADIUS
Ⓐ	1+310.400	9.133 Lt.	3.000
Ⓑ	1+370.100	7.939 Lt.	3.000

LEGEND

- EXPOSED WIRE ENCLOSED RIPRAP
- BURIED WIRE ENCLOSED RIPRAP
- DRAINAGE FLOW ARROW

CHANNEL GRADING PLAN

SCALE = 1:150

NOTES

1. See Dwg D5–D6 For Wire Enclosed Riprap Details and Notes.
2. See Dwg B10 For Riprap Layout Points, Details, and Sections A–A, B–B and C–C.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

CHINLE WASH CHANNEL GRADING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B9	

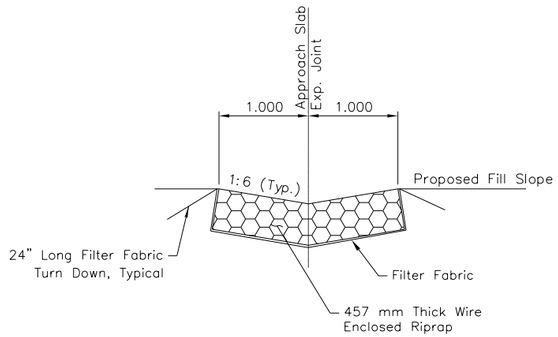
Registered Professional Engineer (Civil) CERTIFICATE NO. 37878 JOSHUA E. PAPWORTH Date Signed 5/4/26 ARIZONA, U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B04.dgn

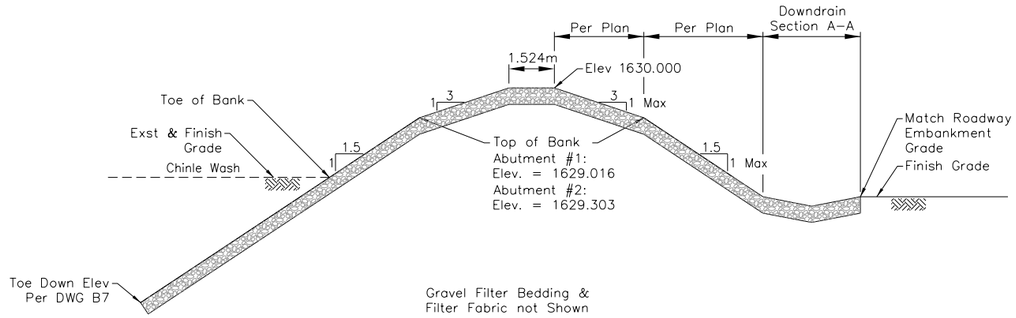
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	59	109

RIPRAP POINT TABLE		
POINT	NORTHING	EASTING
1	589216.331	264804.433
2	589213.814	264813.892
3	589208.144	264819.018
4	589196.033	264821.469
5	589181.984	264821.346
6	589166.318	264818.113
7	589157.587	264812.634
8	589151.607	264801.567
9	589152.362	264792.471
10	589166.843	264789.434
11	589166.843	264791.705
12	589168.236	264789.829
13	589173.571	264793.275
14	589175.258	264796.136
15	589177.726	264801.480
16	589173.368	264796.864
17	589171.169	264793.493
18	589163.030	264793.037
19	589160.868	264796.449
20	589161.220	264801.556
21	589163.993	264805.858
22	589167.824	264808.526
23	589172.138	264810.306
24	589176.542	264811.383
25	589181.040	264811.955
26	589182.240	264809.324
27	589178.243	264808.941
28	589172.924	264807.723
29	589169.174	264806.206
30	589165.851	264803.898
31	589163.848	264800.901
32	589163.447	264797.319
33	589166.867	264794.408
34	589169.880	264796.231
35	589170.179	264801.703
36	589173.533	264803.417
38	589199.156	264803.055
39	589199.164	264806.438
40	589196.138	264809.445
41	589199.161	264812.341
42	589207.312	264804.390
43	589207.317	264803.126
82	589166.899	264797.949
83	589165.025	264789.646

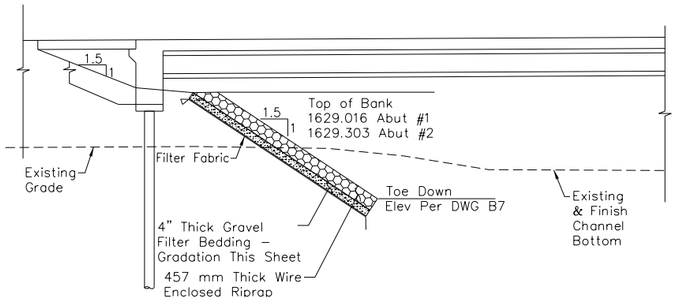
RIPRAP POINT TABLE		
POINT	NORTHING	EASTING
44	589215.597	264867.696
45	589213.723	264858.633
46	589204.730	264851.914
47	589194.620	264850.688
48	589181.058	264850.569
49	589171.104	264852.159
50	589161.087	264856.182
51	589152.232	264866.962
52	589152.516	264877.410
53	589164.881	264879.630
54	589165.292	264877.232
55	589162.577	264875.881
56	589161.052	264869.991
57	589165.747	264864.217
58	589171.138	264861.766
59	589173.757	264861.055
60	589180.193	264859.579
61	589198.031	264859.512
62	589206.546	264867.616
63	589206.528	264869.656
64	589197.417	264869.576
65	589197.447	264866.159
66	589194.473	264863.133
67	589181.770	264863.022
68	589173.791	264864.312
69	589167.403	264866.897
70	589163.965	264871.081
71	589165.859	264874.161
72	589168.514	264872.563
73	589170.404	264870.659
74	589174.332	264871.075
75	589175.111	264873.115
76	589172.716	264875.843
77	589167.312	264879.253
78	589171.213	264874.523
79	589166.333	264871.599
80	589177.472	264867.509
81	589178.101	264869.451



SECTION A-A
NTS



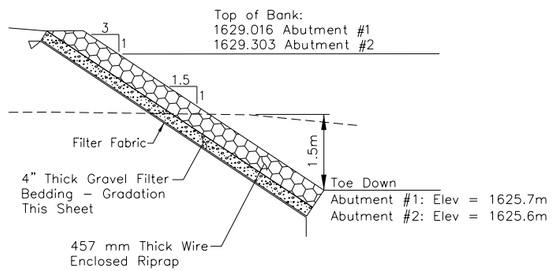
SECTION THROUGH GUIDEBANK
NTS



SECTION B-B
NTS

ITEM 25303-1000: WIRE ENCLOSED RIPRAP

STRUCTURE	ABUTMENT	THICKNESS t [mm]	VOLUME [m^3]
CHINLE	1	457	2171.42
CHINLE	2	457	2064.03
		TOTAL	4235.45



SECTION C-C
NTS

GRAVEL FILTER BEDDING GRADATION	
SIEVE SIZE	PERCENT OF GRADATION SMALLER THAN
3"	90-100
3/4"	20-90
#4	0-20
#200	0-3

NOTES

1. SEE DWG D5-D6 FOR WIRE ENCLOSED RIPRAP DETAILS AND NOTES.
2. SEE DWG B9 FOR CHANNEL GRADING PLAN AND SECTION A-A, B-B, AND C-C LOCATIONS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

CHINLE WASH
RIPRAP POINTS AND DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B10	

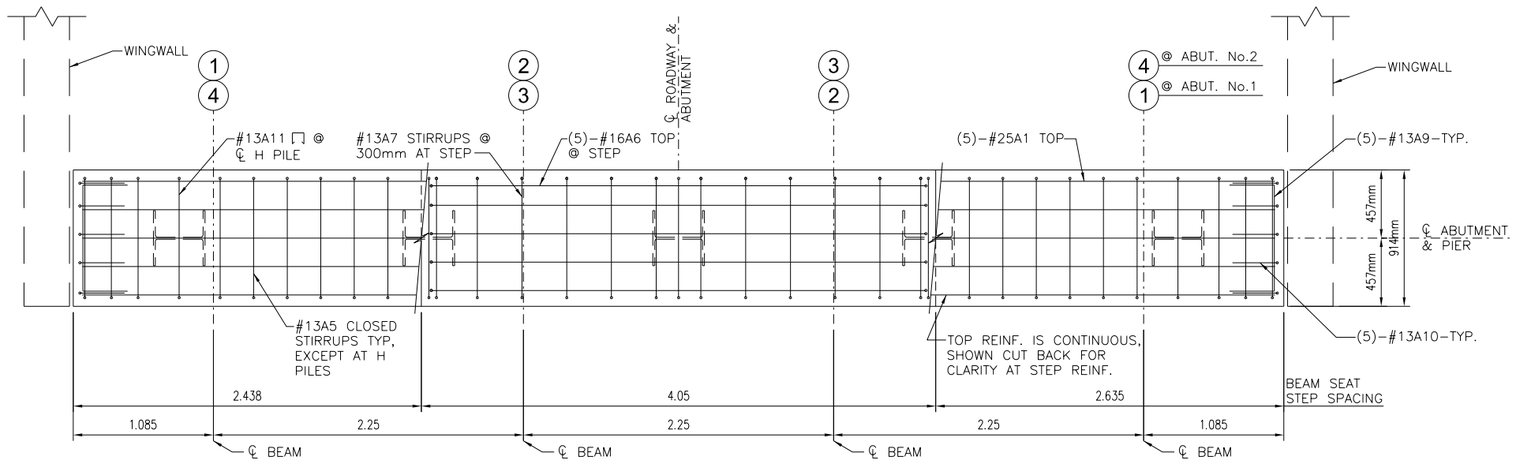
Registered Professional Engineer (Civil) CERTIFICATE NO. 37878 JOSHUA E. PAPWORTH Date Signed 5/04/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	60	109

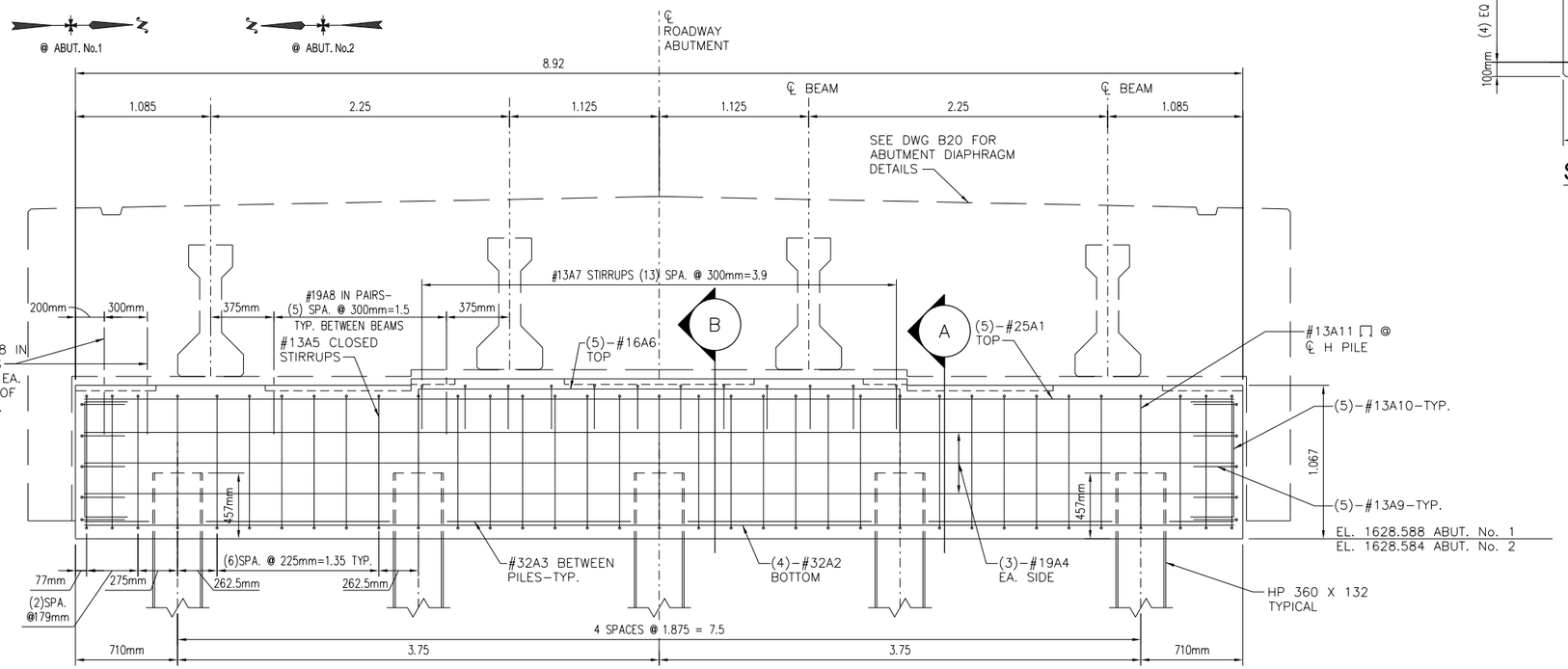
BEAM SEAT ELEVATIONS

	Beam 1	Beam 2	Beam 3	Beam 4
Abutment No. 1	1629.634	1629.679	1629.679	1629.634
Abutment No. 2	1629.630	1629.675	1629.675	1629.630



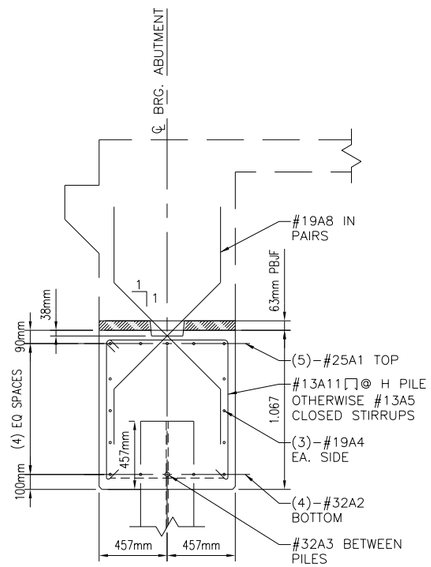
ABUTMENT PLAN

SCALE=N.T.S.



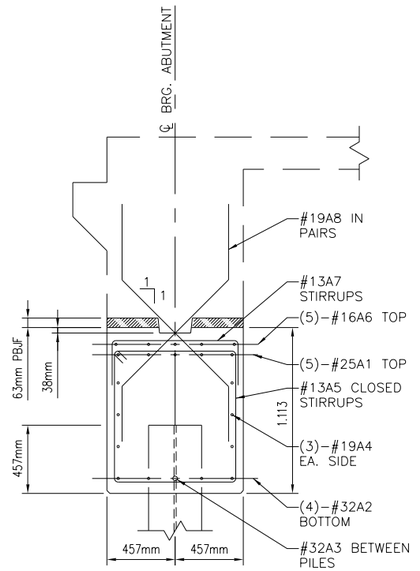
ABUTMENT ELEVATION

SCALE=N.T.S.



SECTION A

SCALE=N.T.S.



SECTION B

SCALE=N.T.S.

NOTE:

1. SEE DWG B13 FOR PLAN OF BEARING PADS AND SHEAR KEYS.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

CHINLE WASH ABUTMENT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B11	

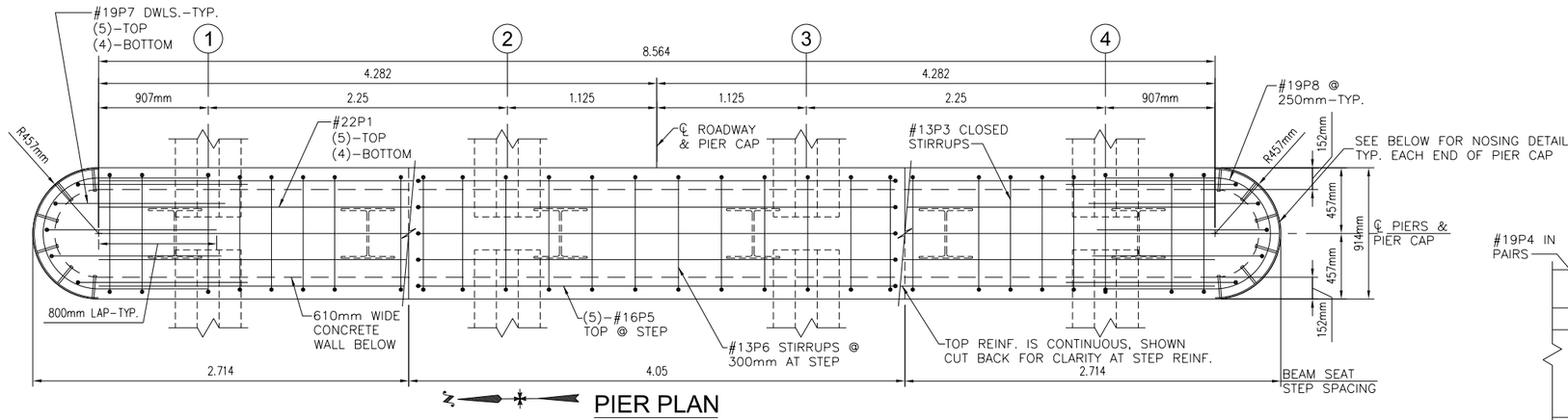
Registered Professional Engineer CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	61	109

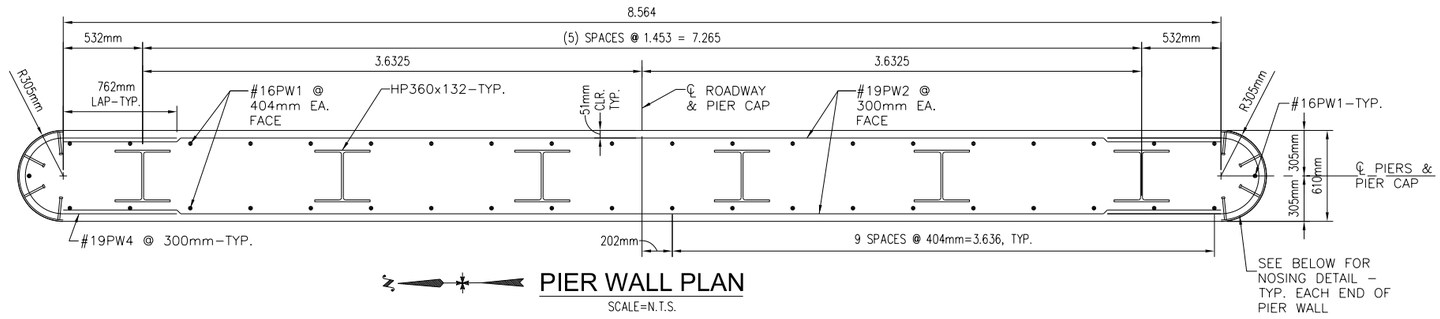
BEAM SEAT ELEVATIONS

	Beam 1	Beam 2	Beam 3	Beam 4
Pier No. 1	1629.707	1629.752	1629.752	1629.707
Pier No. 2	1629.705	1629.751	1629.751	1629.705



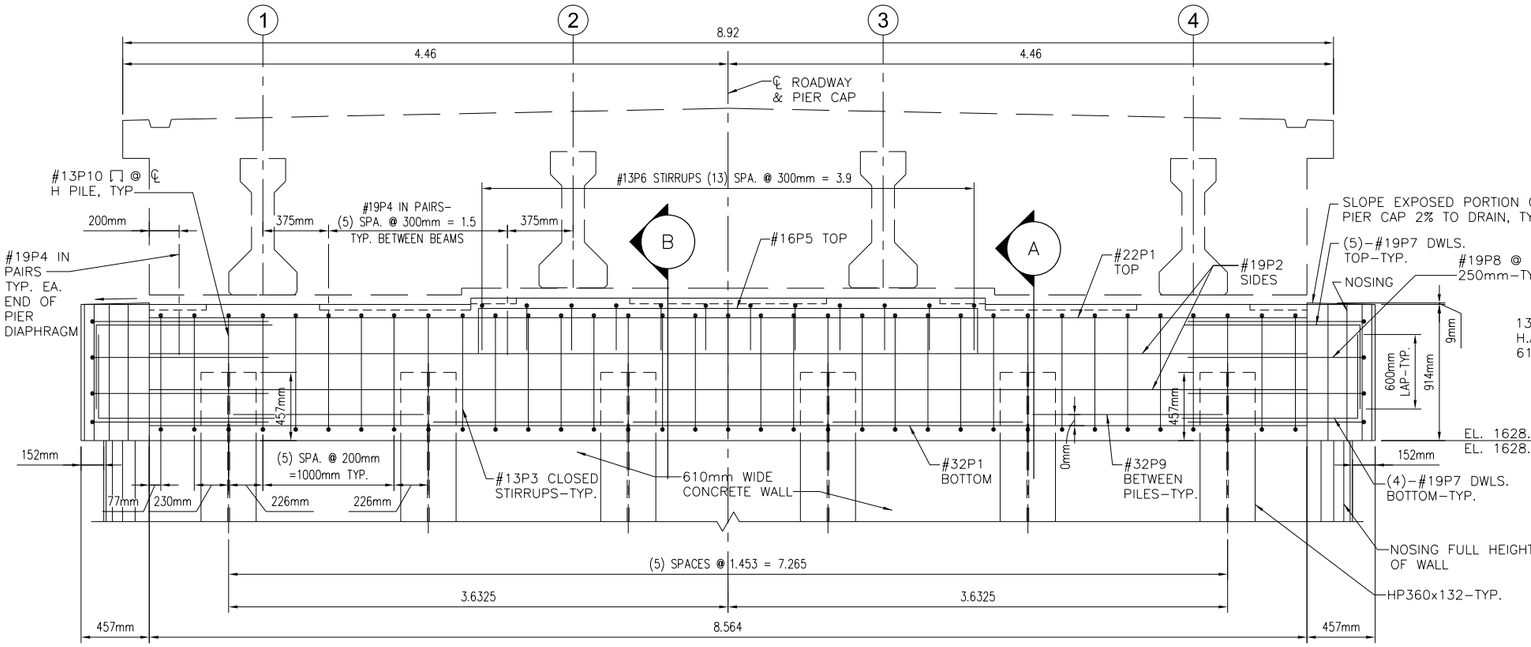
PIER PLAN

SCALE=N.T.S.



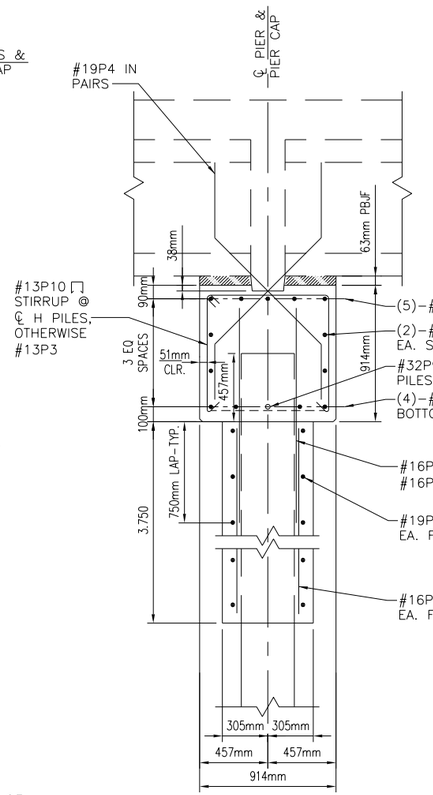
PIER WALL PLAN

SCALE=N.T.S.



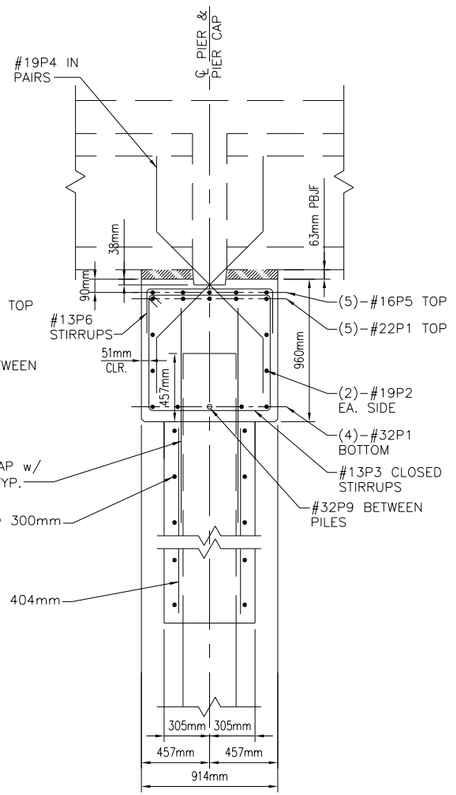
PIER ELEVATION

SCALE=N.T.S.



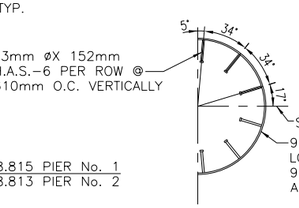
SECTION A

SCALE=N.T.S.

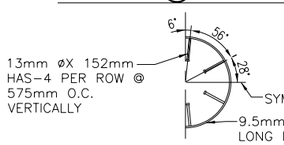


SECTION B

SCALE=N.T.S.



NOSING @ PIER CAP



NOSING @ PIER WALL

NOSING DETAILS

SCALE=N.T.S.

NOTE:

1. SEE DWG B13 FOR PLAN OF BEARING PADS AND SHEAR KEYS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

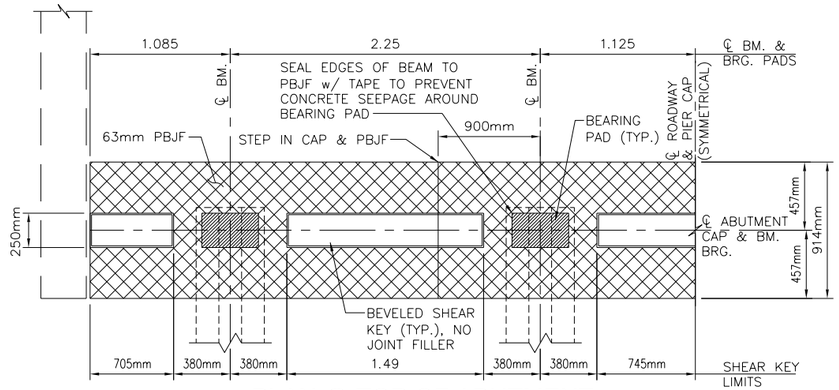
CHINLE WASH
PIER DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B12	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/26/26 ARIZONA, U.S.A.

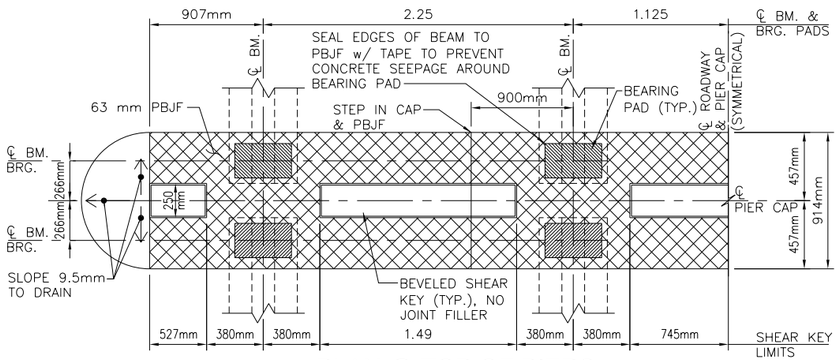
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	62	109



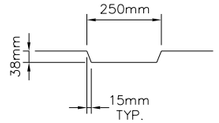
PLAN @ TOP OF ABUTMENT

SCALE=N.T.S.



PLAN @ TOP OF PIERS

SCALE=N.T.S.



SHEAR KEY DETAIL

ELASTOMERIC BEARING PAD SCHEDULE

60 DUROMETER

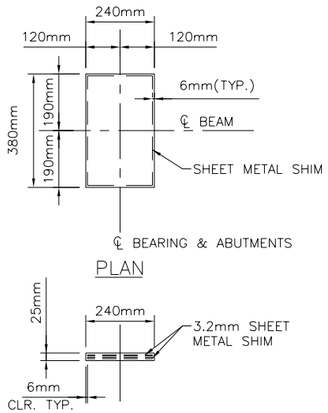
LOCATION	DIMENSIONS			NUMBER OF SHIMS	INNER LAMINATION		OUTER LAMINATION		DESIGN LOAD EACH PAD	REQUIRED
	W	L	H		NUMBER	THICK	NUMBER	THICK		
ABUT. No. 1 & 2	380mm	240mm	51mm	2	1	9.5mm	2	4.8mm	DL = 253 kN LL = 358 kN	8
PIER No. 1 & 2	380mm	240mm	51mm	2	1	9.5mm	2	4.8mm	DL = 252 kN LL = 307 kN	16

TABLE OF DIMENSION "T" @ ℄ BEAM BEARING

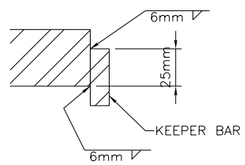
	ABUTMENT No. 1 & 2 and PIER No.1 & No.2
SLAB	216 mm
HAUNCH THICKNESS AT ℄ BEAM	77 mm
BEAM	914mm
SOLE PLATE	38 mm
BEARING PAD COMPRESSED	25 mm
DIMENSION "T."	1.270

NOTES:

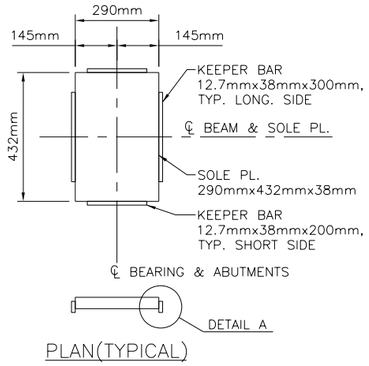
1. THE PLATE THICKNESS IS THE FINISHED THICKNESS.
2. IF MACHINING PROCESSES ARE USES TO ACHIEVE THE REQUIRED FLATNESS TOLERANCES OF THE SOLE PLATES, THE DIRECTION OF MACHINING ON THE SURFACE TO BE IN CONTACT WITH THE ELASTOMERIC PAD SHALL BE PERPENDICULAR TO THE LONGITUDINAL AXIS OF THE BEAM.



SECTION @ ABUTMENT No.1&2 @ PIER No. 1&2



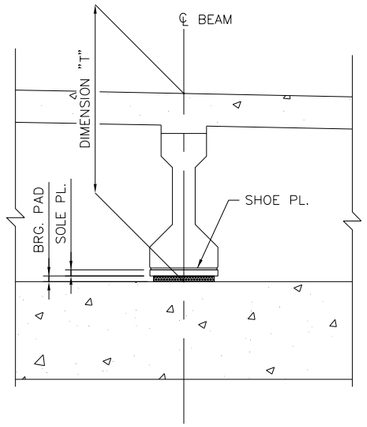
DETAIL A



PLAN(TYPICAL)

ELASTOMERIC BEARING PAD DETAILS

SCALE=N.T.S.



TYPICAL BEAM BEARING DETAIL AT ABUTMENTS

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

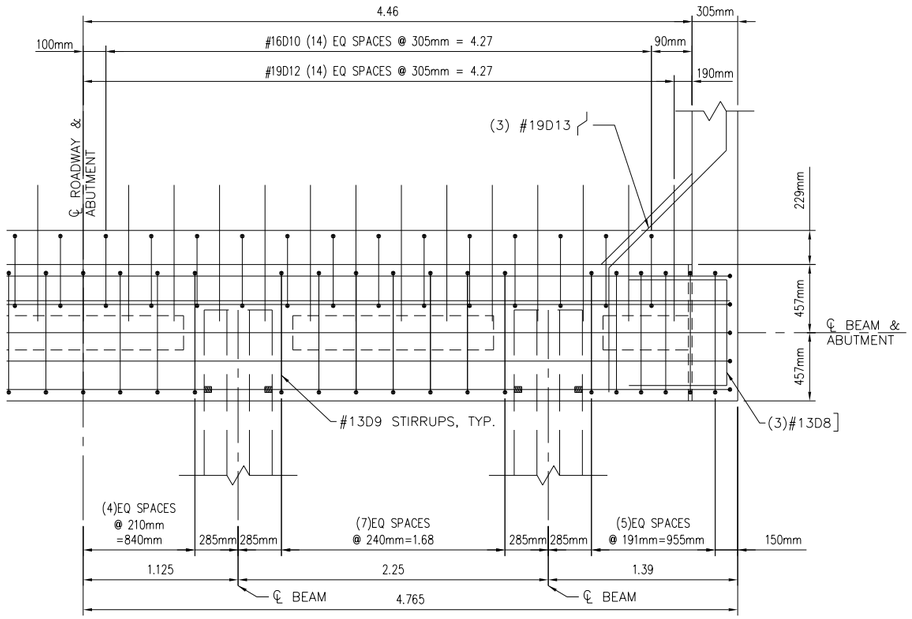
CHINLE WASH
BEAM BEARING DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B13	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

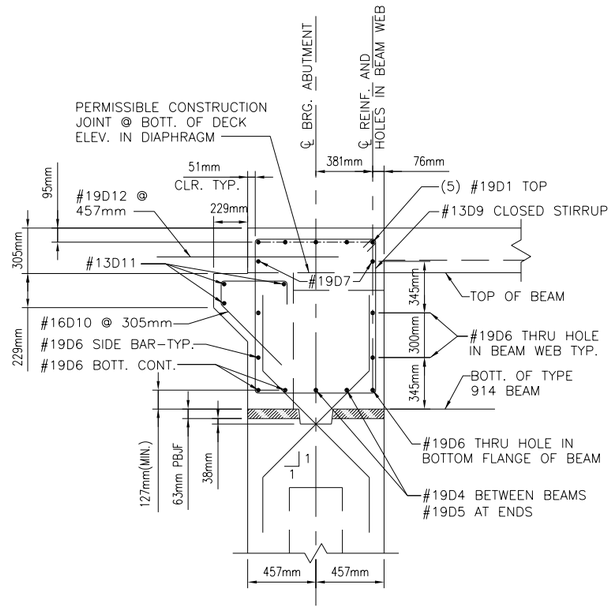
J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B08.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	63	109



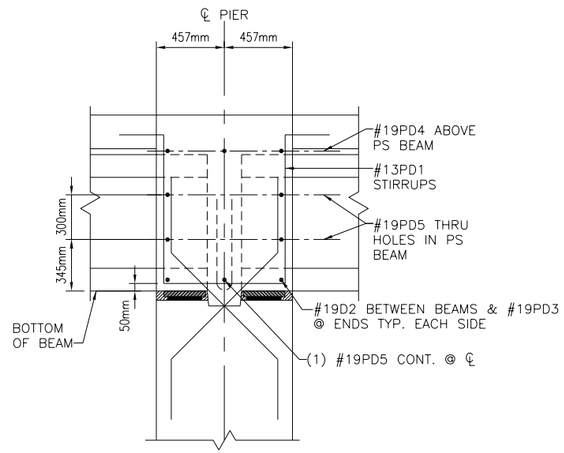
ABUTMENT DIAPHRAGM PARTIAL PLAN

SCALE=N.T.S.



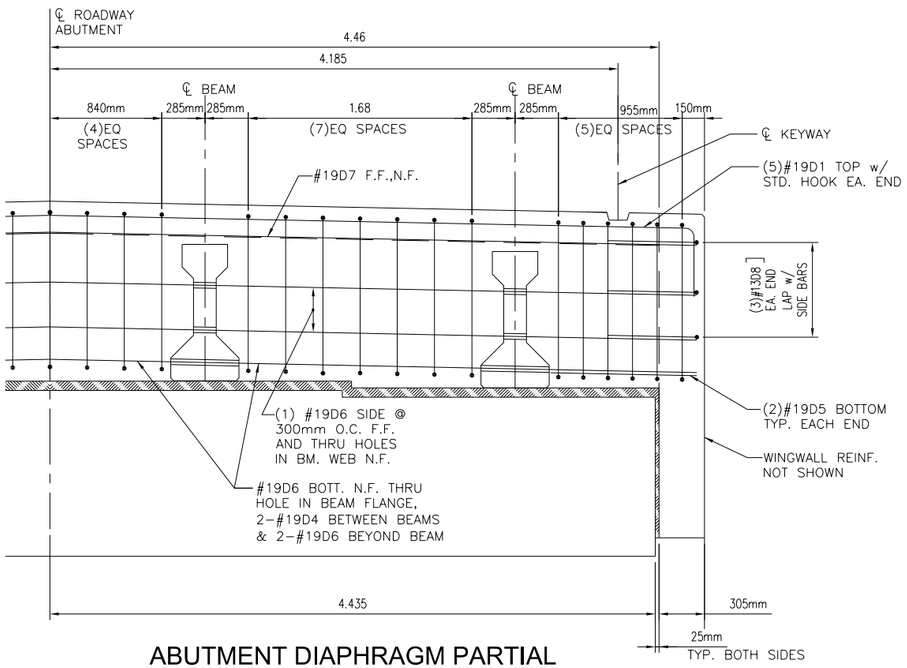
SECTION THRU ABUTMENT DIAPHRAGM

SCALE=N.T.S.



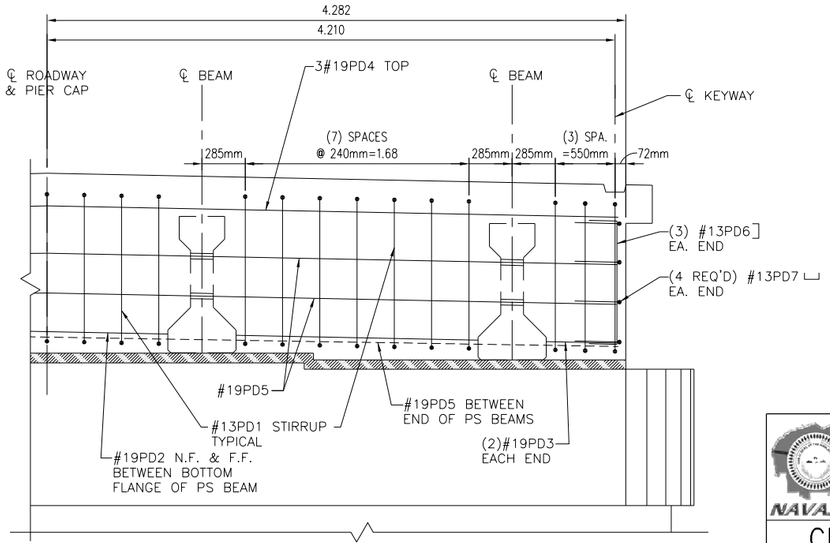
SECTION THRU PIER DIAPHRAGM

SCALE=N.T.S.



ABUTMENT DIAPHRAGM PARTIAL ELEVATION

SCALE=N.T.S.



PARTIAL PIER DIAPHRAGM ELEVATION

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

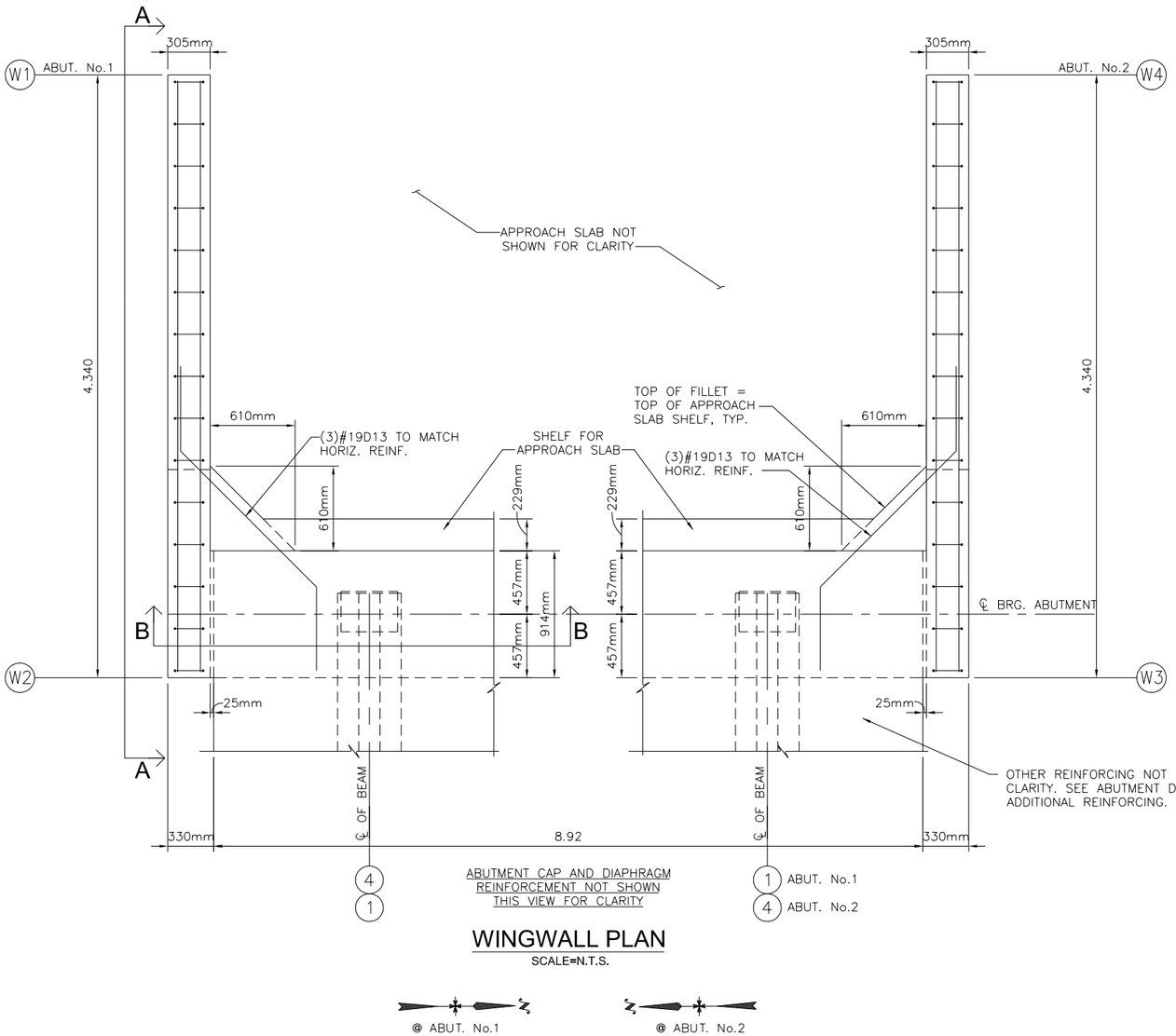
CHINLE WASH ABUTMENT & PIER DIAPHRAGM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B14	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 4/24/26 ARIZONA U.S.A.

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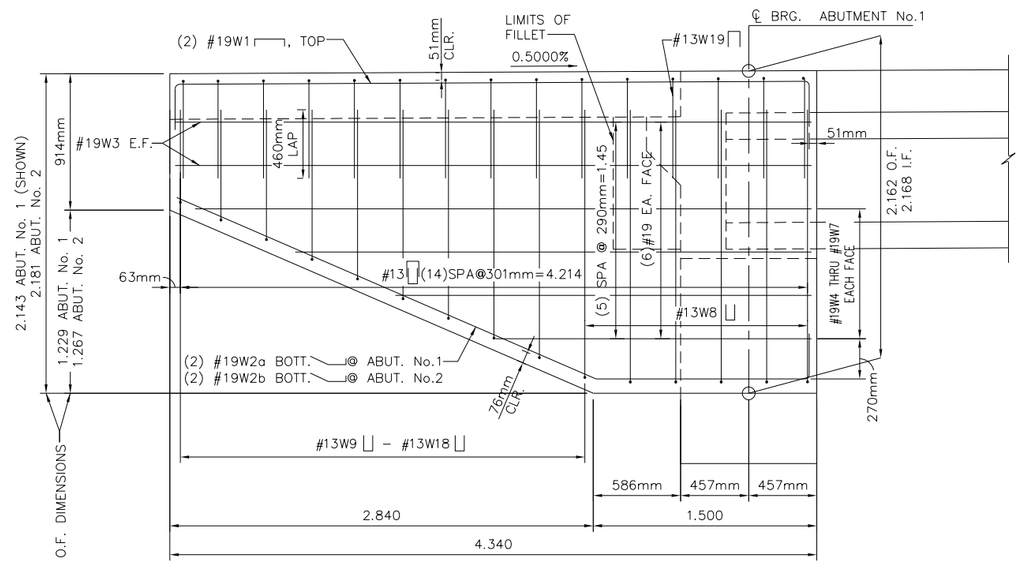
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	64	109



WINGWALL PLAN

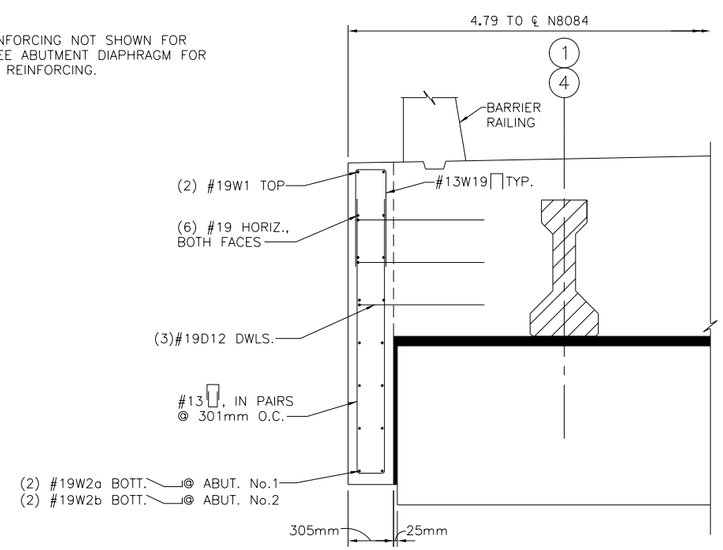
SCALE=N.T.S.

@ ABUT. No.1 @ ABUT. No.2



WINGWALL ELEVATION A-A ABUTMENT No.1

(WINGWALL @ ABUTMENT NO. 2 SIMILAR)
SCALE=N.T.S.



WINGWALL SECTION B-B

SCALE=N.T.S.

NOTE:

1. CAST WINGWALLS AND ABUTMENT DIAPHRAGM MONOLITHICALLY.
2. CAST DIAPHRAGM 2 HOURS PRIOR TO PLACING DECK CONCRETE.

TOP OF WINGWALL ELEVATIONS

	Dist From N8084	Abut No 1		Abut No 2	
		W1	W2	W3	W4
Outside Face Lt	4.79	1630.851	1630.878	1630.874	1630.853
Inside Face Lt	4.485	1630.857	1630.884	1630.880	1630.858
Inside Face Rt	4.485	1630.857	1630.884	1630.880	1630.858
Outside Face Rt	4.79	1630.851	1630.878	1630.874	1630.853

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

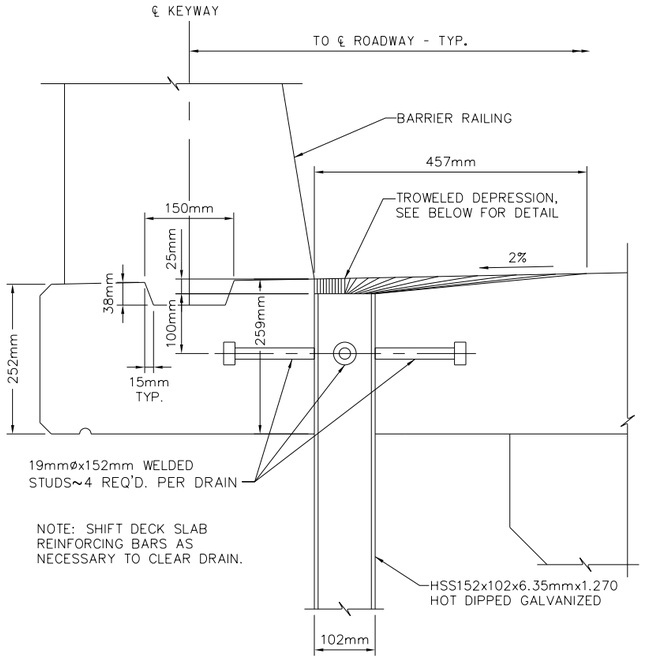
CHINLE WASH WINGWALL DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B15	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA U.S.A.

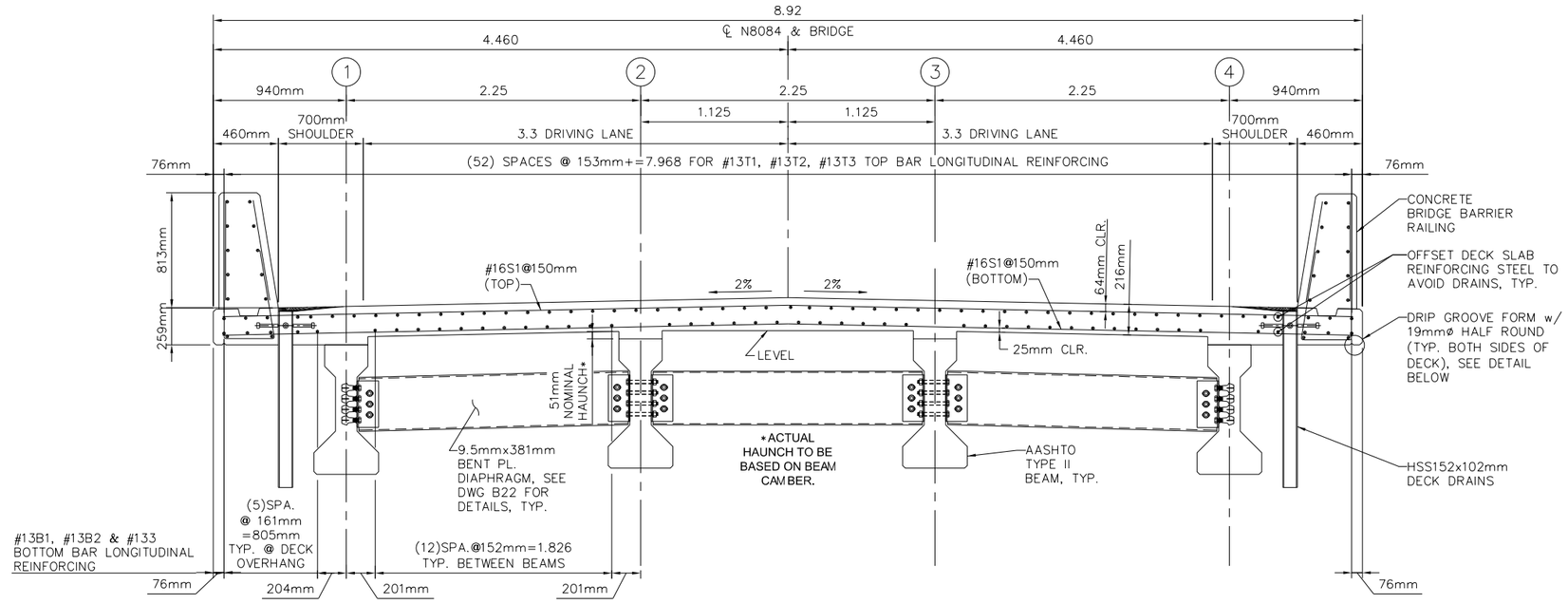
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	65	109



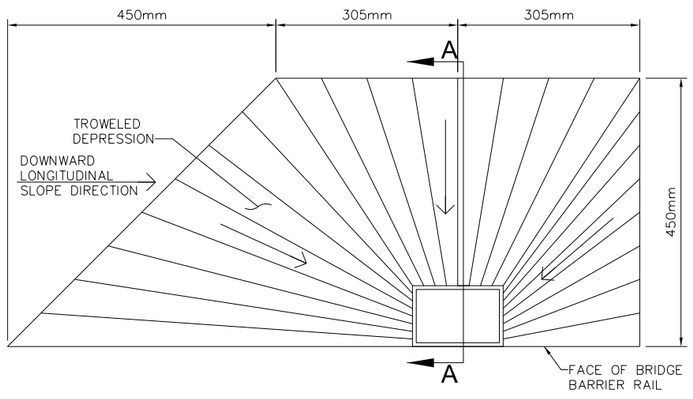
DECK DRAIN SECTION A-A

SCALE=N.T.S.



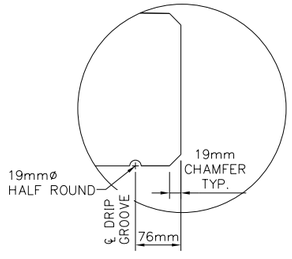
SECTION AT INTERMEDIATE DIAPHRAGMS TYPICAL TRANSVERSE SECTION

NORMAL TO ROADWAY CENTERLINE
SCALE=N.T.S.



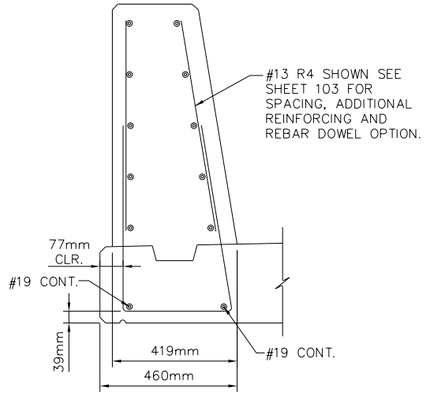
DECK DRAIN DETAIL

SCALE=N.T.S.



DRIP GROOVE DETAIL

SCALE=N.T.S.



BRIDGE BARRIER RAILING DETAIL

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

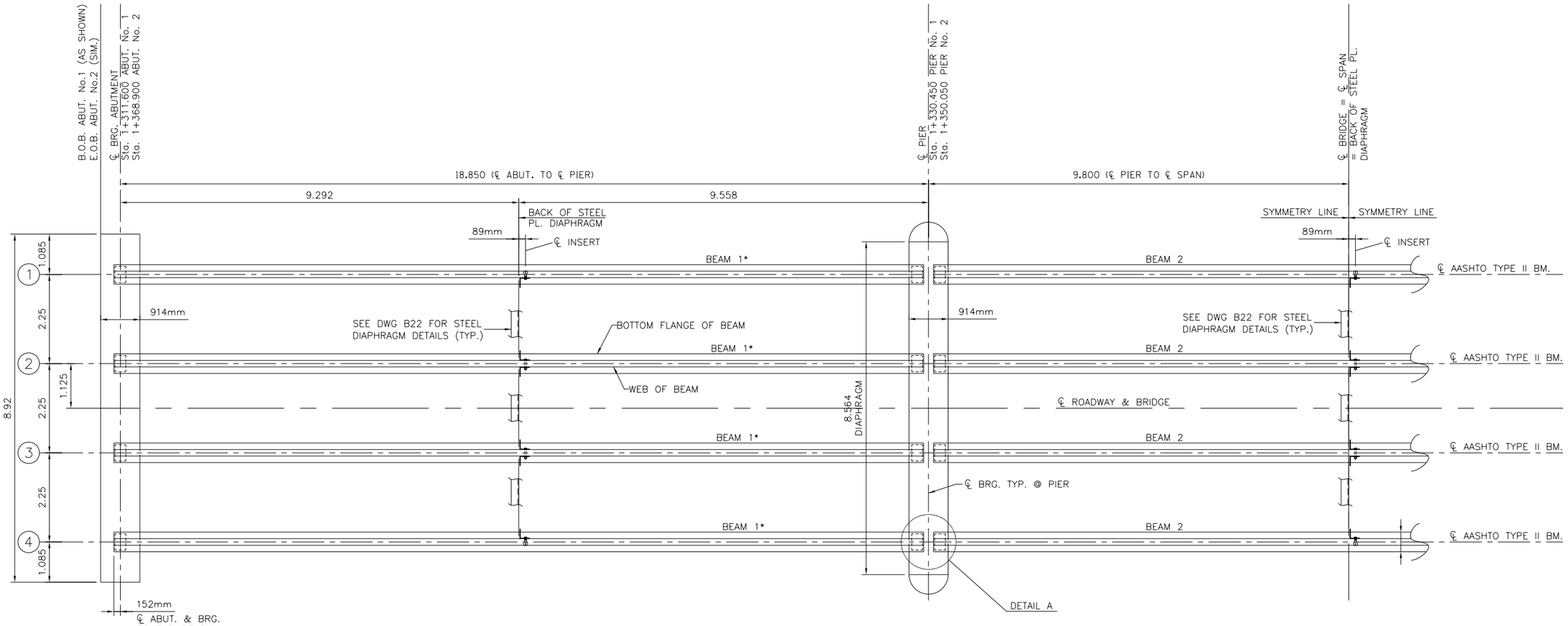
CHINLE WASH
TYPICAL TRANSVERSE SECTION

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B16	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

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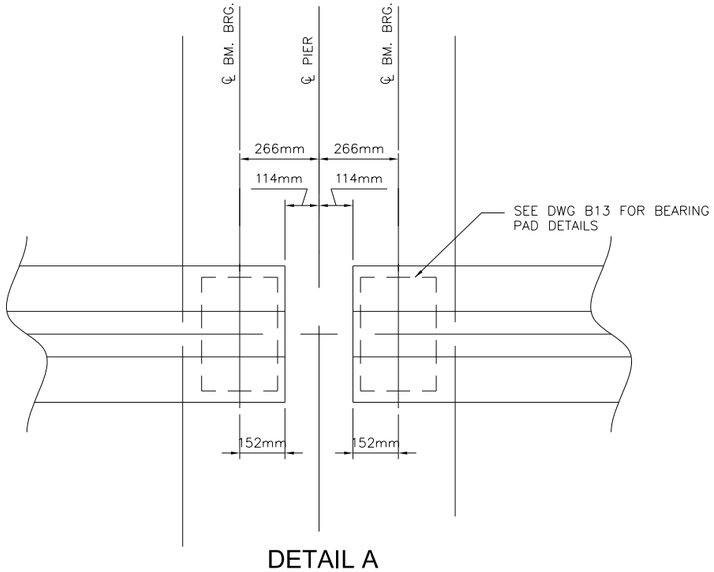
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	66	109



FRAMING PLAN

SCALE = 1:50

* BEAM 1 OPP. HAND IN SPAN 3.



DETAIL A

SCALE = 1:10

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

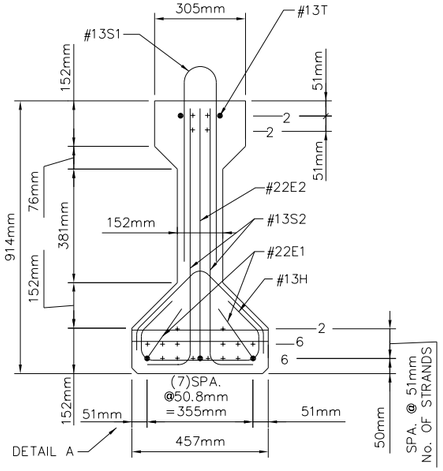
CHINLE WASH
FRAMING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B17	

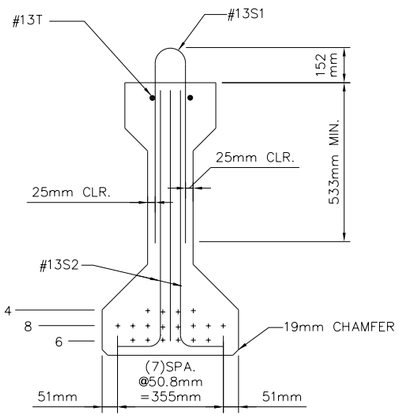
Registered Professional Engineer (Civil)
CERTIFICATE NO.
46583
JONATHAN
M. WOODS
Date Signed 5/4/26
ARIZONA, U.S.A.

J:\2017\10170064.19_NDOT_Many_Farms\CAD\N8084-B12.dgn

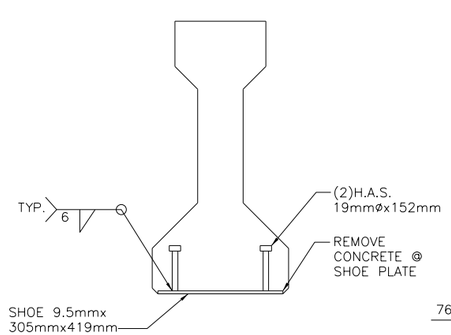
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	67	109



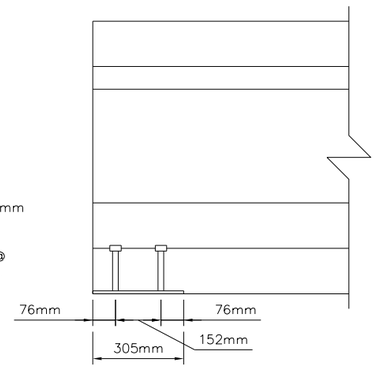
END VIEW



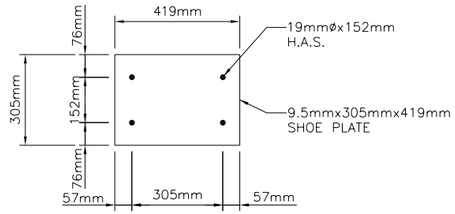
SECTION NEAR
℄ OF BEAM



END VIEW



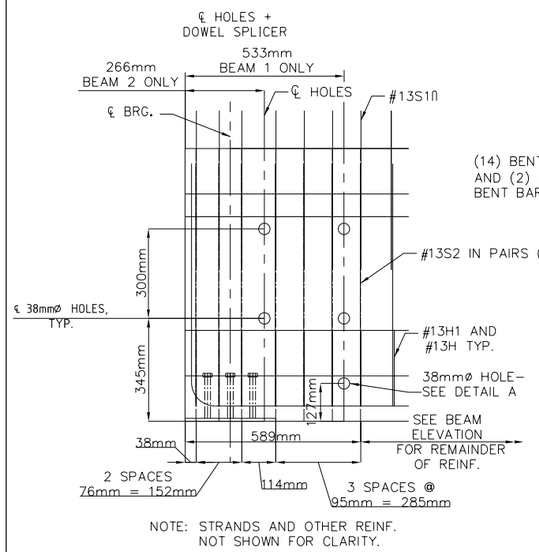
ELEVATION



SHOE PL. DETAIL

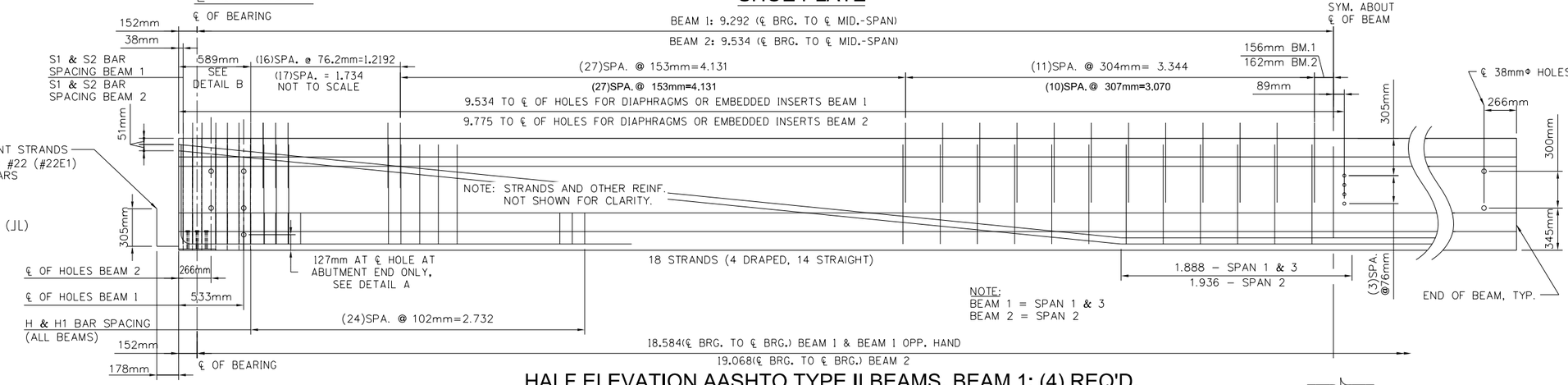
	WEIGHT	CAMBER @ RELEASE	CAMBER @ ERECTION	DEAD LOAD DEFLECTION
BEAM 1	106 kN	27 mm	48 mm	10 mm
BEAM 2	109 kN	28 mm	49 mm	12 mm

BEAM DATA



NOTE: STRANDS AND OTHER REINF.
NOT SHOWN FOR CLARITY.

DETAIL B



SHOE PLATE

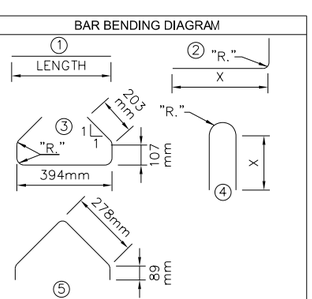
HALF ELEVATION AASHTO TYPE II BEAMS, BEAM 1: (4) REQ'D. AS SHOWN, (4) REQ'D. OPP. HAND; BEAM 2: (4) REQ'D.

(BEAM 1: fpe = 1222.1 MPa PER STRAND; LOSSES = 174.12 MPa PER STRAND)
(BEAM 2: fpe = 1217.1 MPa PER STRAND; LOSSES = 179.06 MPa PER STRAND)

BEAM 1 (SPAN 1 & 3)						
BAR	TYPE	SIZE	"R."	"X"	LENGTH	No. REQ'D.
E1	②	#22	79mm	2.438	2.743	4
E2	②	#22	79mm	812mm	3.251	2
S1	④	#13	44mm	675mm	1.490	114
S2	②	#13	38mm	838mm	1.020	228
H	③	#13	38mm	_	950mm	62
H1	⑤	#13	38mm	_	700mm	62
T	①	#13	_	_	9.700	4

BEAM 2 (SPAN 2)						
BAR	TYPE	SIZE	"R."	"X"	LENGTH	No. REQ'D.
E1	②	#22	79mm	2.438	2.743	4
E2	②	#22	79mm	812mm	3.251	2
S1	④	#13	44mm	675mm	1.490	122
S2	②	#13	38mm	838mm	1.020	244
H	③	#13	38mm	_	950mm	62
H1	⑤	#13	38mm	_	700mm	62
T	①	#13	_	_	9.940	4

BAR BENDING DIAGRAM



REINFORCING BARS REQ'D. FOR ONE BEAM

GENERAL NOTES

1. COST OF REINFORCING BARS AND STRUCTURAL STEEL EMBEDDED IN BRIDGE BEAMS IS TO BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BRIDGE MEMBER AASHTO TYPE II.
2. BEAMS TO BE LIFTED BY MEANS OF DEVICES SATISFACTORY TO THE FABRICATOR. BEAMS TO BE CAST, STORED, AND HAULED IN UPRIGHT POSITION. THE CONTRACTOR SHALL SUBMIT CALCULATIONS FOR DESIGN OF THE LIFTING DEVICE.
3. THE TOP SURFACES OF THE BEAMS ARE TO BE THOROUGHLY WIRE BRUSHED AND SCORED TRANSVERSELY AFTER INITIAL SET (MIN. DEPTH = 6mm ACROSS ENTIRE FLANGE WIDTH).
4. THE CAMBER AT ERECTION DIMENSION LISTED IS THE CALCULATED VALUE DUE TO THE EFFECT OF PRESTRESSING WITH THE WEIGHT OF THE BEAM ACTING, WITH AN ALLOWANCE FOR CAMBER GROWTH TO 90 DAYS. THE CONTRACTOR SHALL LIMIT THE CAMBER GROWTH TO A VALUE NOT TO EXCEED THE PREDICTED CAMBER AT ERECTION DIMENSION BY 25.4mm AT THE TIME OF DECK SLAB PLACEMENT. CAMBER GROWTH IS TO BE LIMITED BY WEIGHTING, FABRICATION SCHEDULING OR OTHER APPROVED MEANS.
5. DEAD LOAD DEFLECTION IS THE COMPUTED DEFLECTION DUE TO WEIGHT OF SLAB, DIAPHRAGMS, AND SUPERIMPOSED DEAD LOAD.
6. THE DESIGN SHOWN IS BASED ON THE USE OF 12.7mm DIAMETER LOW-RELAXATION STRANDS MEETING THE REQUIREMENTS OF AASHTO M-203 (GRADE 270). INITIAL PRESTRESSING FORCE SHALL BE 30,975 LBS. PER STRAND. SLIGHT OVERSTRESSING UP TO 33,000 LBS. PER STRAND WILL BE ALLOWED TO OFFSET SEATING LOSSES.
7. TYPE III CEMENT MAY BE USED AT THE FABRICATOR'S OPTION.
8. SHOE PLATES MUST BE STRAIGHTENED PRIOR TO CASTING INTO BEAM.
9. REINFORCING BARS PROJECTING FROM THE TOP OF THE GIRDER AND ALL REINFORCING. LOCATED WITHIN FOUR FEET OF GIRDER ENDS SHALL BE UNCOATED CORROSION RESISTANT STEEL OR EPOXY COATED STEEL.

DESIGN DATA

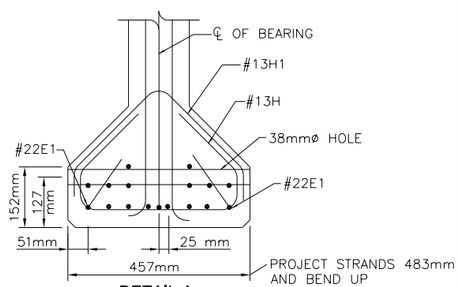
DESIGN ACCORDING TO AASHTO LRFD SPECIFICATIONS DATED 2020 AND CURRENT INTERIMS.

BEAMS:
f'ci (MIN. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS) = 38.0 MPa.
f'c = 48.3 MPa (ULTIMATE COMPRESSIVE STRENGTH)

PRESTRESSING STEEL:
12.7 DIAMETER SEVEN WIRE LOW RELAXATION STRANDS.
fpu = 1861.6 MPa PER STRAND;
fpy = 1709.90 MPa PER STRAND.

CONVENTIONAL REINFORCING BARS:
fy = 413.7 MPa

COMPOSITE SLAB:
f'c = 27.6 MPa
ALLOWANCE FOR FUTURE WEARING SURFACE = 1.436 kPa
LIVE LOAD = HL-93.
STAY-IN-PLACE DECK FORM = .718 kPa.



DETAIL A

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

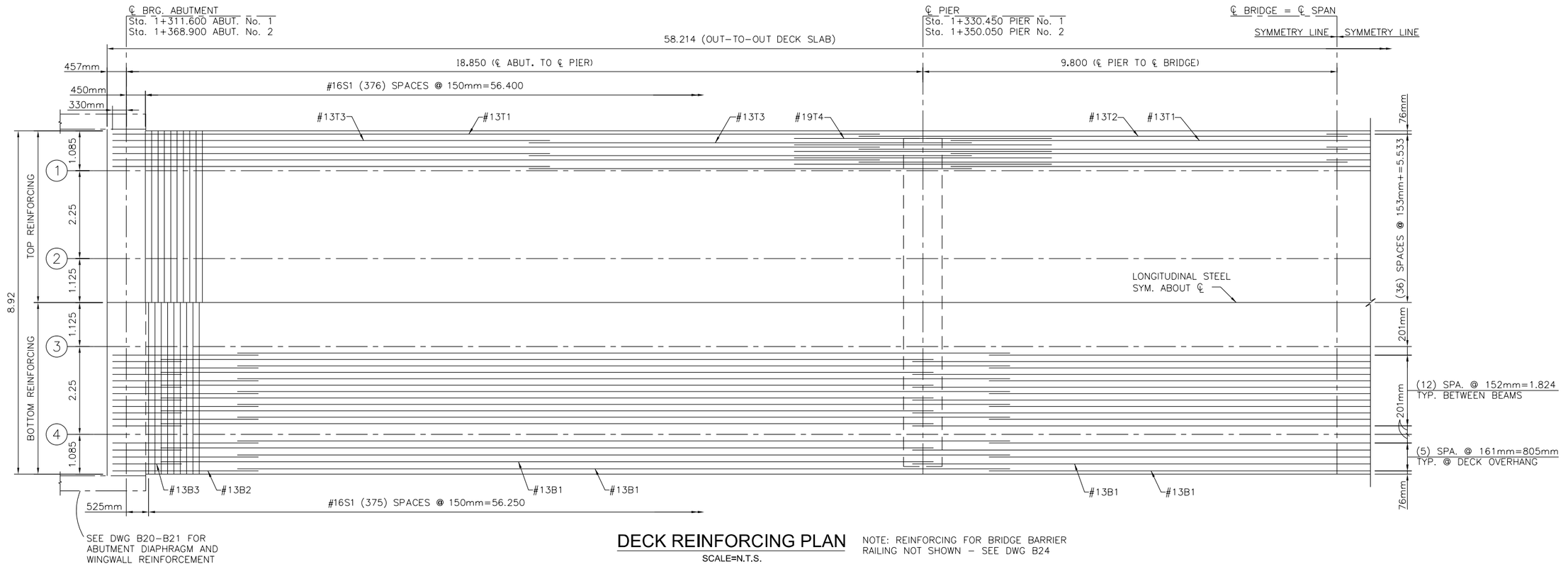
CHINLE WASH-PRESTRESSED CONCRETE BEAM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B18	

Registered Professional Engineer CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B13.dgn

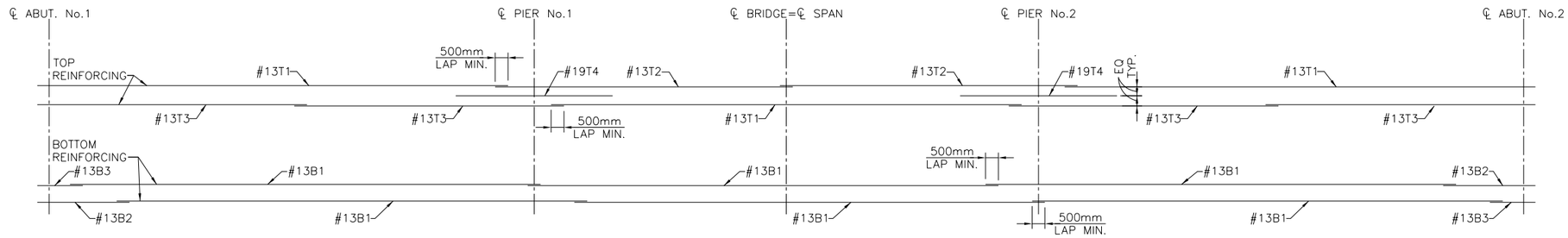
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	68	109



DECK REINFORCING PLAN

SCALE=N.T.S.

NOTE: REINFORCING FOR BRIDGE BARRIER RAILING NOT SHOWN – SEE DWG B24



BAR RUN LAYOUT

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

CHINLE WASH
DECK REINFORCING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B19	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/6/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B14.dgn

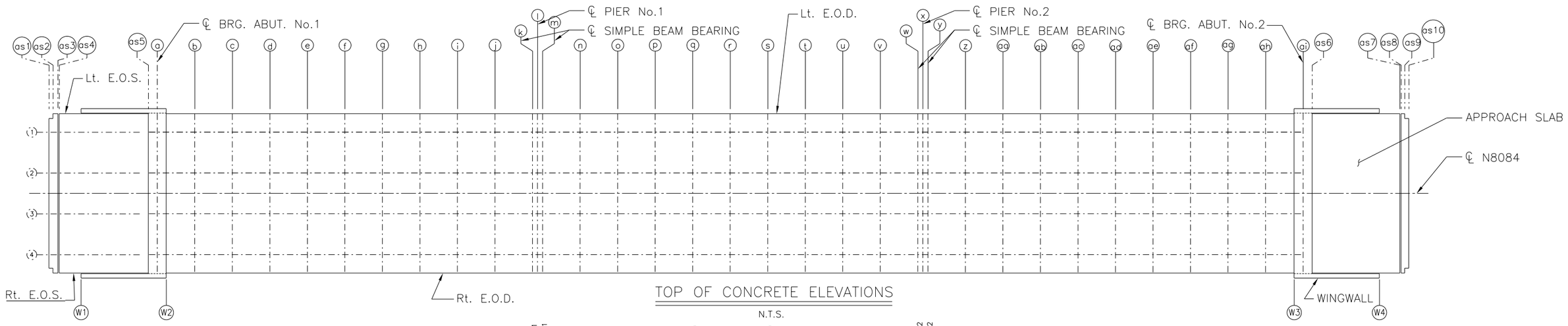
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	69	109

Screed Elevations

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa	ab	ac	ad	ae	af	ag	ah	ai	aj
		CL Abut 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL Bearing	CL Pier 1	CL Bearing	0.1	0.2	0.3	0.4	HI Point	0.5	0.6	0.7	0.8	0.9	CL Bearing	CL Pier 2	CL Bearing	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL Abut 2
		1311.6	1313.34	1315.23	1317.11	1319	1320.89	1322.78	1324.67	1326.56	1328.45	1330.18	1330.45	1330.72	1332.51	1336.38	1355.49	1338.32	1339.909	1340.25	1342.19	1344.13	1346.07	1348	1349.784	1350.05	1350.32	1352.06	1353.95	1355.826	1357.716	1359.606	1361.5	1363.39	1365.28	1367.17	1368.9
		0	1.74	3.63	5.51	7.4	9.29	11.18	13.07	14.96	16.85	18.584	18.85	19.116	20.906	24.776	43.892	26.716	28.309	28.646	30.586	32.526	34.466	36.396	38.184	38.45	38.716	40.456	42.346	44.226	46.116	48.006	49.896	51.786	53.676	55.566	57.3
Left Edge	4.46	1630.882	1630.894	1630.910	1630.924	1630.935	1630.944	1630.949	1630.952	1630.953	1630.953	1630.955	1630.955	1630.956	1630.961	1630.969	1630.976	1630.980	1630.965	1630.965	1630.965	1630.965	1630.965	1630.959	1630.955	1630.954	1630.953	1630.952	1630.952	1630.951	1630.948	1630.941	1630.932	1630.919	1630.905	1630.890	1630.878
Girder 1	3.375	1630.904	1630.916	1630.932	1630.946	1630.957	1630.966	1630.971	1630.974	1630.974	1630.975	1630.977	1630.977	1630.978	1630.982	1630.990	1630.997	1631.002	1630.986	1630.986	1630.986	1630.986	1630.986	1630.981	1630.976	1630.976	1630.975	1630.973	1630.974	1630.973	1630.969	1630.963	1630.953	1630.941	1630.927	1630.912	1630.900
Girder 2	1.125	1630.949	1630.961	1630.977	1630.991	1631.002	1631.011	1631.016	1631.019	1631.019	1631.019	1631.022	1631.022	1631.023	1631.027	1631.036	1631.043	1631.047	1631.031	1631.031	1631.031	1631.031	1631.031	1631.026	1631.021	1631.021	1631.020	1631.018	1631.019	1631.018	1631.015	1631.008	1630.998	1630.986	1630.972	1630.956	1630.945
N8084	0	1630.971	1630.984	1630.999	1631.013	1631.025	1631.033	1631.039	1631.041	1631.042	1631.042	1631.044	1631.045	1631.045	1631.050	1631.058	1631.065	1631.070	1631.054	1631.054	1631.054	1631.054	1631.054	1631.049	1631.044	1631.043	1631.043	1631.041	1631.042	1631.041	1631.037	1631.031	1631.021	1631.009	1630.994	1630.979	1630.967
Girder 3	1.125	1630.949	1630.961	1630.977	1630.991	1631.002	1631.011	1631.016	1631.019	1631.019	1631.019	1631.022	1631.022	1631.023	1631.027	1631.036	1631.043	1631.047	1631.031	1631.031	1631.031	1631.031	1631.031	1631.026	1631.021	1631.021	1631.020	1631.018	1631.019	1631.018	1631.015	1631.008	1630.998	1630.986	1630.972	1630.956	1630.945
Girder 4	3.375	1630.904	1630.916	1630.932	1630.946	1630.957	1630.966	1630.971	1630.974	1630.974	1630.975	1630.977	1630.977	1630.978	1630.982	1630.990	1630.997	1631.002	1630.986	1630.986	1630.986	1630.986	1630.986	1630.981	1630.976	1630.976	1630.975	1630.973	1630.974	1630.973	1630.969	1630.963	1630.953	1630.941	1630.927	1630.912	1630.900
Right Edge	4.46	1630.882	1630.894	1630.910	1630.924	1630.935	1630.944	1630.949	1630.952	1630.953	1630.953	1630.955	1630.955	1630.956	1630.961	1630.969	1630.976	1630.980	1630.965	1630.965	1630.965	1630.965	1630.965	1630.959	1630.955	1630.954	1630.953	1630.952	1630.952	1630.951	1630.948	1630.941	1630.932	1630.919	1630.905	1630.890	1630.878

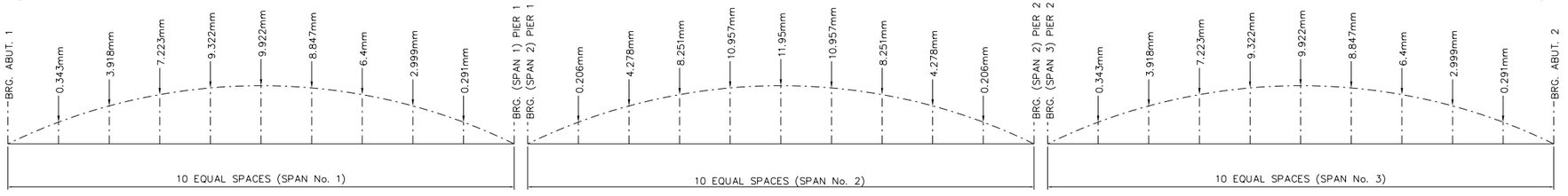
SLAB1					
PVC	A5	A4	A3	A2	A1
1290	1311.143	1306.607	1306.556	1306.302	1306.099
1630.798	1630.969	1630.940	1630.940	1630.938	1630.936
	1630.888	1630.859	1630.858	1630.857	1630.855
	1630.880	1630.851	1630.850	1630.849	1630.847

SLAB2					
PVC	A6	A7	A8	A9	A10
1290	1369.357	1373.893	1373.944	1373.838	1374.401
1630.798	1630.965	1630.935	1630.935	1630.936	1630.932
	1630.884	1630.854	1630.854	1630.854	1630.850
	1630.875	1630.846	1630.846	1630.846	1630.842



TOP OF CONCRETE ELEVATIONS

N.T.S.



DEAD LOAD DEFLECTION DIAGRAM

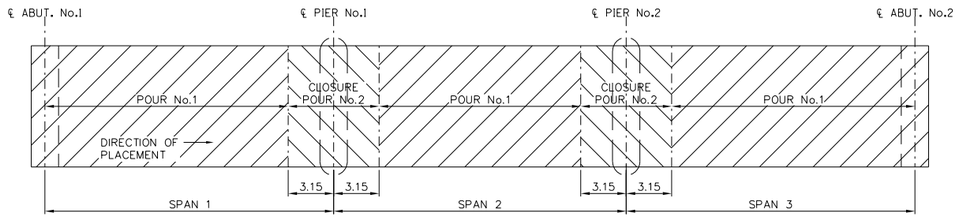
N.T.S.

NOTE:

TO COMPENSATE FOR DEAD LOAD DEFLECTIONS DUE TO WEIGHT OF SLAB AND SUPERIMPOSED DEAD LOADS, SET SCREEDS ABOVE FINISH GRADES BY DIMENSIONS (mm) SHOWN IN DEAD LOAD DEFLECTION DIAGRAM.

NOTE:

CONCRETE SHALL BE PLACED THE FULL WIDTH OF THE DECK SLAB AT A FORWARD RATE OF PROGRESS OF NOT LESS THAN 10 METERS PER HOUR. SET RETARDANT SHALL NOT BE USED IF THE ATMOSPHERIC TEMPERATURE AT THE TIME OF PLACEMENT IS LESS THAN 16° C.



CONCRETE DECK PLACEMENT DETAIL

N.T.S.

NOTE:

1. SEE DWG B15 FOR TOP OF CONCRETE ELEVATIONS AT WINGWALLS.
2. SEE DWG B6 FOR STANDARD ABBREVIATIONS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

CHINLE WASH
TOP OF CONCRETE ELEVATIONS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B20	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/26/26 ARIZONA, U.S.A.

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REINFORCING BAR SCHEDULE

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	70	109

–DECK SLAB

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top TRANS.	16S1	#16	1	377	8.82	8.82			EPOXY COATED
BOTT. TRANS.	16S1	#16	1	376	8.82	8.82			EPOXY COATED
BOTT. LONG.	13B1	#13	1	216	18.200	18.200			EPOXY COATED
BOTT. LONG.	13B2	#13	1	66	3.630	3.630			EPOXY COATED
BOTT. LONG.	13B3	#13	1	66	1.730	1.730			EPOXY COATED
Top LONG.	13T1	#13	1	126	18.200	18.200			EPOXY COATED
Top LONG.	13T2	#13	1	90	11.530	11.530			EPOXY COATED
Top LONG.	13T3	#13	1	104	10.440	10.440			EPOXY COATED
NEG. MOM. LONG.	19T4	#19	1	104	12	12			EPOXY COATED

–ABUTMENT CAP Quantity is for two abutment caps

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	
Top LONG.	#25A1	#25	1	10	8.766	8.766			
BOTT. LONG.	#29A2	#32	1	8	8.766	8.766			
BOTT. LONG.	#29A3	#32	1	8	1.30	1.30			FIELD CUT
Sides Long	#19A4	#19	1	12	8.766	8.766			
Stirrups	#13A5	#13	7	60	3.682	812 mm	929 mm	100 mm	
Top LONG. @ Step	#16A6	#16	8	10	3.958	3.348	305 mm		
Top TRANS. @ Step	#13A7	#13	8	24	1.422	812 mm	305 mm		
Diagonals	#19A8	#19	9	76	1.790	430 mm	430 mm	930 mm	
Abutment End	#13A9	#13	8	20	2.200	780 mm	710 mm		
Abutment End	#13A10	#13	8	20	1.500	890 mm	305 mm		
Stirrups at H Piles	#13A11	#13	10	10	2.900	812 mm	929 mm	100 mm	

–ABUTMENT DIAPHRAGMS Quantity is for two abutment diaprhagms

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top w/hooks	#19D1	#19	8	10	9.376	8.610	305 mm		EPOXY COATED
***NOT USED ***	#19D2	#19							
***NOT USED ***	#19D3	#19							
Bott. Between beams.	#19D4	#19	1	12	1.68	1.68			
Bottom at beam ends	#19D5	#19	1	8	940 mm	940 mm			
Side and bottom continuous	#19D6	#19	1	14	8.670	8.670			
Side continuous at top	#19D7	#19	1	4	8.670	8.670			EPOXY COATED
End U bars	#13D8	#13	8	12	1.385	775 mm	305 mm		
Stirrups	#13D9	#13	7	66	4.130	812 mm	1.155	100 mm	EPOXY COATED
Shelf	#16D10	#16	6	52	1.245	458 mm	157 mm	525 mm	
Shelf	#13D111	#13	1	6	8.670	8.670			
Dowel to APP. Slab	#19D12	#19	1	54	940 mm	940 mm			EPOXY COATED
Dowels to Wingwall	#19D13	#19	9	12	2.620	610 mm	610 mm	1.400	

–WINGWALLS

@ Abutment No. 1 Quantity is for two wingwalls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Wingwall, Top.	#19W1	#19	8	4	4.885	4.240	370 mm		
Wingwall, BOTT.	#19W2a	#19	12	4	4.815	3.060	1.430	370 mm	
Wingwall, I.F.+O.F.	#19W3	#19	1	4	4.240	4.240			
Wingwall, I.F.+O.F.	#19W4	#19	1	4	4.120	4.120			
	THRU								BY INCREMENTS OF 670 mm
Wingwall, I.F.+O.F.	#19W7	#19	1	4	2.110	2.110			
Bottom U Stirrups	#13W8	#13	8	8	3.850	203 mm	1.850		
Bottom U Stirrups	#13W9	#13	8	2	3.750	203 mm	1.800		
	THRU								DECREASE "B" DIMENSION BY INCREMENTS OF 130 mm
Bottom U Stirrups	#13W18	#13	8	2	1.410	203 mm	630 mm		
Top U Stirrups	#13W19	#13	8	30	1.470	203 mm	660 mm		

@ Abutment No. 2 Quantity is for two wingwalls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Wingwall, Top	#19W1	#19	8	4	4.885	4.240	370 mm		
Wingwall, BOTT.	#19W2b	#19	13	4	4.835	3.080	1.430	370 mm	
Wingwall, I.F.+O.F.	#19W3	#19	1	4	4.240	4.240			
Wingwall, I.F.+O.F.	#19W4	#19	1	4	4.120	4.120			
	THRU								BY INCREMENTS OF 670 mm
Wingwall, I.F.+O.F.	#19W7	#19	1	4	2.110	2.110			
Bottom U Stirrups	#13W8	#13	8	8	3.850	203 mm	1.850		
Bottom U Stirrups	#13W9	#13	8	2	3.750	203 mm	1.800		
	THRU								DECREASE "B" DIMENSION BY INCREMENTS OF 130 mm
Bottom U Stirrups	#13W18	#13	8	2	1.410	203 mm	630 mm		
Top U Stirrups	#13W19	#13	8	30	1.470	203 mm	660 mm		

– APPROACH SLABS Quantity is for two approach slabs

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Bottom Mat	25AS1	#25	1	108	4.420	4.420			EPOXY COATED
Bottom Mat	19AS2	#19	1	42	8.82	8.82			EPOXY COATED
Top Mat	13AS3	#13	1	26	8.82	8.82			EPOXY COATED
Top Mat	13AS4	#13	1	46	4.420	4.420			EPOXY COATED
Sleeper Slab -Ftg.	13SS1	#13	1	84	1.250	1.250			
Sleeper Slab -Ftg.	13SS2	#13	1	16	1.045	1.045			
Sleeper Slab -Ftg.	13SS3	#13	1	16	8.82	8.82			
Sleeper Slab -Ftg.	13SS4	#13	1	4	7.210	7.210			
End block	13SS5	#13	8	42	1.300	355 mm	500 mm		EPOXY COATED
End block at extension	13SS6	#13	8	8	1.100	152 mm	500 mm		EPOXY COATED
End block	16SS7	#16	1	2	8.020	8.020			EPOXY COATED
End block	16SS8	#16	1	2	7.210	7.210			EPOXY COATED

–PIER CAPS Quantity is for two pier caps

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top LONG.	#22P1	#22	1	10	8.564	8.564			
Bottom LONG.	#22P1	#32	1	8	8.564	8.564			
Sides LONG.	#19P2	#19	1	8	8.564	8.564			
Stirrups	#13P3	#13	7	58	3.368	812 mm	772 mm	100 mm	
Diagonals	#19P4	#19	9	68	1.790	430 mm	430 mm	930 mm	
Top LONG. @ Step	#16P5	#16	8	10	3.958	3.348	305 mm		
Top TRANS. @ Step	#13P6	#13	8	24	1.422	812 mm	305 mm		
DWLS. @ Ends	#19P7	#19	3	36	1.926	1.266	660 mm		
Pier Ends	#19P8	#19	11	16	2.710	762 mm	770 mm		R=385mm
Bottom LONG. Between Piles	#22P9	#32	1	10	1.4	1.4			
Stirrups at H Piles	#13P10	#13	10	12	2.580	812mm	772mm	100mm	

–PIER DIAPHRAGMS Quantity is for two pier diaphragms

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Stirrups	#13PD1	#13	14	54	3.430	812 mm	1.055	305 mm	EPOXY COATED
BOTT. BTWN. Beams	#19PD2	#19	1	12	1.525	1.525			
BOTT. At Ends	#19PD3	#19	1	8	445 mm	445 mm			
Top LONG.	#19PD4	#19	1	6	8.42	8.42			EPOXY COATED
Sides, & BOTT. LONG.	#19PD5	#19	1	8	8.42	8.42			
VERT. U Bars-Ends	#13PD6	#13	8	12	1.445	885 mm	305 mm		EPOXY COATED
HORIZ. U Bars-Ends	#13PD7	#13	8	16	1.340	780 mm	305 mm		

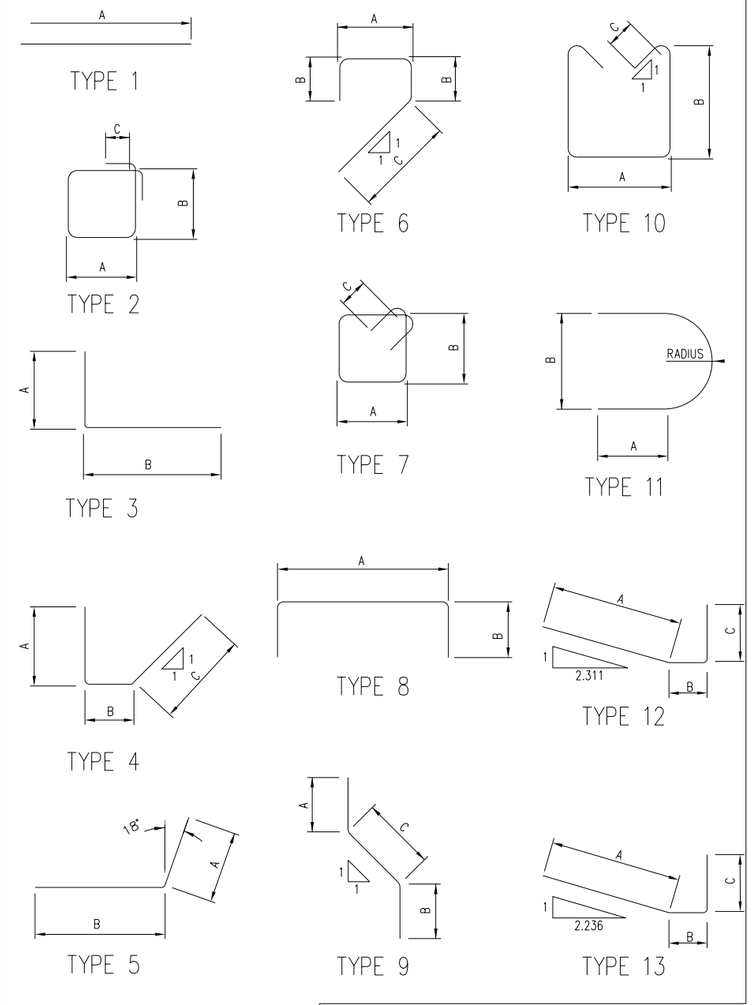
–PIER WALLS Quantity is for two pier walls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
VERT. Wall REINF.	#16PW1	#16	1	84	3.625	3.625			
HORIZ. Wall REINF.	#19PW2	#19	1	52	8.42	8.42			
VERT. Wall DOWELS	#16PW3	#16	1	84	1.574	1.574			
End Wall REINF.	#19PW4	#19	11	52	2.300	762mm	508mm		R=254mm

NOTE:
1. SEE DWG B24–B25 FOR BRIDGE BARRIER RAILING REINFORCING STEEL.

BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED OTHERWISE



NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

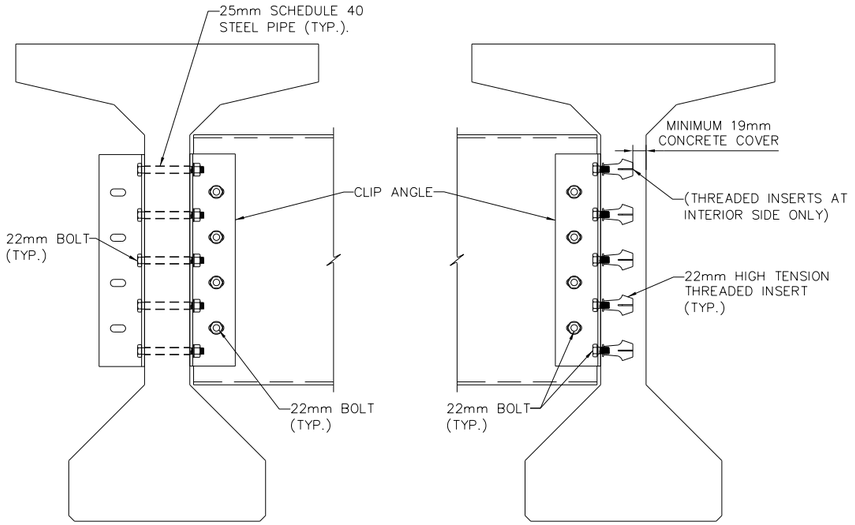
CHINLE WASH REINFORCING SCHEDULE

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B21	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	71	109

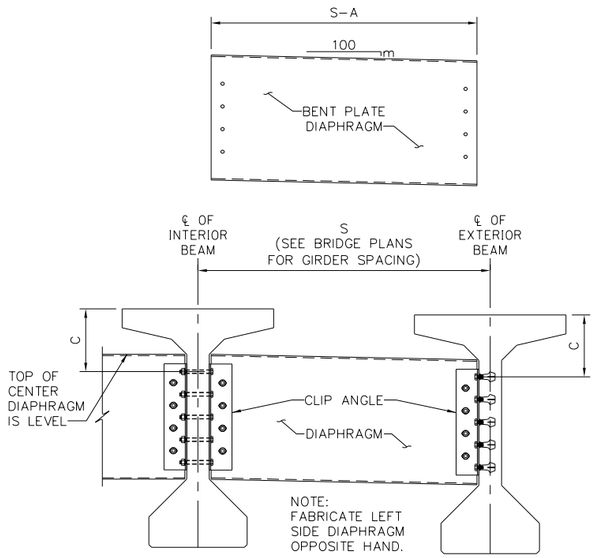


INTERIOR GIRDER CONNECTION DETAIL

SCALE=NTS.

EXTERIOR GIRDER CONNECTION DETAIL

SCALE=NTS.



RIGHT SIDE BENT PLATE DIAPHRAGM

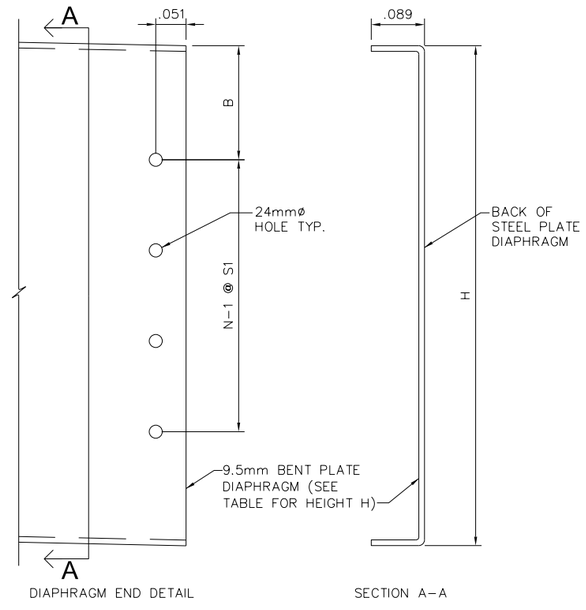
SCALE=NTS.

PRESTRESSED CONCRETE BEAM TYPE	H (mm)	A (mm)	B (mm)	C (mm)	D (mm)	L (mm)	N (spaces)	S1 (mm)
AASHTO TYPE II	381	229	114	305	89	330	3	76
AASHTO TYPE III	381	254	114	419	89	330	3	76
AASHTO TYPE V – MODIFIED	838	229	191	419	127	711	4	152

GENERAL NOTES

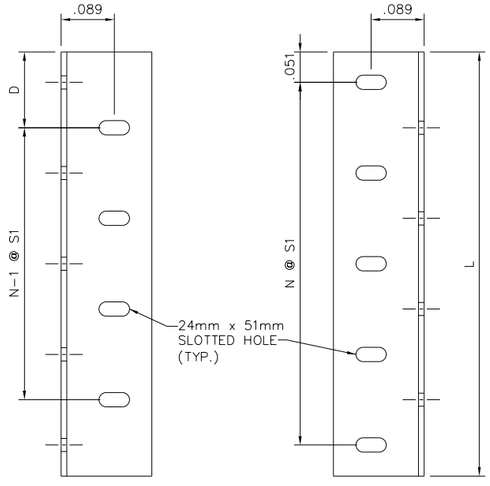
1. ALL STRUCTURAL STEEL ELEMENTS IN THIS DETAIL SHALL BE COMPOSED OF HOT-DIPPED GALVANIZED STEEL CONFORMING TO AASHTO M 270M, GRADE 250.
2. BOLTS SHALL MEET THE REQUIREMENTS OF AASHTO M A325. BOLTS SHALL BE GALVANIZED AS PER AASHTO M 298.
3. THE VERTICAL DISTANCE BETWEEN ANY TWO HOLES OR INSERTS SHALL NOT VARY FROM THE SPECIFIED DISTANCE BY MORE THAN 2mm. ALSO, THE TOTAL LENGTH OF THE GROUP OF HOLES OR INSERTS SHALL NOT VARY FROM THE DESIGN LENGTH BY MORE THAN 2mm. THE PRESTRESSED BEAM FABRICATOR SHALL TAKE APPROPRIATE MEASURES TO ENSURE PROPER PLACEMENT OF INSERTS DURING THE BEAM FABRICATION PROCESS.
4. CLIP ANGLES SHALL BE ATTACHED TO THE PRESTRESSED BEAM AT THE BEAM FABRICATION SITE PRIOR TO TRANSPORT.
5. BENT PLATE DIAPHRAGMS AND CLIP ANGLES SHALL BE PAID FOR UNDER ITEM 55502-0000 STRUCTURAL STEEL. BOLTS, NUTS, AND WASHERS ARE INCIDENTAL TO ITEM 55502-0000 STRUCTURAL STEEL. THREADED INSERTS AND PIPE INSERTS ARE INCIDENTAL TO THE PRESTRESSES CONCRETE BEAMS.
6. AT LOCATION WHERE STEEL IS FASTENED TO CONCRETE, THE MAXIMUM INSTALLATION TENSION SHALL NOT EXCEED 44.5 kN (10 KIPS). TEST SHALL BE PERFORMED TO DETERMINE THE TORQUE NECESSARY TO ACHIEVE THE SPECIFIED INSTALLATION TENSION.
7. BOLTED CONNECTION FOR STEEL TO STEEL SHALL BE IN ACCORDANCE WITH FP-03 SECTION 555.17.
8. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO FABRICATION. MATERIAL CERTIFICATION SHALL BE SUBMITTED FOR REVIEW AND APPROVAL FOR ALL MATERIALS.
9. NOTE TYPE 1600 MODIFIED BEAMS SHOWN OTHER BEAMS SIMILAR.

m = SLOPE OF BENT PLATE DIAPHRAGM (SEE BRIDGE PLANS FOR ELEVATIONS AT CONNECTION POINTS).
A = THICKNESS OF GIRDER WEB PLUS 76mm (SEE TABLE).
B = DISTANCE FROM TOP OF STEEL DIAPHRAGM TO CENTER OF FIRST HOLE.
C = DISTANCE FROM TOP OF BEAM TO ? OF FIRST INSERT.
D = DISTANCE FROM CLIP ANGLE EDGE TO CENTER OF FIRST HOLE (CLIP ANGLE/DIAPHRAGM CONNECTION).
H = DEPTH OF BENT PLATE DIAPHRAGM.
L = LENGTH OF CLIP ANGLES.
N = NUMBER OF BOLT SPACES IN GIRDER/CLIP ANGLE CONNECTION.
S1 = HOLE SPACING.



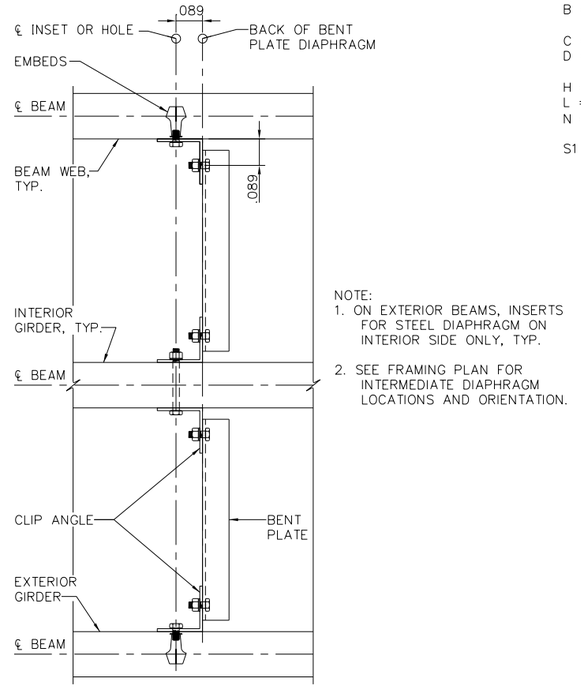
BENT PLATE DIAPHRAGM DETAILS

SCALE=NTS.



CLIP ANGLE DETAILS (L152mm x 152mm x 9.5)

SCALE=NTS.



NOTE:
1. ON EXTERIOR BEAMS, INSERTS FOR STEEL DIAPHRAGM ON INTERIOR SIDE ONLY, TYP.
2. SEE FRAMING PLAN FOR INTERMEDIATE DIAPHRAGM LOCATIONS AND ORIENTATION.

TYPICAL BOLTED DIAPHRAGM PLACEMENT DETAIL

SCALE=NTS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

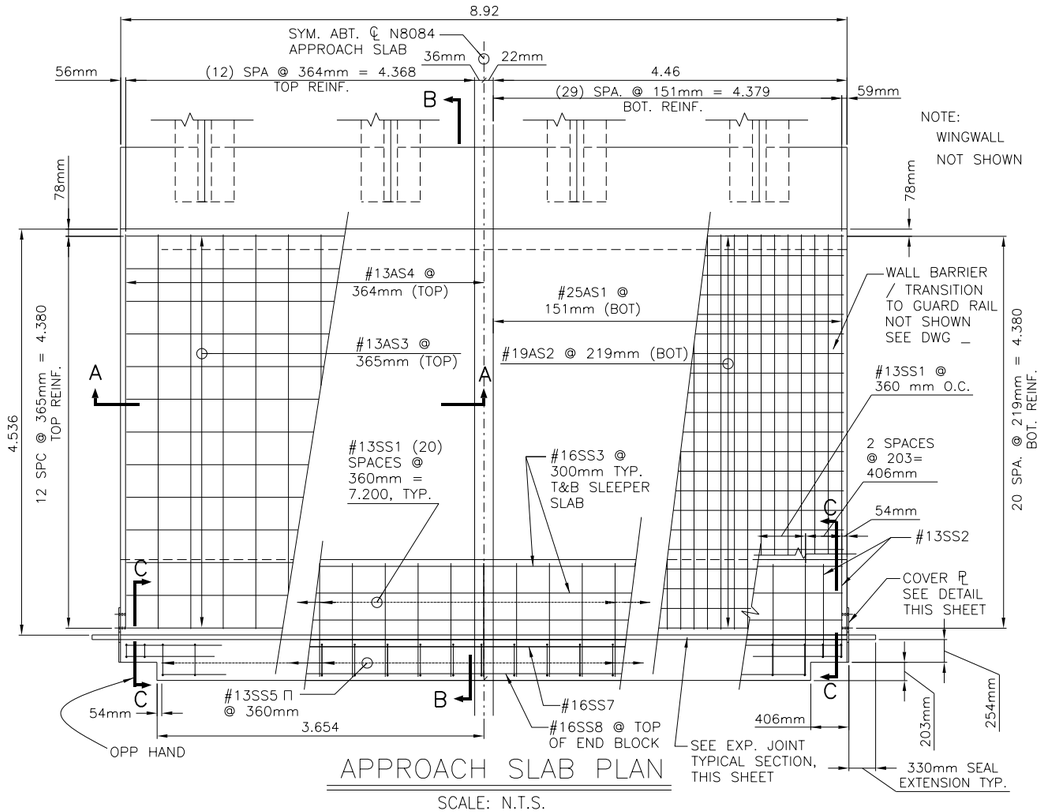
STEEL DIAPHRAGM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B22	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 9/30/24 ARIZONA U.S.A.

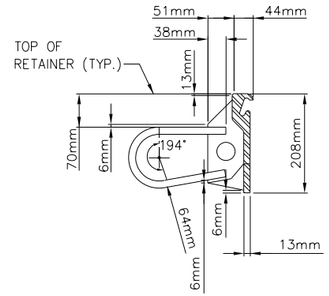
J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B17.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	72	109



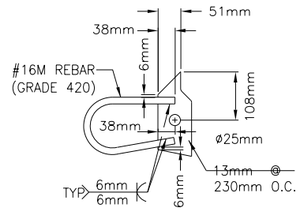
APPROACH SLAB PLAN

SCALE: N.T.S.



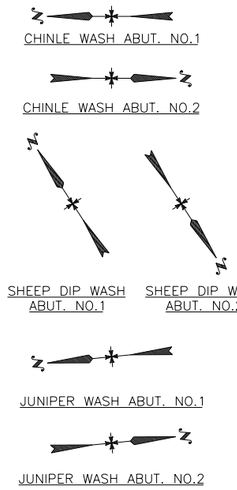
EXPANSION JOINT RAIL

N.T.S.



ANCHOR DETAIL

N.T.S.



TYPICAL BRIDGE JOINT NOTES:

THE COST OF FURNISHING AND INSTALLING THESE JOINTS AND ALL MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF STRUCTURAL CONCRETE CLASS A(AE), ITEM NO. 55201-0200 AND NO DIRECT PAYMENT WILL BE MADE THEREFOR.

EXPANSION JOINT STRIP SEAL

1. JOINTS SHALL BE ONE OF THE FOLLOWING OR AN APPROVED EQUAL:

   a) WATSON, BOWMAN AND ACME CORP. JOINT WITH A TYPE SE STEEL EXTRUSION AND A SE-400 STRIP SEAL.
   b) E-POXY INDUSTRIES, INC. JOINT WITH A TYPE A STEEL EXTRUSION AND AEVA-SEAL BS 500 STRIP SEAL.

2. JOINTS OTHER THAN THOSE LISTED ABOVE MAY BE SUBMITTED FOR APPROVAL PROVIDED THEY ARE SIMILAR TO THAT SHOWN IN SECTION HEREIN AND CAN DEMONSTRATE BY TEST, THE DESIGN MOVEMENTS FROM AN INITIAL JOINT WIDTH SETTING OF 50mm AT MIDPOINT INSTALLATION TEMPERATURE OF 13° C (CENTIGRADE). JOINT MOVEMENT SHALL BE FOR A RANGE OF TEMPERATURES FROM -7° C TO 50° C. FOR INSTALLATION TEMPERATURES BELOW THE MIDPOINT TEMPERATURE, INCREASE THE WIDTH OF JOINT BY THE AMOUNT SHOWN BELOW. FOR INSTALLATION TEMPERATURE ABOVE THE MIDPOINT TEMPERATURE. DECREASE THE WIDTH OF THE JOINT BY THE AMOUNT SHOWN BELOW. ACTUAL OPENING DISTANCE WILL BE DETERMINED BY C.O. IN THE FIELD.

   CHANGE IN JOINT WIDTH = L(M) * 0.0000108(m/m) * CHANGE IN TEMPERATURE (°C), WHERE L=18.71

3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE JOINTS SHOWING ALL FABRICATION DETAILS AND MATERIAL SPECIFICATIONS ACCORDING TO SPECIFICATION REQUIREMENTS. (SEE NOTE NO. 5)

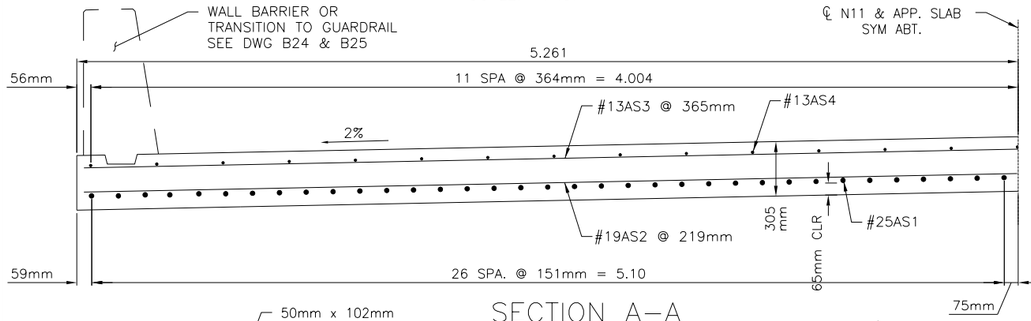
4. THE JOINTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. A REPRESENTATIVE OF THE MANUFACTURER SHALL BE PRESENT AT THE SITE DURING INSTALLATION.

5. STEEL EXTRUSIONS RAIL, ANGLES AND COVER PLATES SHALL CONFORM TO AASHTO M 270M, GRADE 250, AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M298, CLASS 50 OR M232 AFTER FABRICATION. NEOPRENE STRIP SEAL SHALL CONFORM TO THE PHYSICAL PROPERTIES PRESCRIBED IN TABLE 1 AASHTO M220.

6. STEEL EXTRUSION RAILS AND ANGLES SHALL BE FABRICATED TO CONFORM TO THE LONGITUDINAL GRADE AND ROADWAY CROWN AT APPROACH SLABS ON SLEEPER FOOTINGS.

FIXED JOINT SEAL

7. MATERIAL AND CONSTRUCTION OF JOINT SEALANT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 712 OF FP-03. THE CONCRETE JOINT-SEALER SHALL MEET ALL REQUIREMENTS OF AASHTO M173 AND THE BACKER ROD SHALL MEET THE REQUIREMENTS OF ASTM D 3204 TYPE 1.

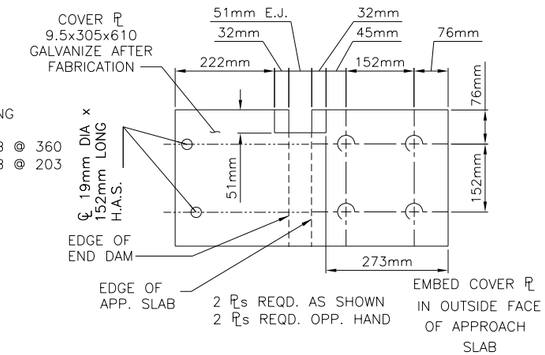


SECTION A-A

SCALE: N.T.S.

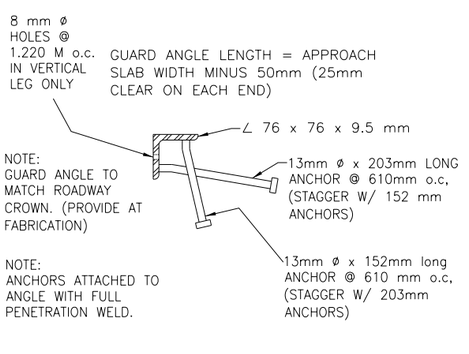
SECTION C-C

N.T.S.



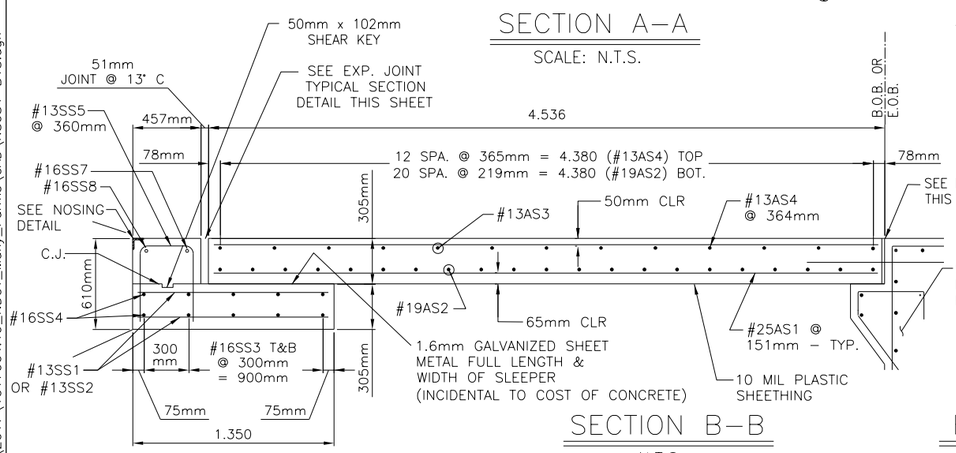
COVER PLATE DETAIL

N.T.S.



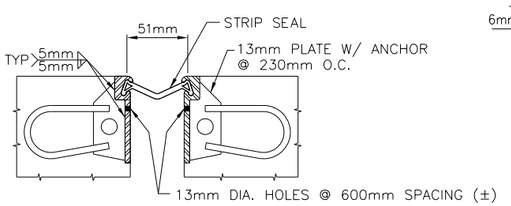
NOSING PLATE DETAIL

N.T.S



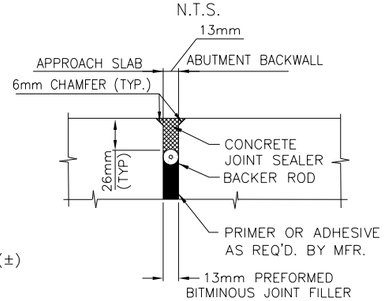
SECTION B-B

N.T.S.



EXPANSION JOINT TYP. SECTION

N.T.S.



DETAIL 1

N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

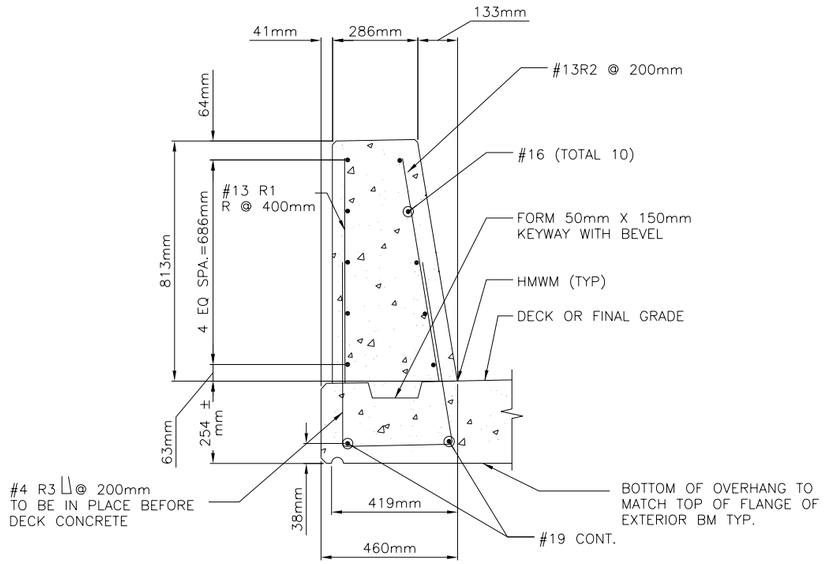
APPROACH SLAB DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B23	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-B18.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	73	109

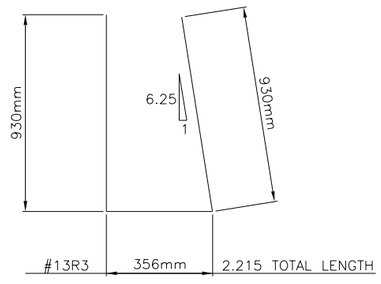


TYPE 813 A

SCALE: 1:100

NOTE:

1. SEE SUPPLEMENTAL SPECIFICATION SECTION 568 FOR HIGH MOLECULAR WEIGHT METHACRYLATE (HMWM) SEALER.
2. CONTRACTOR MAY USE EITHER TYPE 813A OR TYPE 813B BRIDGE BARRIERS RAILING



No. REQUIRED = 5 PER METER

ESTIMATED QUANTITIES

(FOR CONTRACTOR'S INFORMATION ONLY)

ITEM	UNIT	TOTAL
REINFORCING BARS, GR 420	kg/m	35.3 kg/m
SUPERSTRUCTURE CONCRETE	CU.m/m	0.276

THE QUANTITIES SHOWN IN THE ABOVE TABLE ARE BASED ON "T" = 254mm

REBAR SCHEDULE

MARK	LENGTH	NO. REQD PER m
#13R1	715mm	2.5
#13R2	715mm	5.0

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

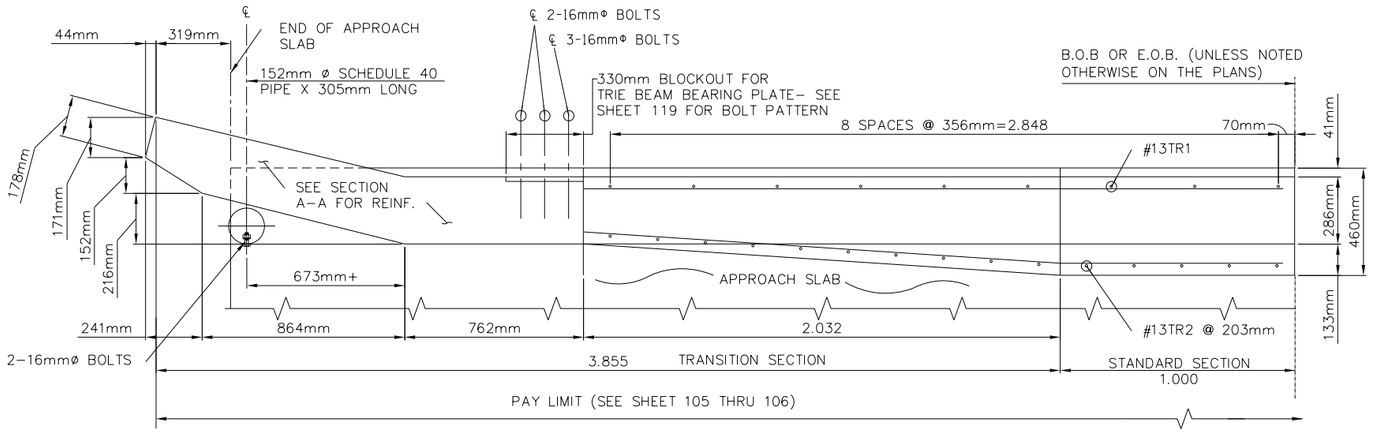
BRIDGE BARRIER RAILING SECTIONS AND DETAILS

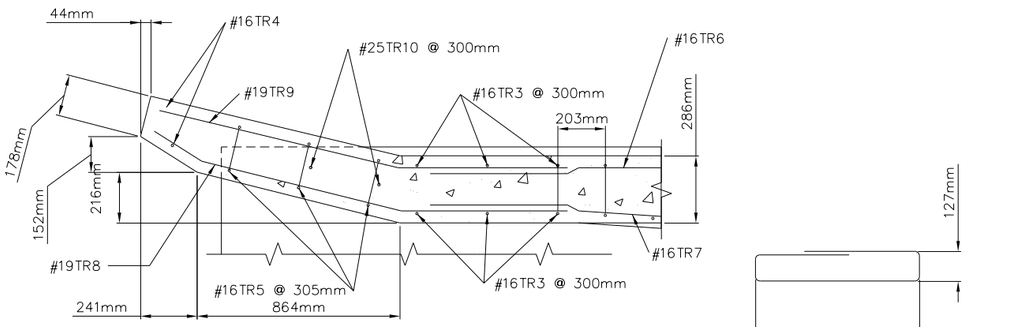
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B24	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

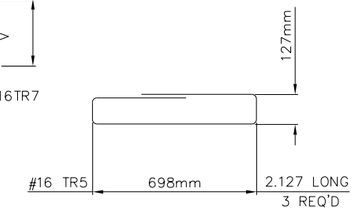
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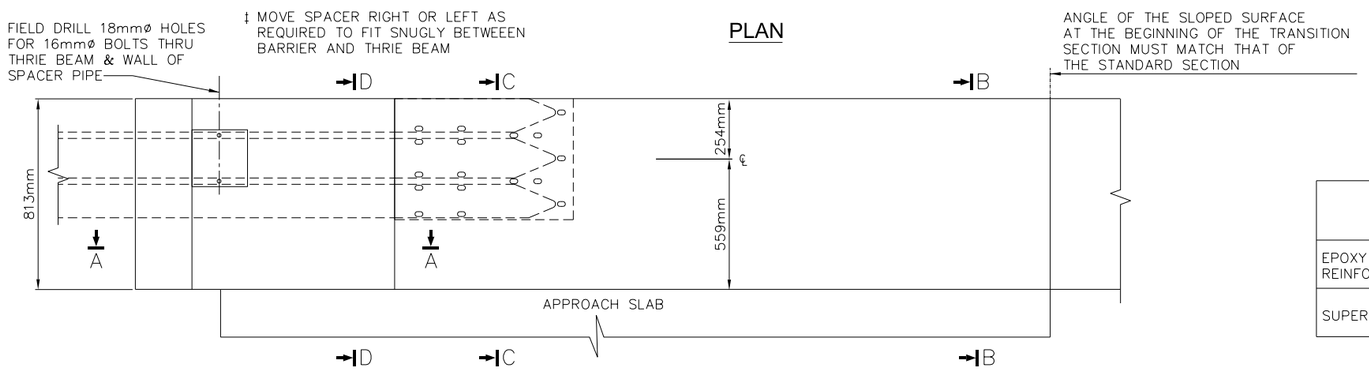
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	74	109





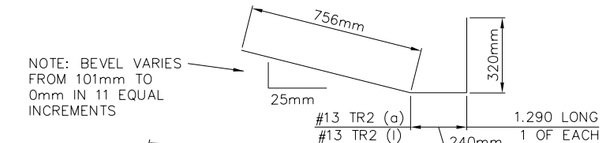
SECTION A-A

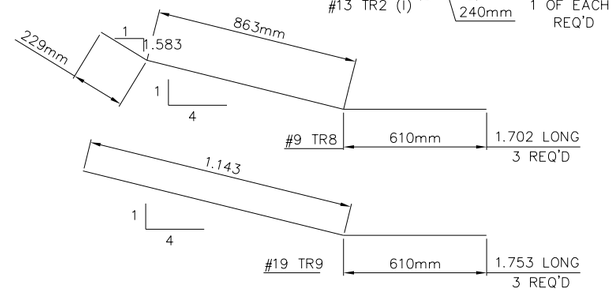




PLAN

ELEVATION





**ESTIMATED QUANTITIES

(FOR ONE TRANSITION)

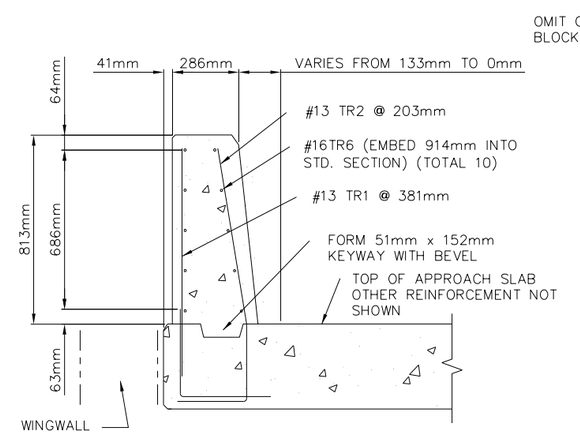
ITEM	UNIT	TOTAL
EPOXY COATED REINFORCING BARS, GRADE 60	kg	141.9
SUPERSTRUCTURE CONCRETE	m3	1.7

**FOR CONTRACTORS INFORMATION ONLY

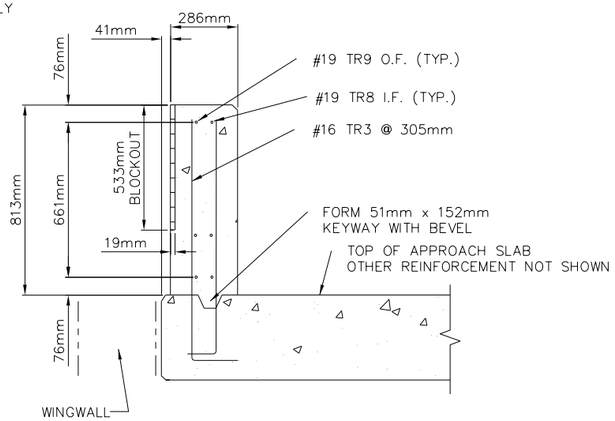
#13 TR1	990mm	1.219 LONG 9 REQ'D.
#16 TR3	990mm	1.219 LONG 6 REQ'D.
#25 TR10	700mm	1.219 LONG 2 REQ'D.
#16 TR4	711mm	2 REQ'D.
#16 TR6	3.400	10 REQ'D.

REBAR SCHEDULE

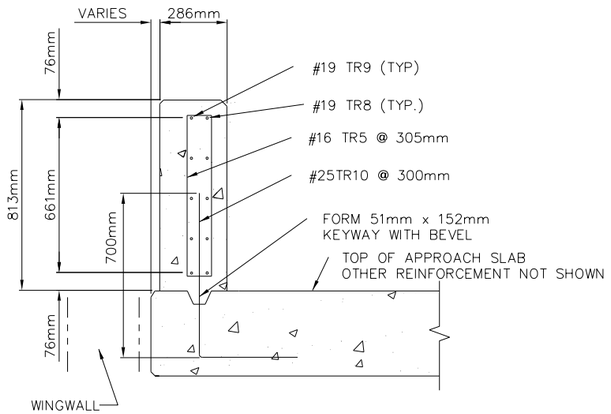
(FOR ONE TRANSITION)



SECTION B-B



SECTION C-C



SECTION D-D

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

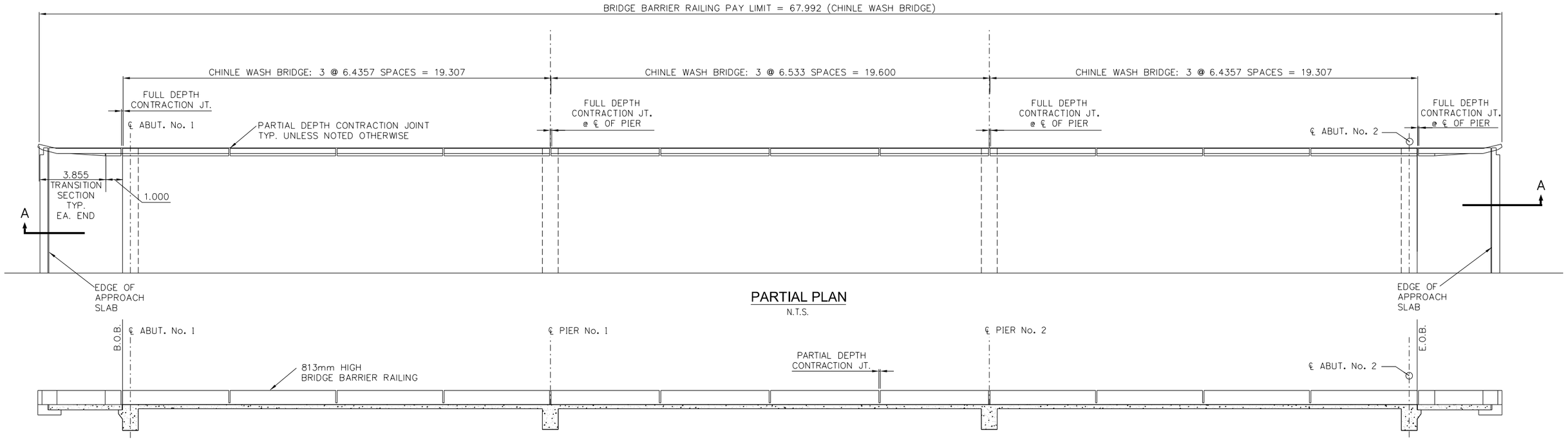
BRIDGE BARRIER RAILING TRANSITION DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B25	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/29/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	75	109

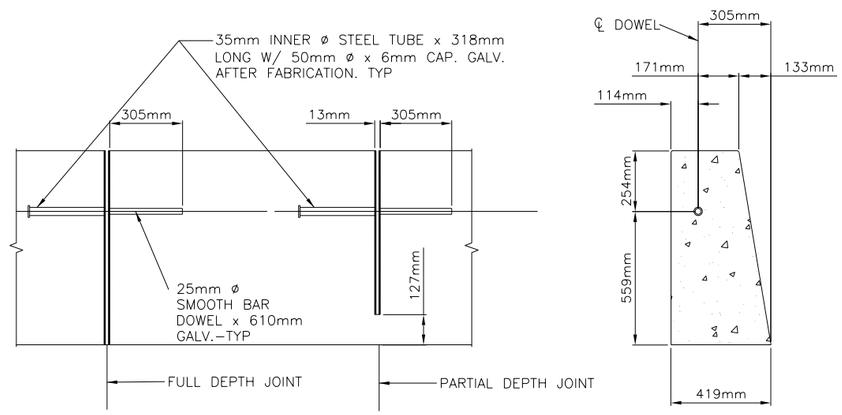


PARTIAL PLAN

N.T.S.

SECTION A-A

N.T.S.



ELEVATION

SECTION

CONTRACTION JOINT DETAIL

CONTRACTION JOINTS AT EQUALLY SPACED INTERVALS.

GENERAL NOTES

1. CONCRETE FOR BRIDGE BARRIER RAILING SHALL BE CONCRETE CLASS A(AE). BARRIER RAILING SHALL BE PAID FOR AT THE UNIT PRICE PER LINEAR METER, BID ITEM 55601–0500, INCLUDING COMPLETELY EMBEDDED REINFORCING STEEL, DOWELS AND ANY OTHER COMPLETELY EMBEDDED OR APPURTENANT STEEL ITEMS.
2. REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS CONTAINED IN AASHTOM31M. REINFORCING BARS SHALL BE GRADE 420 UNLESS A DIFFERENT GRADE IS SPECIFIED ELSEWHERE IN THE PLANS. DIMENSION SHOWN REFER TO THE CENTERLINES OF BARS UNLESS NOTED OTHERWISE. ALL BARS SHALL BE EPOXY COATED.
3. BARRIER RAILINGS INSTALLATION ON DECK SLABS MAY BE TYPE 813A OR 813B AT THE OPTION OF THE CONTRACTOR. SEE SHEET 103 FOR DETAILS.
4. FOR DETAILS OF BRIDGE BARRIER RAILING CONNECTION TO THE APPROACH METAL BARRIER SEE SHEET 91 AND 98.
5. REFLECTIVE BARRIER DELINEATORS SHALL BE MOUNTED ON TO OF THE BARRIER RAILING IN CONFORMANCE WITH THE TRAFFIC PLANS.
6. APPLY PENETRATING WATER REPELLENT TREATMENT TO ALL EXPOSED SURFACES OF THE BRIDGE BARRIER RAILING. SEE SUPPLEMENTAL SPECIFICATION SECTION 567.
7. DISCONTINUE HORIZONTAL REINFORCEMENT AT ALL CONSTRUCTION JOINT OPENINGS.
8. CONSTRUCTION JOINTS BETWEEN BARRIER RAILING AND BRIDGE DECK CONCRETE SHALL BE CLEANED AND ROUGHENED TO 6mm PROJECTION PRIOR TO PLACEMENT OF BARRIER RAILING CONCRETE.
9. CHAMFER EXPOSED EDGES OF STRUCTURES 19mm UNLESS NOTED OTHERWISE.
10. COVER TO REINFORCING BARS SHALL BE 50mm CLEAR UNLESS NOTED OTHERWISE.
11. STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M–183. ALL STEEL SHALL BE GALVANIZED.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

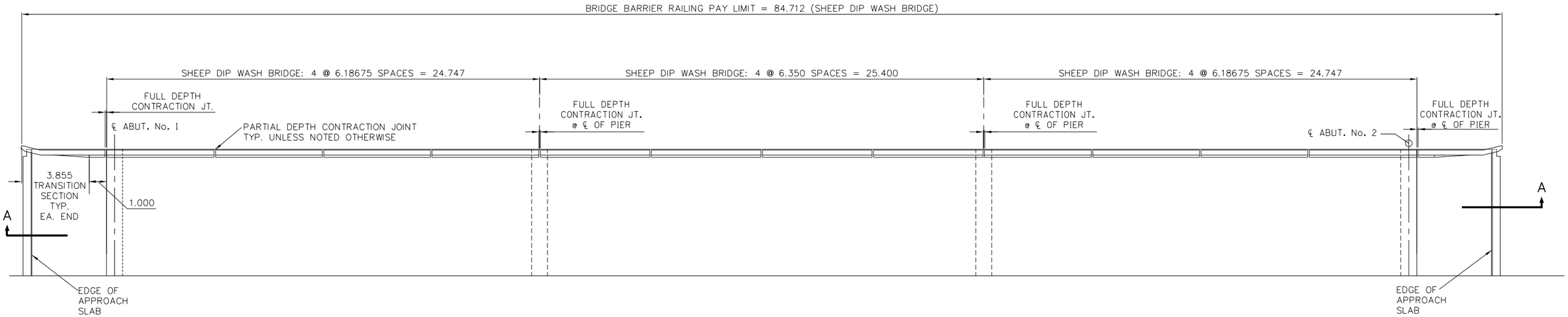
BRIDGE BARRIER RAILING DETAILS – SHEET 1

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B26	

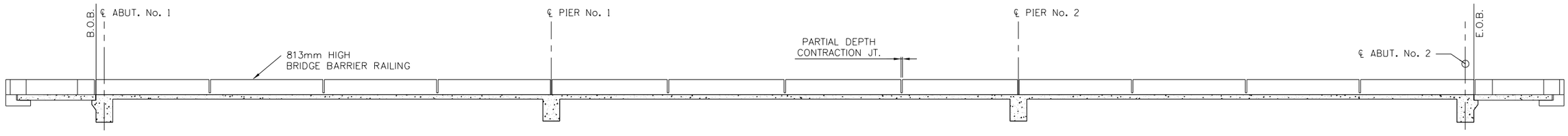
Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	76	109



PARTIAL PLAN
N.T.S.



SECTION A-A
N.T.S.

NOTE:
SEE DWG B26 FOR GENERAL NOTES & DETAIL.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

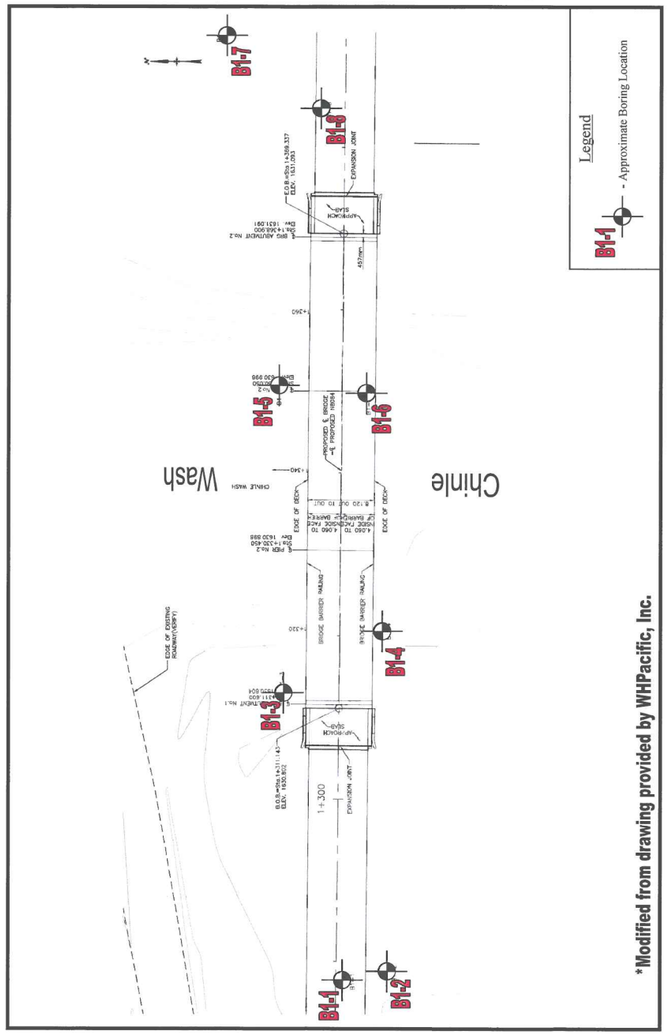
BRIDGE BARRIER RAILING DETAILS – SHEET 2

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B27	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	77	109



*Modified from drawing provided by WHPacific, Inc.

Exhibit A-2

Boring Location Plan

BIA, Indian Route 8084
Bridge 1, Chinle Wash
Many Farms, Arizona

Terracon
Consulting Engineers & Scientists
#4A CR 3499
Bloomfield, New Mexico
505.334.2900 Fax: 505.334.9703

Project No:	69095030
Scale:	NTS
File No:	Boring.doc
Date:	01/19/2011
Project Mngr:	KMP
Drawn By:	HMW
Checked By:	KMP
Approved By:	KMP

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube - 2" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 3" O.D. ring samplers (RS) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per foot," and is not considered equivalent to the "Standard Penetration"or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	N/E:	Not Encountered
WCI:	Wet Cave in	WD:	While Drilling		
DCI:	Dry Cave in	BCR:	Before Casing Removal		
AB:	After Boring	ACR:	After Casing Removal		

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	0 - 1	Very Soft
500 – 1,000	2 - 4	Soft
1,000 – 2,000	4 - 8	Medium Stiff
2,000 – 4,000	8 -15	Stiff
4,000 – 8,000	15 - 30	Very Stiff
8,000+	> 30	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Ring Sampler (RS) Blows/Ft.	Relative Density
0 – 3	0-6	Very Loose
4 – 9	7-18	Loose
10 – 29	19-58	Medium Dense
30 – 49	59-98	Dense
> 50	> 99	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	> 30

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GENERAL NOTES
Description of Rock Properties

WEATHERING

Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" not discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)

Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding and Foliation Spacing in Rock[a]

Spacing	Joints	Bedding/Foliation
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

Rock Quality Designator (RQD)[b]		Joint Openness Descriptors	
RQD, as a percentage	Diagnostic description	Openness	Descriptor
Exceeding 90	Excellent	No Visible Separation	Tight
90 – 75	Good	Less than 1/32 in.	Slightly Open
75 – 50	Fair	1/32 to 1/8 in.	Moderately Open
50 – 25	Poor	1/8 to 3/8 in.	Open
Less than 25	Very poor	3/8 in. to 0.1 ft.	Moderately Wide
		Greater than 0.1 ft.	Wide

a. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.
b. RQD (given as a percentage) = length of core in pieces 4 in. and longer/length of run.

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976.
U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

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NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

CHINLE WASH
BORING LOGS PLAN & NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B28	

Registered Professional Engineer CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/6/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	78	109

LOG OF BORING NO. B1-3

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

Boring Location: GPS: UTM NAD 83 Z-12 N=4019186m E=0626160m

Approx. Surface Elev.: 1627.2 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
0									**POORLY GRADED SAND**; red tan to red brown, moist, medium dense.
2.1 (1625.1)	SP		RS	0.3	20	1.6	15.9		
									LEAN CLAY; red brown, moist, stiff, trace to with sand.
4.4 (1622.8)	CL		SS	0.3	10	18.8			
									SHALE; maroon with gray, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			RS	0.3	15	18.9			
			SS	0.3	68	19.6			
			RS	0.08	25/.08	19.4			
			SS	0.28	84/.28	19.8			
			RS	0.2	25/.2	15.2	17.8		
			SS	0.08	50/.08	15.0			
			RS	0.15	50/.15	13.1			
			SS	0.1	50/.1	15.6			Switched from HSA to air rotary drilling.

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-11-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-12-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

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BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-4

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

Boring Location: GPS: UTM NAD 83 Z-12 N=4019174m E=0626168m

Approx. Surface Elev.: 1626.7 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
0									**POORLY GRADED SAND**; red tan to red brown, moist, medium dense.
2.3 (1624.4)	SP		SS	0.3	15	14.0			
									CLAYEY SAND; red brown, moist, medium dense.
3.2 (1623.5)									
									LEAN CLAY WITH SAND; red brown, moist, stiff
3.8 (1622.9)	CL		RS	0.3	11	22.0	16.5		
									SHALE; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			SS	0.3	29	18.3			
			RS	0.13	25/.13	21.2	16.2		
			SS	0.13	50/.13	18.2			
			RS	0.23	35/.23	17.5			
			SS	0.13	50/.13	14.9			
			SS	0.05	50/.05	16.3			
			SS	0.15	50/.15	13.3			
			SS	0.05	50/.05	12.1			

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-10-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-11-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

Terracon

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-5

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

Boring Location: GPS: UTM NAD 83 Z-12 N=4019187m E=0626198m

Approx. Surface Elev.: 1626.4 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
0									**POORLY GRADED SAND WITH CLAY**; red brown, moist.
1.8 (1624.5)	SP		RS	0.3	7	29.3	14.9		
	SC								**FAT CLAY**; red brown, moist, stiff to hard, trace sand.
	CH		SS	0.3	16	18.1			
4.9 (1621.5)	CH		RS	0.28	45/.28	19.6			
									SHALE; maroon, purple gray and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			SS	0.3	74	20.7			
			RS	0.08	15/.08	12.1	18.5		
			SS	0.23	93/.23	17.2			
			SS	0.15	50/.15	14.4			
			SS	0.13	50/.13	12.8			
			SS	0.13	50/.13	14.2			
			SS	0.13	50/.13	11.8			Switched from HSA to air rotary drilling.

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-12-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-12-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

Terracon

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-3

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17									**SHALE**; maroon with gray, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			SS	0.13	50/.13	10.9			
			SS	0.13	50/.13	12.7			
			SS	0.08	50/.08	15.1			
			SS	0.15	50/.15	13.7			
30.6 (1596.6)			SS	0.1	50/.1	12.1			Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-11-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-12-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

Terracon

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-4

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17			SS	0.15	50/.15	10.9			**SHALE**; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			SS	0.13	50/.13				Switched from HSA to air rotary drilling.
			SS	0.13	50/.13	13.4			
			SS	0.08	50/.08	22.7			
			SS	0.13	50/.13	18.9			
30.8 (1595.9)			SS	0.08	50/.08	20.2			Exploration terminated at a depth of approximately 30.8 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-10-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-11-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

Terracon

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-5

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Chinle Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 1: Chinle Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17									**SHALE**; maroon, purple gray and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.
			SS	0.13	50/.13	12.5			
			SS	0.3	92	17.3			
			SS	0.15	50/.15	13.7			
			SS	0.13	50/.13	13.0			
30.8 (1595.6)			SS	0.1	50/.1	14.8			Exploration terminated at a depth of approximately 30.8 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m				BORING STARTED	12-12-09		
WL	▽ NE	WD	▼	BORING COMPLETED	12-12-09		
WL	▼		▼	RIG	CME-75	FOREMAN	HMW
WL				APPROVED	KMP	JOB #	69095030

Terracon

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

CHINLE WASH BORING LOGS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B29	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	79	109

LOG OF BORING NO. B1-6

Page 1 of 2

CLIENT: Bureau of Indian Affairs
SITE: N8084 at Chinle Wash, Many Farms, Arizona
PROJECT: N8084 - Bridge 1: Chinle Wash

Boring Location: GPS: UTM NAD 83 Z-12 N=4019176m E=0626197m

Approx. Surface Elev.: 1626.3 m

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
POORLY GRADED SAND WITH CLAY; red tan to red brown, moist to wet, loose to medium dense.	1	SP		SS	0.3	6	15.7		
▽	2	SC							
3.2 1623.1	3	CH		RS	0.3	11	15.4		
FAT CLAY; red brown, moist, stiff to hard.	4								
5.3 1620.9	5	CH		SS	0.3	35	24.9		
SHALE; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.	6			RS	0.13	25/.13	21.7	16.3	
Thin sandstone lense.	7								
	8			SS	0.3	52	15.7		
	9			RS	0.1	25/.1	10.7	18.5	
	10			SS	0.1	50/.1	14.0		
	11								
	12			SS	0.23	94/.23	13.7		
	13								
	14			SS	0.13	50/.13	13.3		
Switched from HSA to air rotary drilling.	15			SS	0.25	94/.25	14.4		
	16								

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m
WL ▽ 2.4 WD ▽
WL ▽ ▽
WL

Terracon

BORING STARTED 12-12-09
BORING COMPLETED 12-13-09
RIG CME-75 FOREMAN HMW
APPROVED KMP JOB # 69095030

BOREHOLE 89 - LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-8

Page 1 of 2

CLIENT: Bureau of Indian Affairs
SITE: N8084 at Chinle Wash, Many Farms, Arizona
PROJECT: N8084 - Bridge 1: Chinle Wash

Boring Location: GPS: UTM NAD 83 Z-12 N=4019182m E=0626232m

Approx. Surface Elev.: 1627.1 m

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
0.3 1626.8 **CLAYEY SAND**; red brown, moist.	1	SP		RS	0.3	16	1.5	15.7	
POORLY GRADED SAND WITH CLAY; red tan, dry to moist, medium dense.	2	SC							
2.3 1624.8	3	CL		SS	0.3	32	12.8		
LEAN CLAY; red brown, moist, hard, no sand to with sand, increasing sand content with depth.	4								
4.9 1622.2	5	CL		RS	0.3	36	8.8		
SHALE; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.	6			SS	0.3	57	17.6		
	7								
	8			RS	0.13	25/.13	18.3	16.2	
	9			SS	0.25	95/.25	13.2		
	10								
	11			RS	0.1	25/.1	15.4		
	12								
Switched from HSA to air rotary drilling.	13			SS	0	50/.1			
	14								
	15								
	16			SS	0.13	50/.13	9.5		

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m
WL ▽ NE WD ▽
WL ▽ ▽
WL

Terracon

BORING STARTED 12-14-09
BORING COMPLETED 12-15-09
RIG CME-75 FOREMAN HMW
APPROVED KMP JOB # 69095030

BOREHOLE 89 - LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-6

Page 2 of 2

CLIENT: Bureau of Indian Affairs
SITE: N8084 at Chinle Wash, Many Farms, Arizona
PROJECT: N8084 - Bridge 1: Chinle Wash

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
SHALE; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.	17								
	18								
	19			SS	0.13	50/.13	11.9		
	20								
	21			SS	0.28	98/.28	16.9		
	22								
	23								
	24			SS	0.15	50/.15	14.4		
	25								
	26								
	27			SS	0.13	50/.13	12.2		
	28								
	29								
30.6 1595.6	30			SS	0.1	50/.1	14.2		
Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. Groundwater encounter at a depth of about 2.4 meters.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m
WL ▽ 2.4 WD ▽
WL ▽ ▽
WL

Terracon

BORING STARTED 12-12-09
BORING COMPLETED 12-13-09
RIG CME-75 FOREMAN HMW
APPROVED KMP JOB # 69095030

BOREHOLE 89 - LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B1-8

Page 2 of 2

CLIENT: Bureau of Indian Affairs
SITE: N8084 at Chinle Wash, Many Farms, Arizona
PROJECT: N8084 - Bridge 1: Chinle Wash

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
SHALE; maroon, purple gray, and gray, dry to moist, complete weathering to fresh, very soft to medium hardness.	17								
	18								
	19			SS	0.13	50/.13	12.4		
	20								
	21			SS	0.08	50/.08	13.8		
	22								
	23								
	24								
	25			SS	0.08	50/.08	13.6		
	26								
	27								
	28			SS	0.1	50/.1	11.6		
	29								
	30								
30.8 1596.3				SS	0.05	50/.05	13.8		
Exploration terminated at a depth of approximately 30.8 meters below existing ground surface. No groundwater encountered.									

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m
WL ▽ NE WD ▽
WL ▽ ▽
WL

Terracon

BORING STARTED 12-14-09
BORING COMPLETED 12-15-09
RIG CME-75 FOREMAN HMW
APPROVED KMP JOB # 69095030

BOREHOLE 89 - LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

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NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

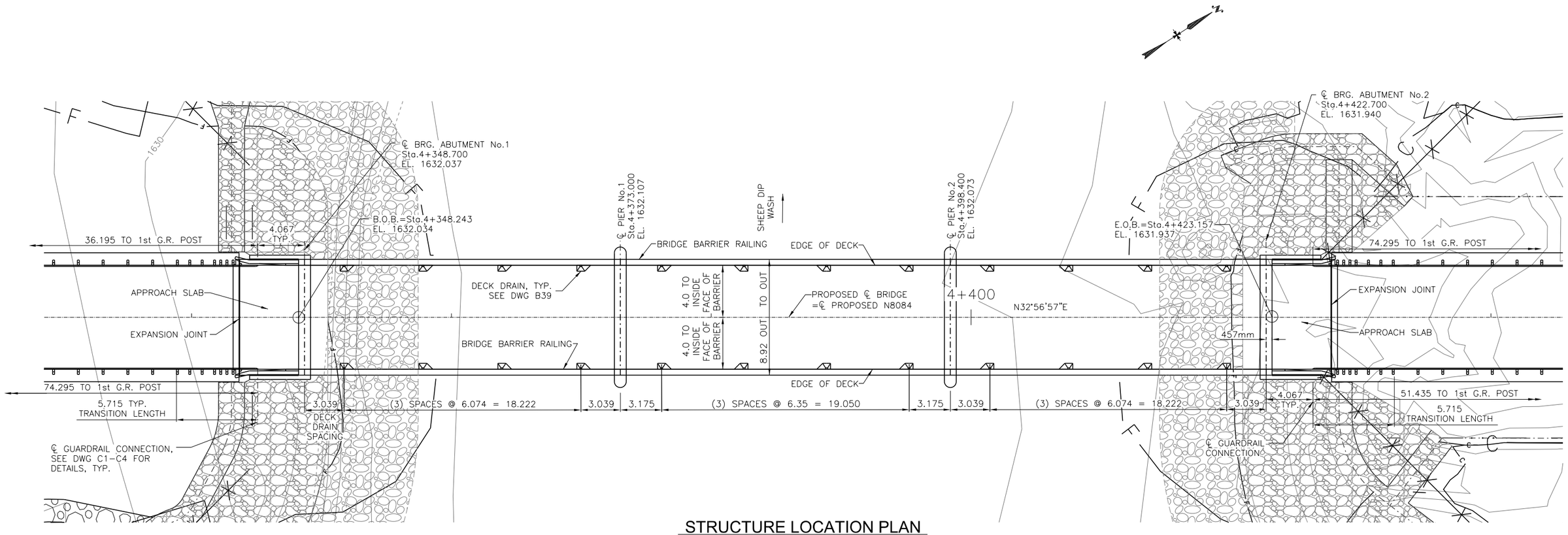
N8084(1)1,2&4 MANY FARMS

CHINLE WASH BORING LOGS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B30	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	80	109



STRUCTURE LOCATION PLAN

NO SCALE

APPROXIMATE QUANTITIES									
ITEM	CLASS A(AE) CONCRETE 4,500 PSI C.M.	REINFORCING STEEL KG	REINFORCING STEEL EPOXY KG	AASHTO TYPE III GIRDERS L.M.	TEST PILES(H-PILE) L.M.	H-PILES L.M.	BRIDGE BARRIER L.M.	CLASS A(AE) CONCRETE ENCASEMENT 4,500 PSI C.M.	APPROACH SLAB S.M.
ABUTMENT #1	22	1,613	-	-	13	65	10	36	35
PIER #1	30	2,143	-	-	14	84	-	36	-
PIER #2	30	2,143	-	-	15	90	-	39	-
ABUTMENT #2	22	1,613	-	-	14	70	10	39	35
WING WALLS	10	643	-	-	-	-			
SUPERSTRUCTURE	150	290	22,577	-	-	-	150		-
GIRDERS (AASHTO III)	-	-	9,077	300.00	-	-			
APPROACH SLAB	-	-	3,770	-	-	-			
TOTAL	264	8,445	35,424	300	56	309	170	150	70

GENERAL NOTES

1. FOR STANDARD ABBREVIATIONS, SEE DWG B6.
2. FOR GUARDRAIL DETAILS, SEE DWG C1-C4.
3. FOR BRIDGE BARRIER DETAILS, SEE DWG B24-B27.
4. FOR APPROACH SLAB DETAILS, SEE DWG B23.
5. FOR EROSION PROTECTION DETAILS AND CONTOURS, SEE DWG B10.

NAVAJO DIVISION OF TRANSPORTATION
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NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

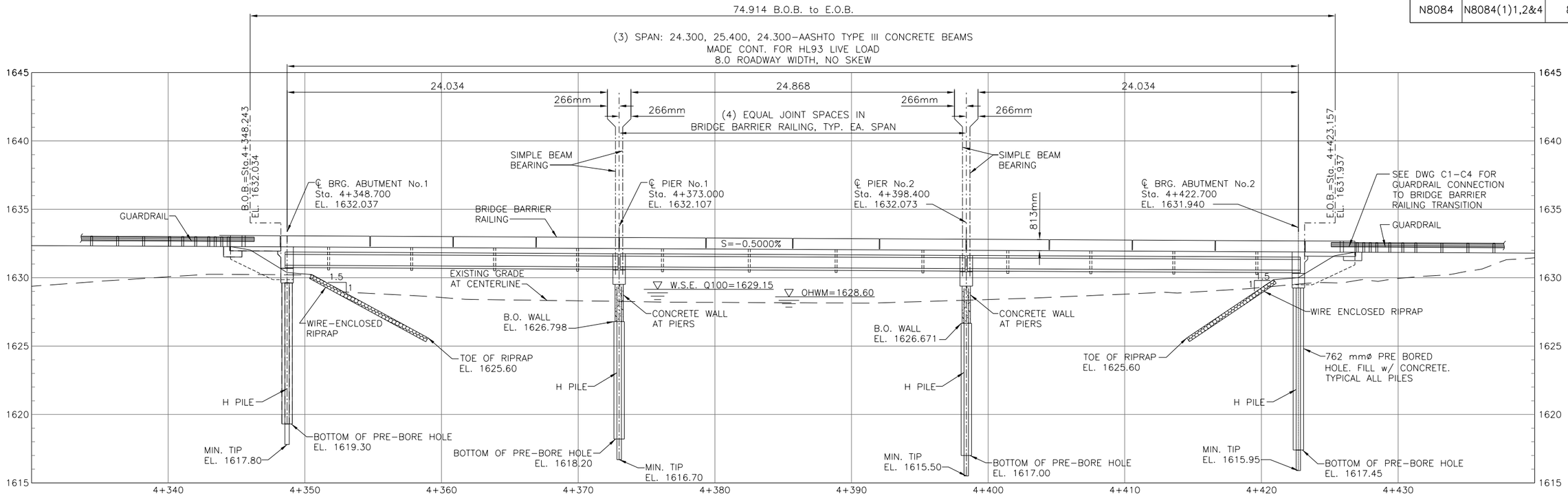
SHEEP DIP WASH STRUCTURE LOCATION PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B31	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 9/6/24 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	81	109

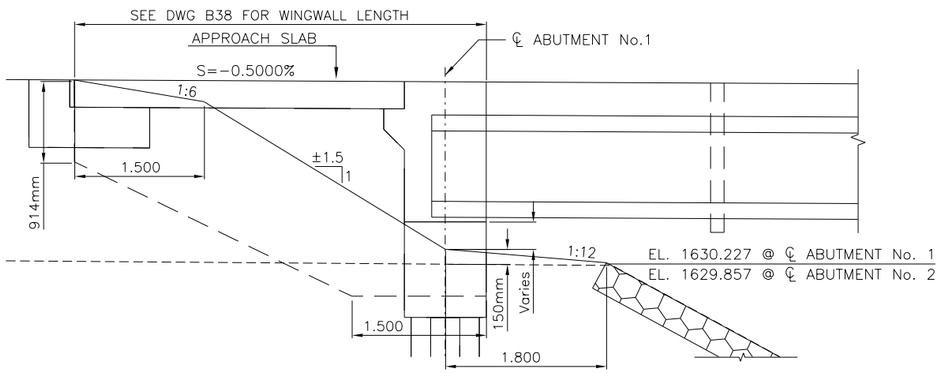


NOTE:
CONCRETE ENCASEMENT AROUND PILES IS INCIDENTAL TO BID ITEMS 55101–2000 STEEL H PILE 360x152, IN PLACE AND 55120–0000 TEST PILES.

STRUCTURE LOCATION PROFILE ALONG C.L. CONSTRUCTION/ ROADWAY

NO SCALE

NOTE:
1. FOR GUARDRAIL DETAILS, SEE DWG C1–C4.
2. FOR BRIDGE BARRIER DETAILS, SEE DWG B24–B27.
3. FOR APPROACH SLAB DETAILS, SEE DWG B23.
4. FOR TYPICAL DETAIL OF EARTHWORK AT BRIDGES, SEE PROFILE VIEW ON DWG B10.



EARTHWORK @ ABUTMENTS

NO SCALE

HYDRAULIC DATA–N8084	
WATERWAY:	Sheep Dip Wash
Drainage Area =	121.21 km²
50 year Flow Rate	33.9 m³/s
H.W. EL. =	1629.04 m
V50 =	0.91 m/s
Freeboard =	1.43 m
100 year Flow Rate	42.4 m³/s
H.W. EL. =	1629.15 m
V100 =	0.95 m/s
Freeboard =	1.31 m
200 year Flow Rate =	61.0 m³/s
H.W. EL. =	1629.35 m
V200 =	1.05 m/s
Freeboard =	1.12 m
Computed Abutment Scour Depth	2.35 m
Computed Pier Scour Depth	3.80 m

GENERAL NOTES

1. ALL DIMENSIONS ARE IN METERS UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS ARE IN METERS.
3. SEE DWG B6 FOR STANDARD ABBREVIATIONS.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

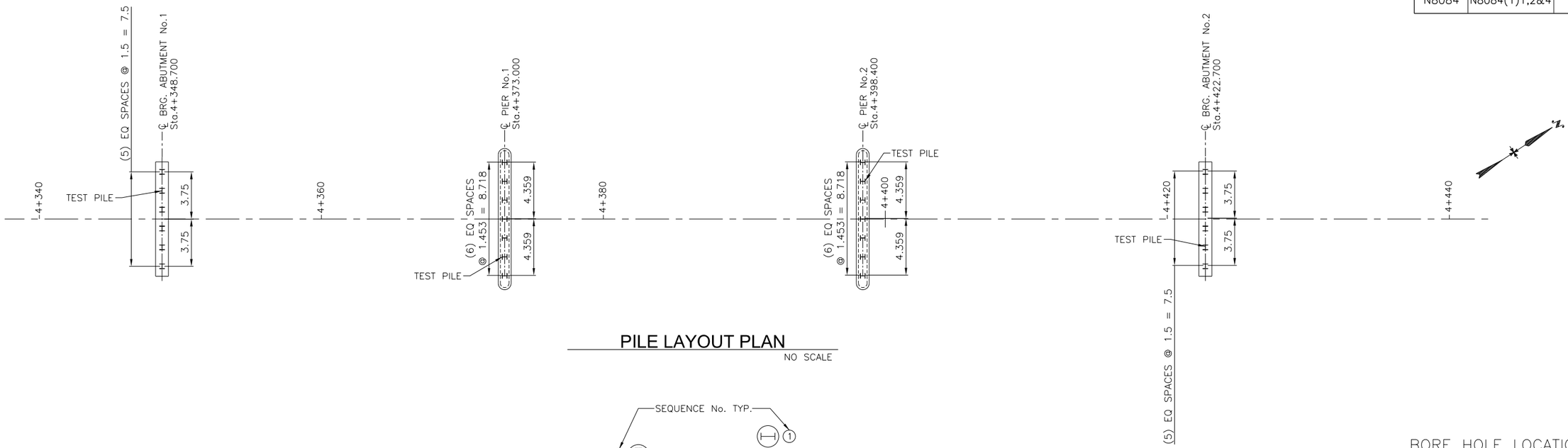
SHEEP DIP WASH
STRUCTURE LOCATION PROFILE

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B32	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

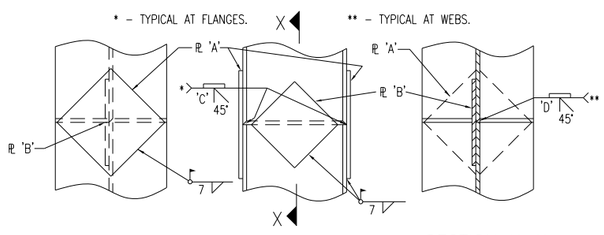
J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-SDB02.dgn

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	82	109



PILE LAYOUT PLAN

NO SCALE

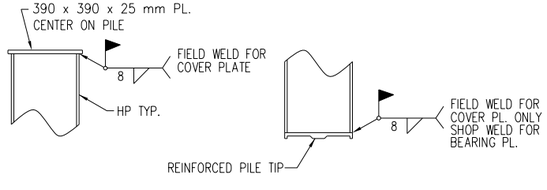


STEEL H–PILE SPLICE DETAIL (TYP.)

N.T.S.

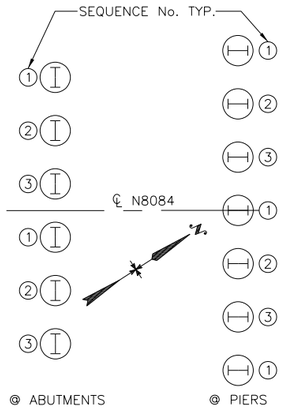
TABLE OF SPLICE PLATE DIMENSIONS AND WELD SIZES				
PILE SIZE	℄ 'A' (mm)	℄ 'B' (mm)	WELD SIZE 'C'	WELD SIZE 'D'
HP 360 x 152	250 x 250 x 13	200 x 200 x 13	13 mm	13 mm

NOTE: BEVEL ENDS OF PILES (WEB AND FLANGES) AS SHOWN PRIOR TO WELDING.



PILE COVER PLATE & PILE TIP DETAIL

N.T.S.



SEQUENCE OF PILE INSTALLATION

NO SCALE

INSTALL PILES AT EACH ABUTMENT AND PIER IN THE SEQUENCE SHOWN. FOR EACH SEQUENCE, PRE–BORE HOLES, DRIVE PILES, CAST CONCRETE ENCASEMENT TO THE ELEVATIONS SHOWN ON DWG B32. AFTER COMPLETION OF SEQUENCE 1, ALLOW 24 HOURS MINIMUM BEFORE STARTING SEQUENCE 2. AFTER COMPLETION OF SEQUENCE 2, ALLOW AN ADDITIONAL 24 HOURS MINIMUM BEFORE STARTING SEQUENCE 3.

BORE HOLE LOCATION

B2–# = BORE HOLE NUMBER

⊕ = BORE HOLE LOCATION

BORE HOLE LOCATION			
BORE HOLE	ROADWAY ALIGNMENT	NORTHING	EASTING
B2–1	Sta. 4+336.87 8.16m Lt.	591147.63	266915.66
B2–2	Sta. 4+341.01 5.80m Rt.	591143.51	266929.63
B2–3	Sta. 4+365.42 6.17m Lt.	591170.50	266932.86
B2–4	Sta. 4+364.34 5.19m Rt.	591163.42	266941.81
B2–5	Sta. 4+395.65 5.23m Lt.	591195.36	266950.09
B2–6	Sta. 4+397.11 4.51m Rt.	591191.29	266959.06
B2–7	Sta. 4+422.89 7.15m Lt.	591219.26	266963.30
B2–8	Sta. 4+426.80 4.59m Rt.	591216.16	266975.28

PILE REQUIREMENTS							
LOCATION	PILE TYPE	TEST PILE QUANTITY	PRODUCTION PILE QUANTITY	ESTIMATED LENGTH*	MINIMUM PENETRATION ELEVATION (m)	PILE DESIGN LOAD (kN) (FACTORED)	ULTIMATE CAPACITY (kN)
ABUTMENT No.1	HP 360x152	1	5	12.28m	1617.8	867.1	1,700
PIER No.1	HP 360x152	1	6	13.41m	1616.7	1114	2,400
PIER No.2	HP 360x152	1	6	14.48m	1615.5	1114	2,400
ABUTMENT No.2	HP 360x152	1	5	13.76m	1616.95	867.1	1,700

* THE AVERAGE ESTIMATED LENGTH INDICATED IN THE PILE REQUIREMENTS TABLE IS FOR ESTIMATING PURPOSES ONLY. THE ACTUAL PILE LENGTHS MAY BE DIFFERENT THAN THOSE INDICATED.

FOUNDATION NOTES

1. THE ABUTMENT PILING SHALL BE HP 360x152 H–PILES, CONFORMING TO AASHTO M 270, GRADE 345.
2. THE PIER PILING SHALL BE HP 360x152 H–PILES, CONFORMING TO AASHTO M 270, GRADE 345.
3. THIS BRIDGE PROJECT INCLUDES TEST PILES. SEE SUPPLEMENTAL SPECIFICATIONS SECTION 551 FOR DETAILS, INCLUDING DETERMINATION OF PILE QUANTITIES REQUIRED FOR PROJECT.
4. APPROVED TEST PILES SHALL BECOME PERMANENT PILES. TEST PILES WILL BE PAID UNDER BID ITEM 55120–0000.
5. FOR ADDITIONAL FOUNDATION NOTES: SEE BRIDGE GENERAL NOTE SHEET.
6. PRE–BORED HOLES ARE REQUIRED FOR ALL PILING. SEE DWG B32 FOR BOTTOM OF PRE–BORED HOLE ELEVATIONS. PRE–BORED HOLES TO BE 762mm IN DIAMETER.
7. CLASS A(AE) CONCRETE SHALL BE CAST AROUND PILES IN PRE–BORED HOLES. THE CONCRETE ENCASEMENT AROUND PILES IS INCIDENTAL TO BID ITEMS 55101–2000 STEEL H PILE 360x152, IN PLACE AND 55120–0000 TEST PILES.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

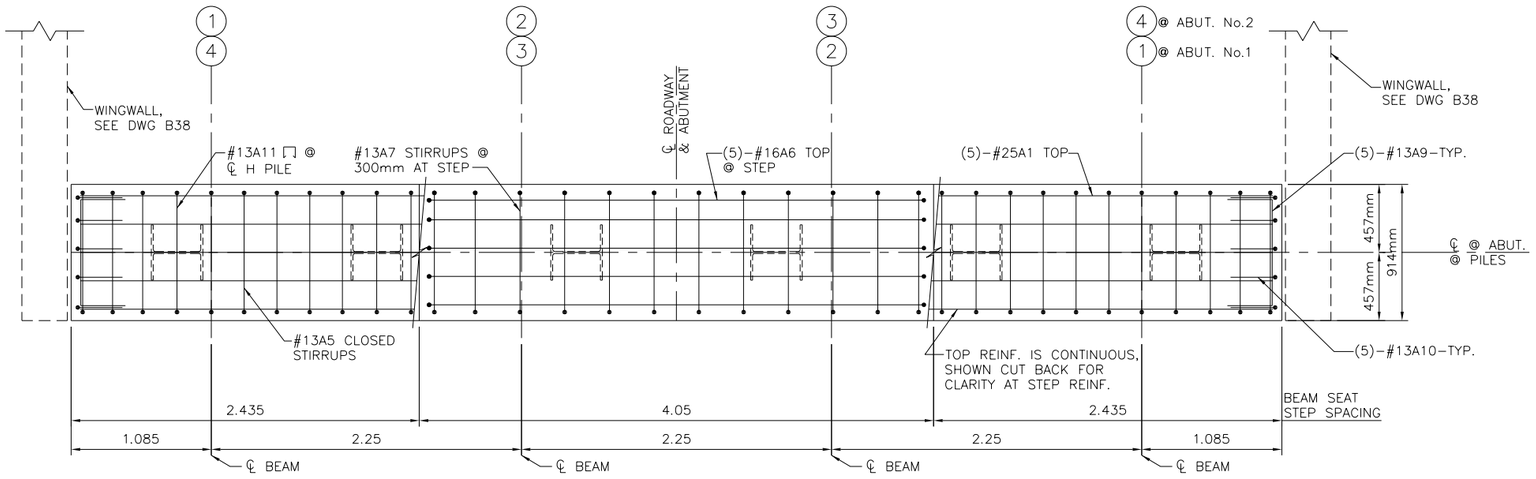
SHEEP DIP WASH PILE LAYOUT AND FOUNDATION NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B33	

Registered Professional Engineer
CERTIFICATE NO.
46583
JONATHAN M. WOODS
Signed
ARIZONA, USA

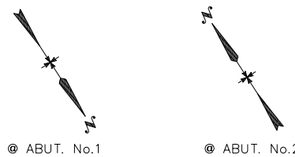
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	83	109

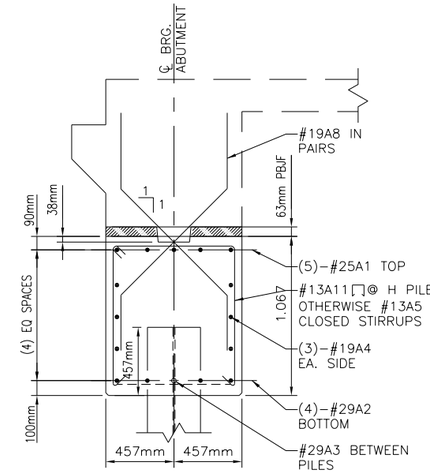


ABUTMENT PLAN

SCALE=N.T.S.

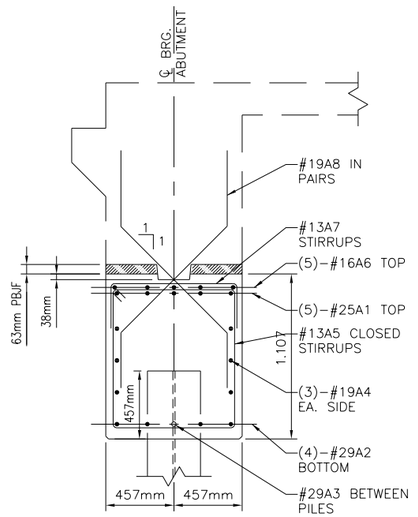


BEAM SEAT ELEVATIONS				
	Beam 1	Beam 2	Beam 3	Beam 4
Abutment No. 1	1630.470	1630.515	1630.515	1630.470
Abutment No. 2	1630.373	1630.418	1630.418	1630.373



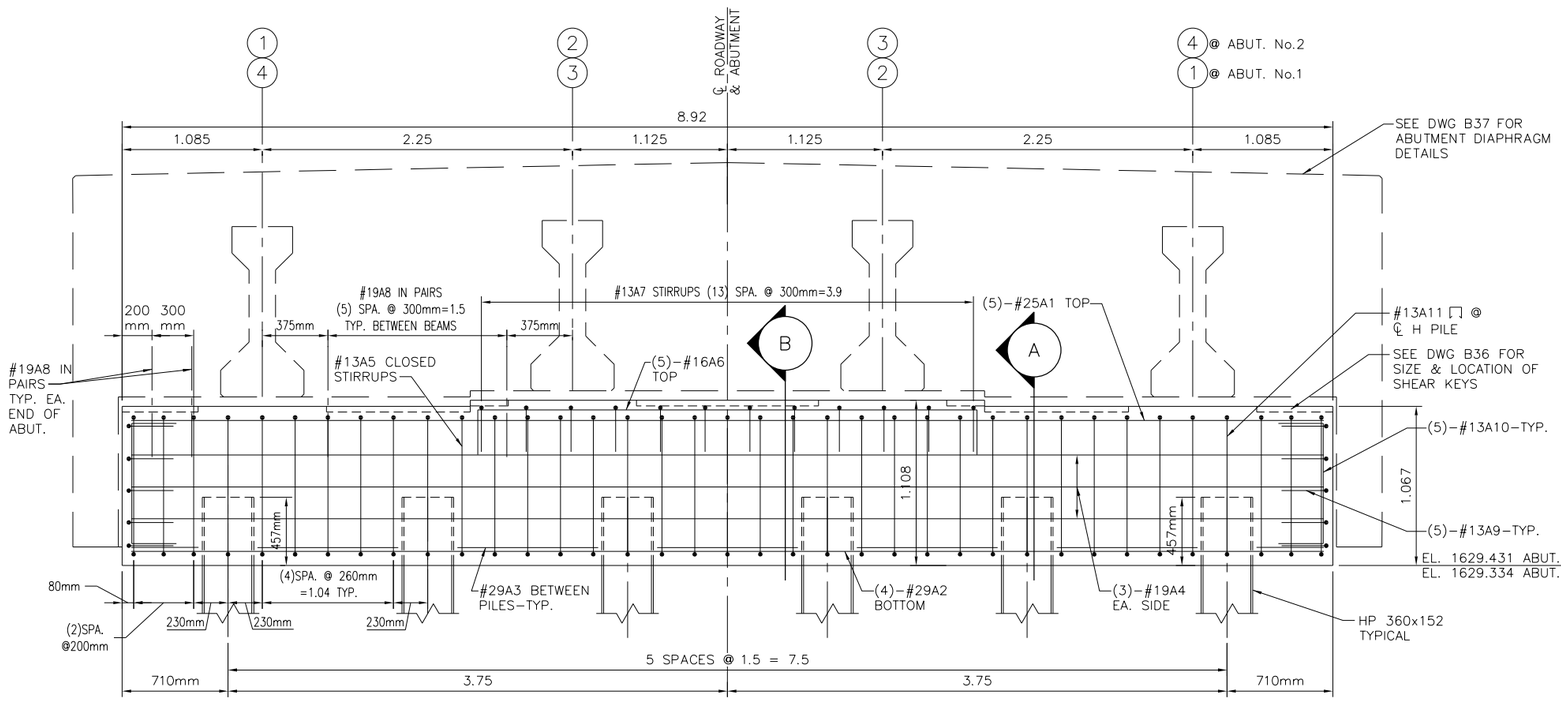
SECTION A

SCALE=N.T.S.



SECTION B

SCALE=N.T.S.



ABUTMENT ELEVATION

SCALE=N.T.S.

NOTE:

1. SEE DWG B36 FOR PLAN OF BEARING PADS AND SHEAR KEYS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

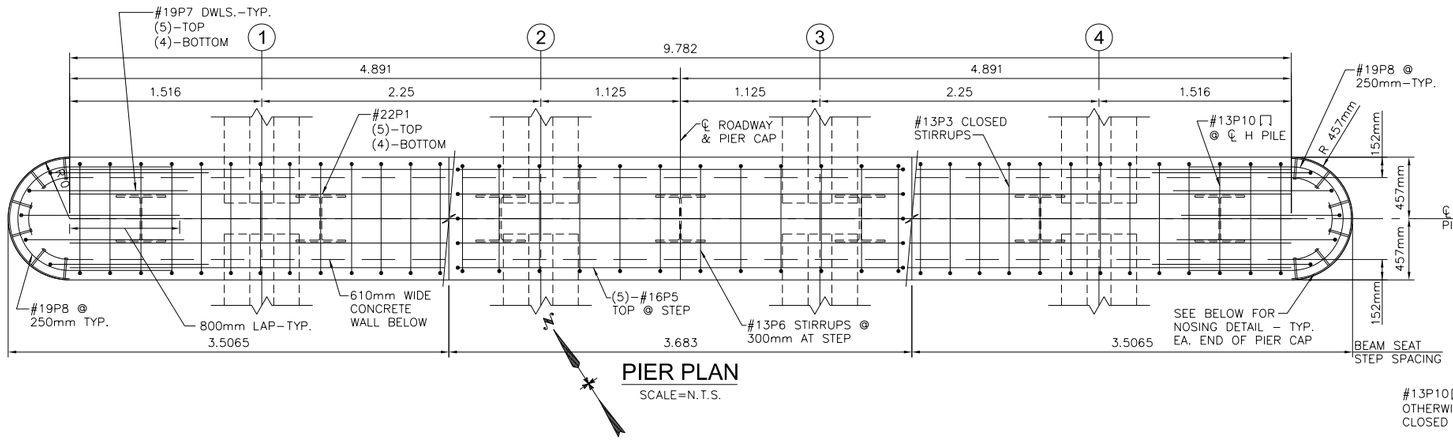
SHEEP DIP WASH ABUTMENT DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B34	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA, USA

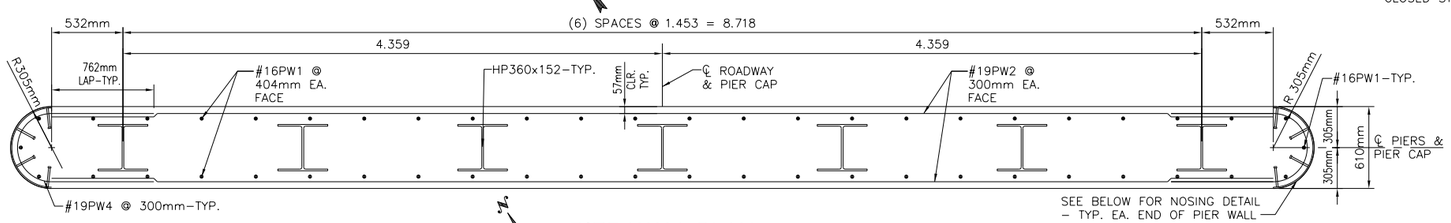
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	84	109

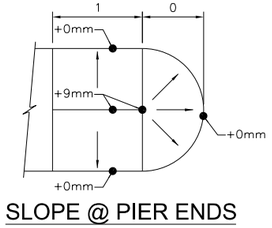


PIER PLAN
SCALE=N.T.S.

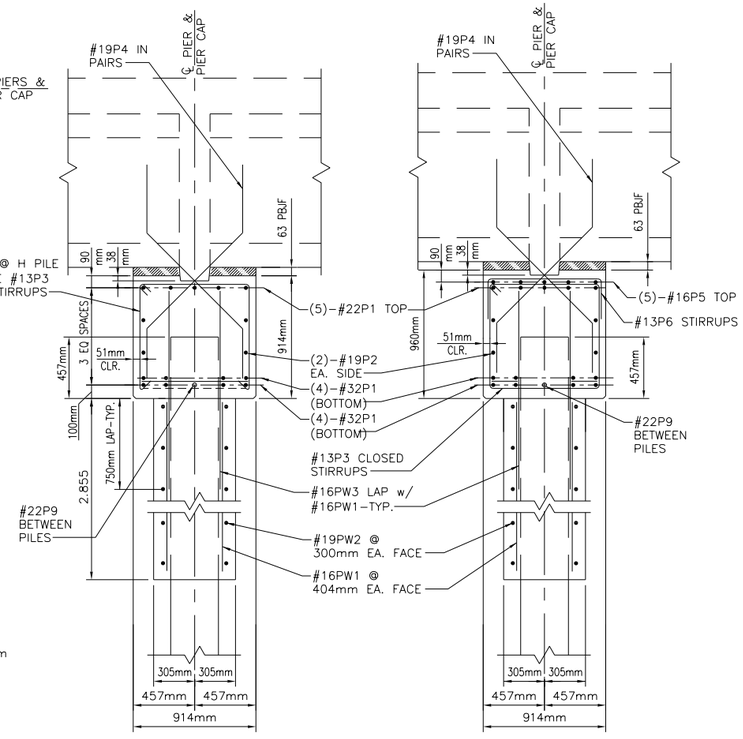
BEAM SEAT ELEVATIONS				
	Beam 1	Beam 2	Beam 3	Beam 4
Pier No. 1	1630.540	1630.585	1630.585	1630.540
Pier No. 2	1630.507	1630.552	1630.552	1630.507



PIER WALL PLAN
SCALE=N.T.S.



SLOPE @ PIER ENDS

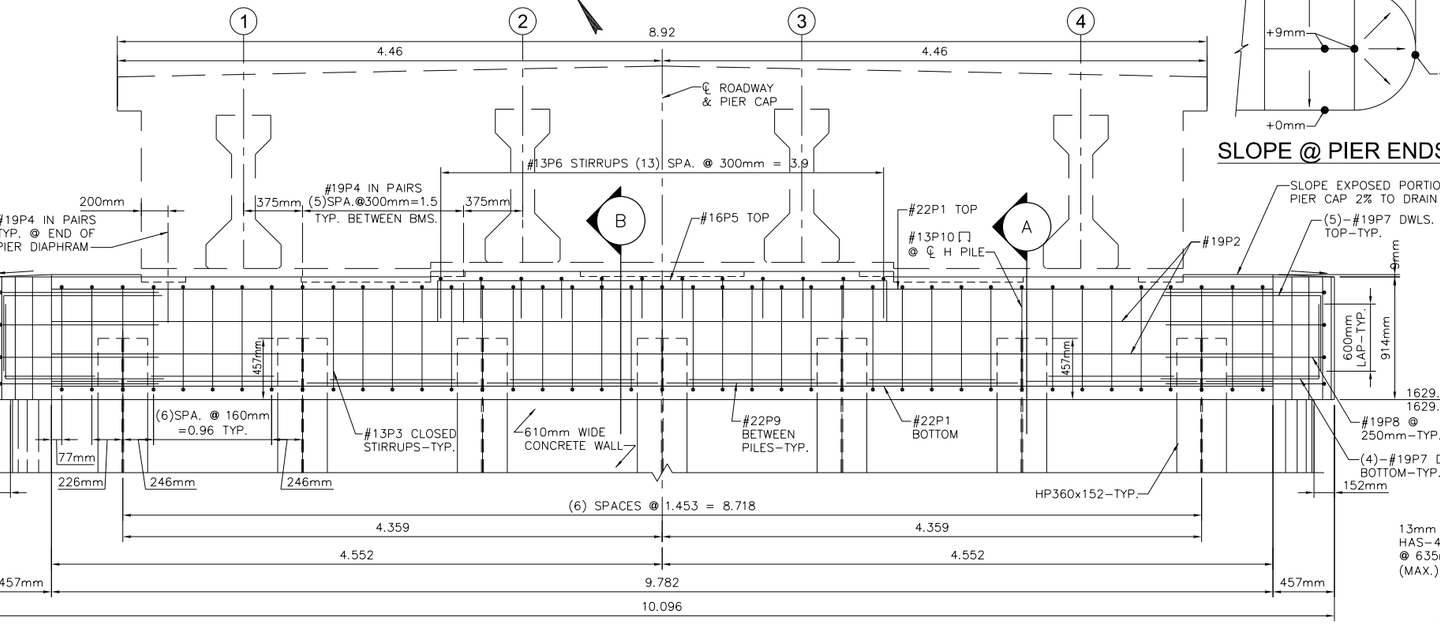


SECTION A
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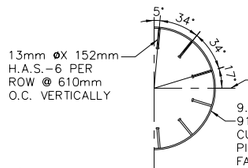
SECTION B
SCALE=N.T.S.

NOTE:

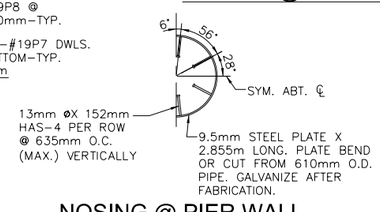
SEE DWG B36 FOR PLAN OF BEARING PADS AND SHEAR KEYS.



PIER ELEVATION
SCALE=N.T.S.



NOSING @ PIER CAP



NOSING @ PIER WALL

NOSING DETAILS
SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

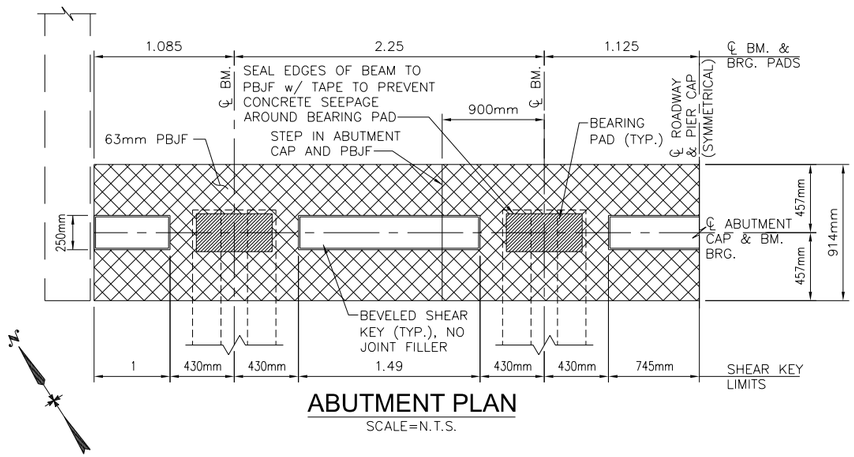
SHEEP DIP WASH
PIER DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B35	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/6/26 ARIZONA, U.S.A.

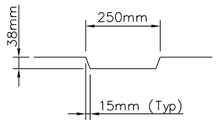
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	85	109



ABUTMENT PLAN

SCALE=N.T.S.



SHEAR KEY DETAIL

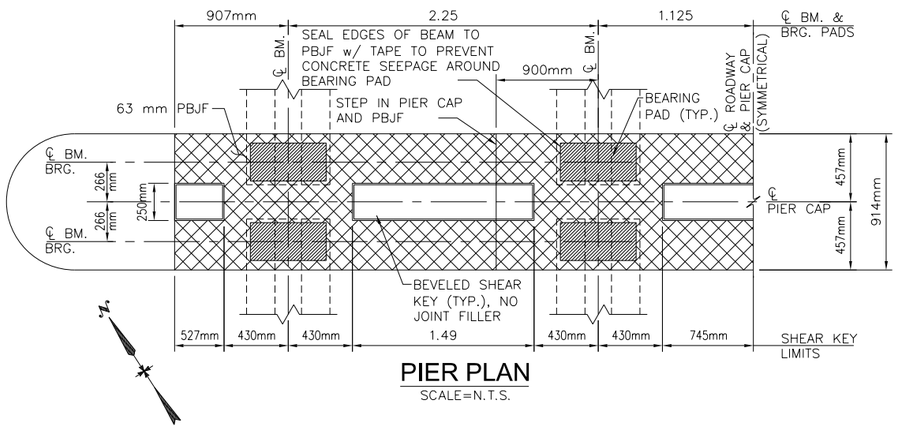
ELASTOMERIC BEARING PAD SCHEDULE

60 DUROMETER

LOCATION	DIMENSIONS			NUMBER OF SHIMS	INNER LAMINATION		OUTER LAMINATION		DESIGN LOAD EACH PAD	REQUIRED
	W	L	H		NUMBER	THICK	NUMBER	THICK		
ABUT. No. 1 & 2	407mm	254mm	51mm	2	1	9.5mm	2	4.8mm	DL = 367.15 kN LL = 339.06 kN	8
PIER No. 1 & 2	413mm	254mm	51mm	2	1	9.5mm	2	4.8mm	DL = 376.66 kN LL = 345.58 kN	16

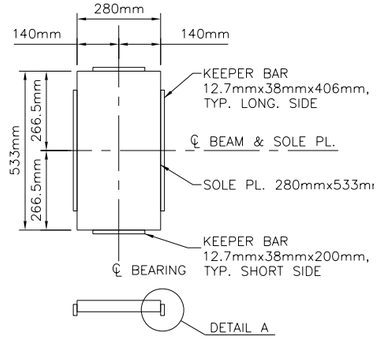
TABLE OF DIMENSION "T" @ ℄ BEAM BEARING

	ABUTMENT No. 1 & 2 AND PIER No. 1 & 2
SLAB	216 mm
HAUNCH THICKNESS AT C.L. BEAM	77 mm
BEAM	1.143
SOLE PLATE	38 mm
BEARING PAD COMPRESSED	25 mm
DIMENSION "T"	1.499



PIER PLAN

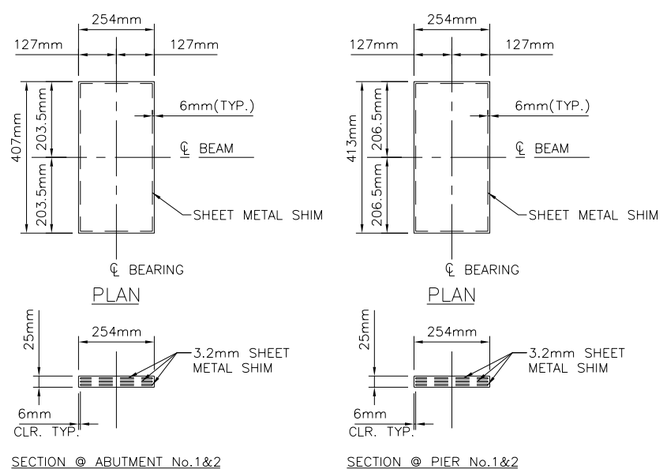
SCALE=N.T.S.



PLAN(TYPICAL)

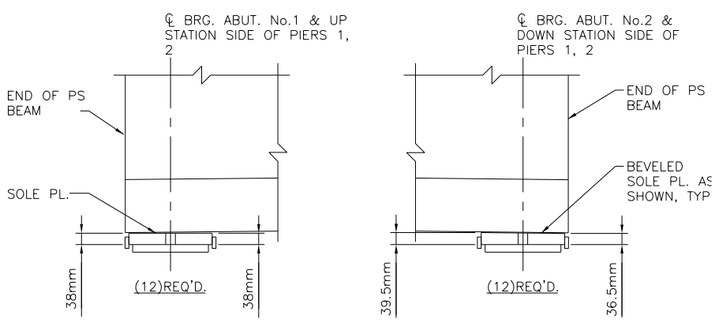
NOTES:

1. THE PLATE THICKNESS IS THE FINISHED THICKNESS.
2. IF MACHINING PROCESSES ARE USED TO ACHIEVE THE REQUIRED FLATNESS TOLERANCES OF THE SOLE PLATES, THE DIRECTION OF MACHINING ON THE SURFACE TO BE IN CONTACT WITH THE ELASTOMERIC PAD SHALL BE PERPENDICULAR TO THE LONGITUDINAL AXIS OF THE BEAM.



ELASTOMERIC BEARING PAD DETAILS

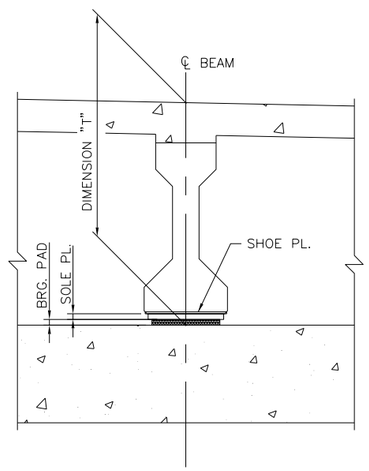
SCALE=N.T.S.



ELEVATION

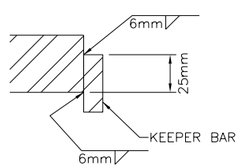
SOLE PLATE DETAILS

SCALE=N.T.S.



TYPICAL BEAM BEARING DETAIL AT ABUTMENTS

SCALE=N.T.S.



DETAIL A

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

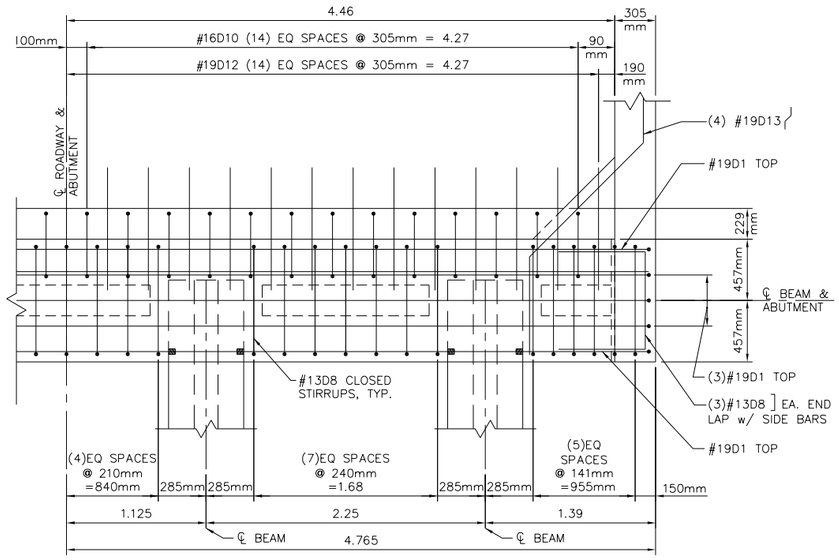
SHEEP DIP WASH
BEAM BEARING DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B36	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/6/26 ARIZONA U.S.A.

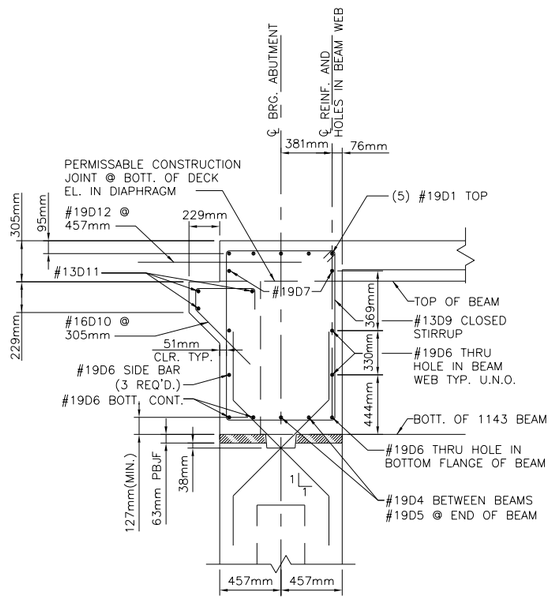
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	86	109



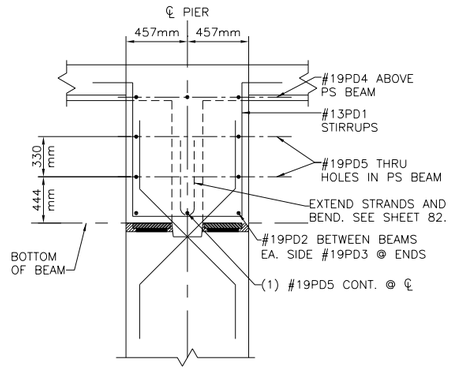
ABUTMENT DIAPHRAGM PARTIAL PLAN

SCALE=N.T.S.



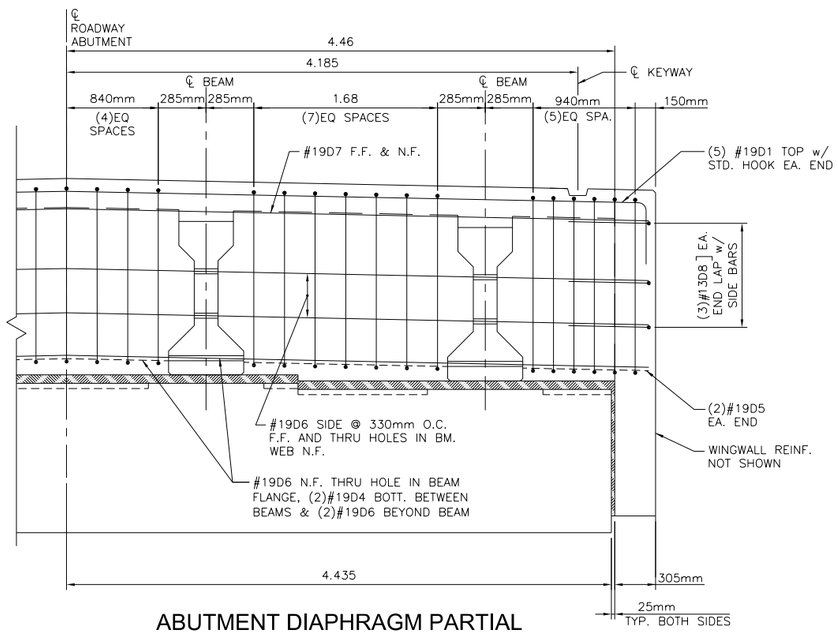
SECTION THRU ABUT. DIAPHRAGM

SCALE=N.T.S.



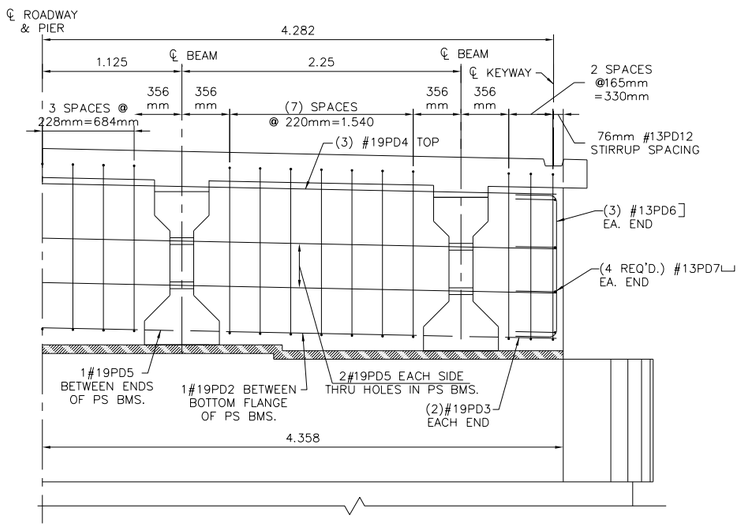
SECTION THRU PIER DIAPHRAGM

SCALE=N.T.S.



ABUTMENT DIAPHRAGM PARTIAL ELEVATION

SCALE=N.T.S.



PARTIAL PIER DIAPHRAGM ELEVATION

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

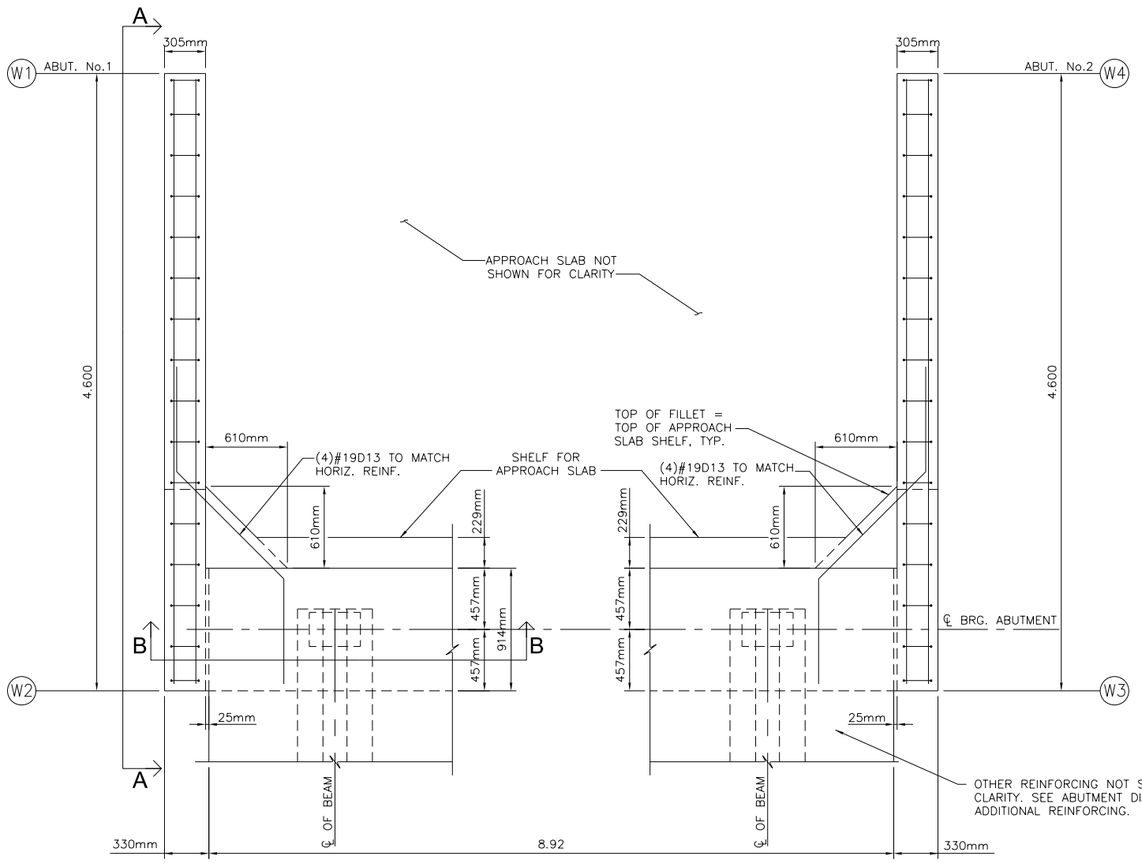
SHEEP DIP WASH ABUTMENT & PIER DIAPHRAM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B37	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA, U.S.A.

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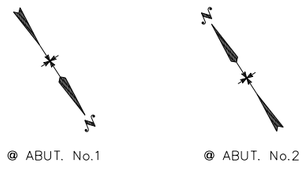
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	87	109

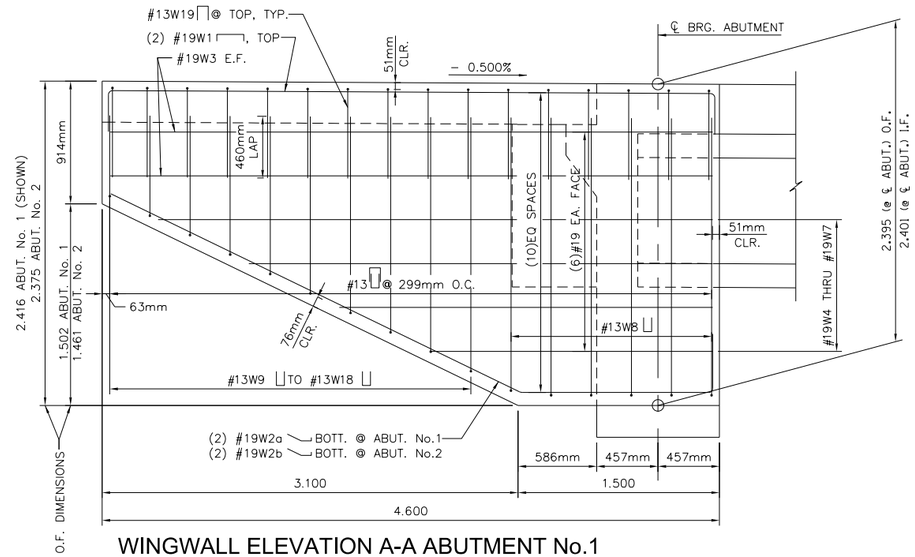


ABUTMENT CAP AND DIAPHRAGM REINFORCEMENT NOT SHOWN THIS VIEW FOR CLARITY

WINGWALL PLAN

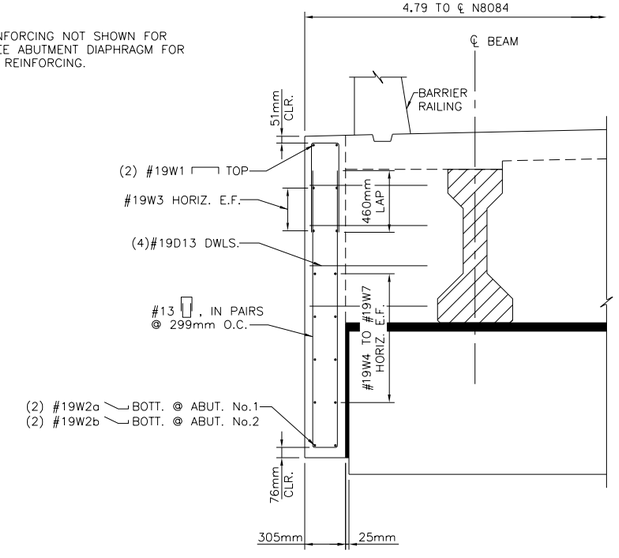
SCALE=N.T.S.





WINGWALL ELEVATION A-A ABUTMENT No.1

(WINGWALL @ ABUTMENT NO. 2 SIMILAR) SCALE=N.T.S.



WINGWALL SECTION B-B

SCALE=N.T.S.

TOP OF WINGWALL ELEVATIONS					
	Dist From N8084	Abut No 1		Abut No 2	
		W1	W2	W3	W4
Outside Face Lt	4.79	1631.919	1631.943	1631.848	1631.826
Inside Face Lt	4.485	1631.925	1631.949	1631.854	1631.832
Inside Face Rt	4.485	1631.925	1631.949	1631.854	1631.832
Outside Face Rt	4.79	1631.919	1631.943	1631.848	1631.826

NOTE:
1. CAST WINGWALLS AND ABUTMENT DIAPHRAGM MONOLITHICALLY.
2. CAST DECK WITHIN 2 HOURS OF ABUTMENT/PIER DIAPHRAMS CONCRETE POUR.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

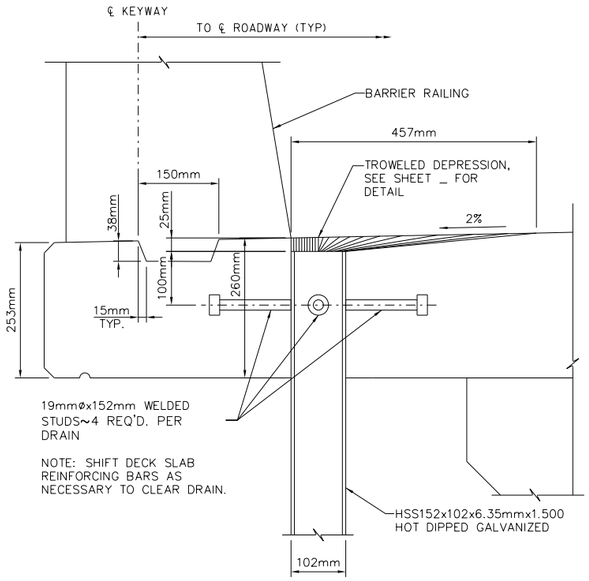
SHEEP DIP WASH WINGWALL DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B38	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/6/26 ARIZONA U.S.A.

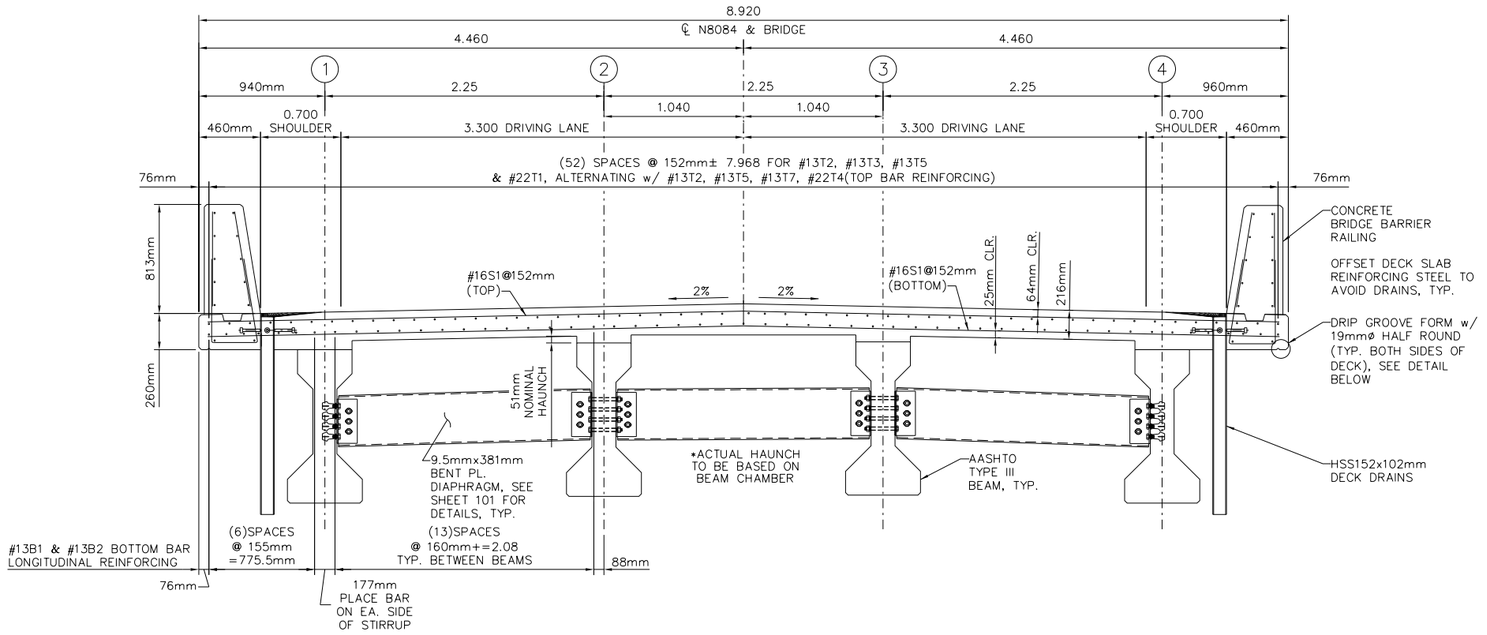
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	88	109



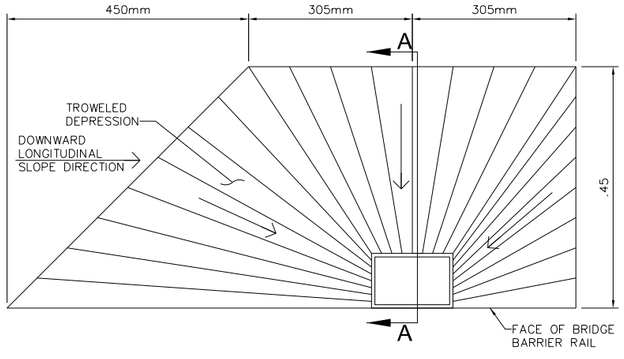
DECK DRAIN SECTION A-A

SCALE=N.T.S.



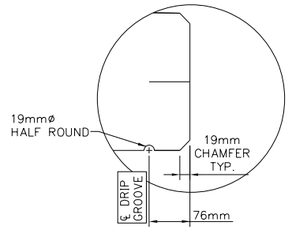
SECTION AT INTERMEDIATE DIAPHRAGMS
TYPICAL TRANSVERSE SECTION

NORMAL TO ROADWAY CENTERLINE
SCALE=N.T.S.



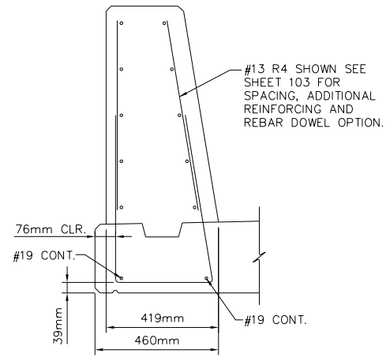
DECK DRAIN DETAIL

SCALE=N.T.S.



DRIP GROOVE DETAIL

SCALE=N.T.S.



BRIDGE BARRIER RAILING DETAIL

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

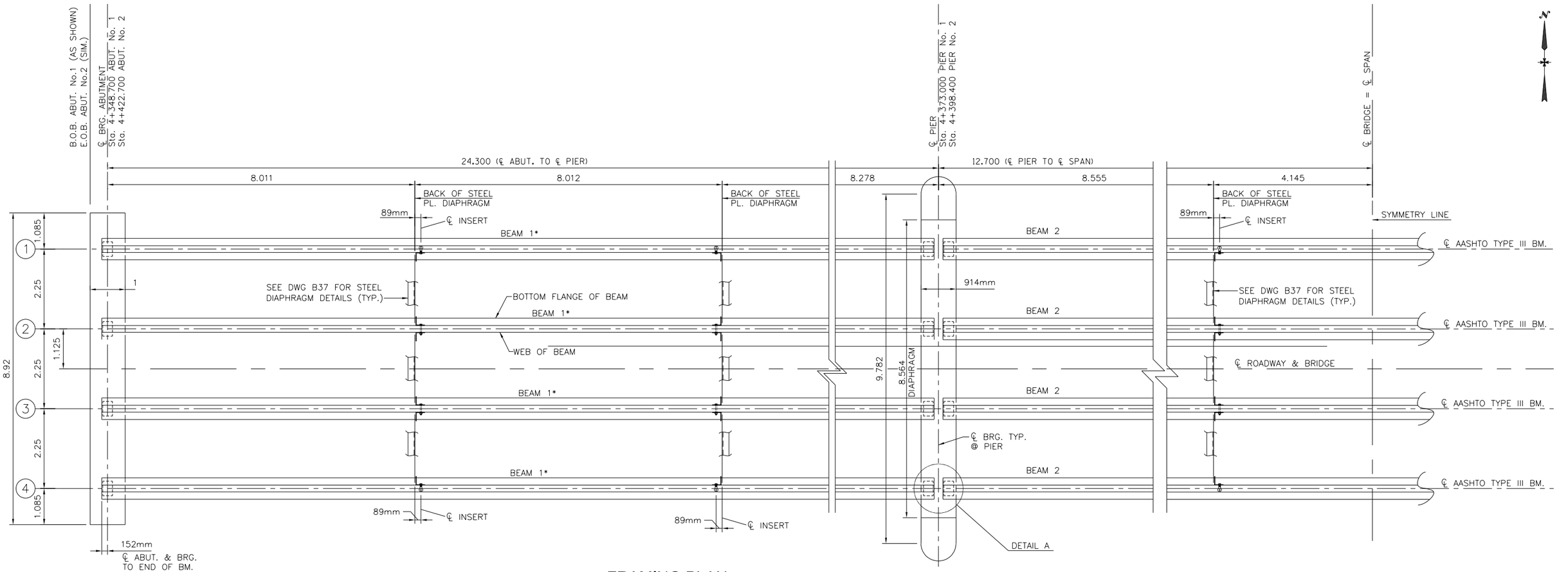
SHEEP DIP WASH
TYPICAL TRAVERSE SECTION

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B39	

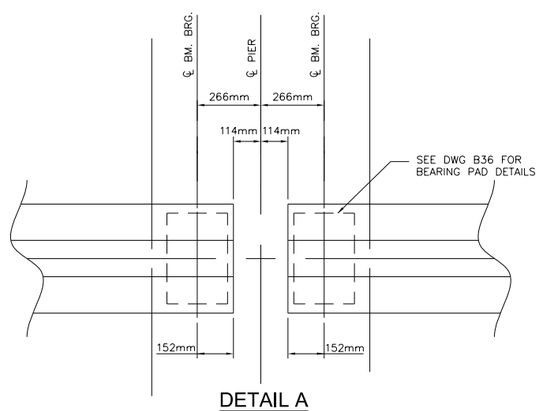
Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS When Signed Valid ARIZONA, USA

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	89	109



FRAMING PLAN
SCALE = 1:50



DETAIL A
SCALE = 1:10

* BEAM 1 OPP. HAND IN SPAN 3.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

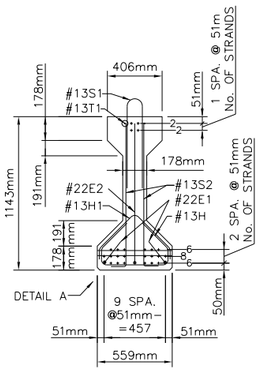
SHEEP DIP WASH FRAMING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B40	

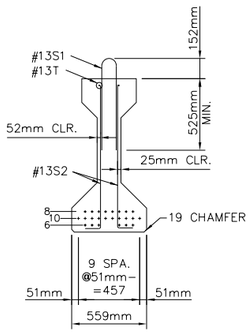
Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA U.S.A.

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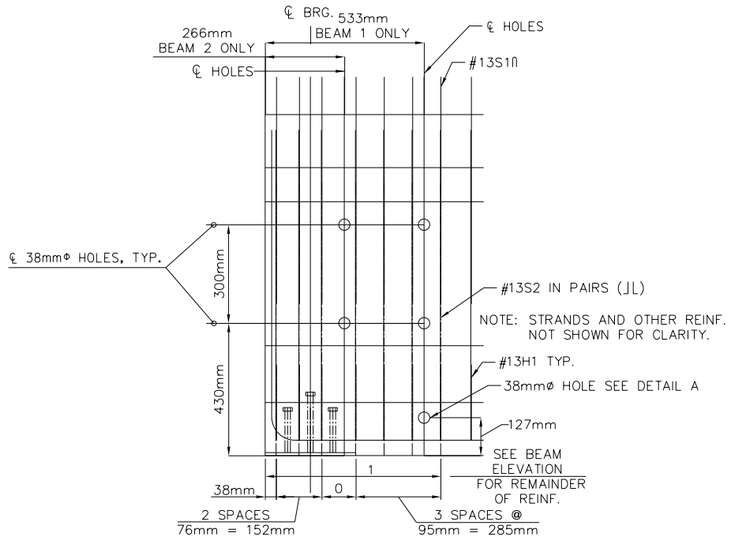
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	90	109



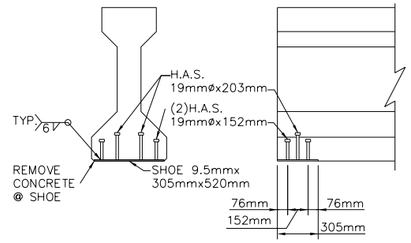
END VIEW



SECTION NEAR
℄ OF BEAM

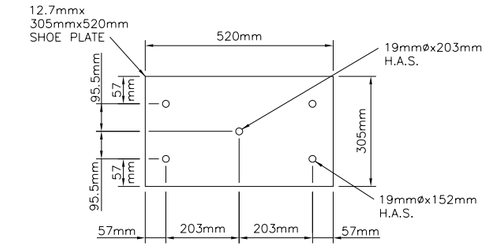


DETAIL B



END VIEW ELEVATION

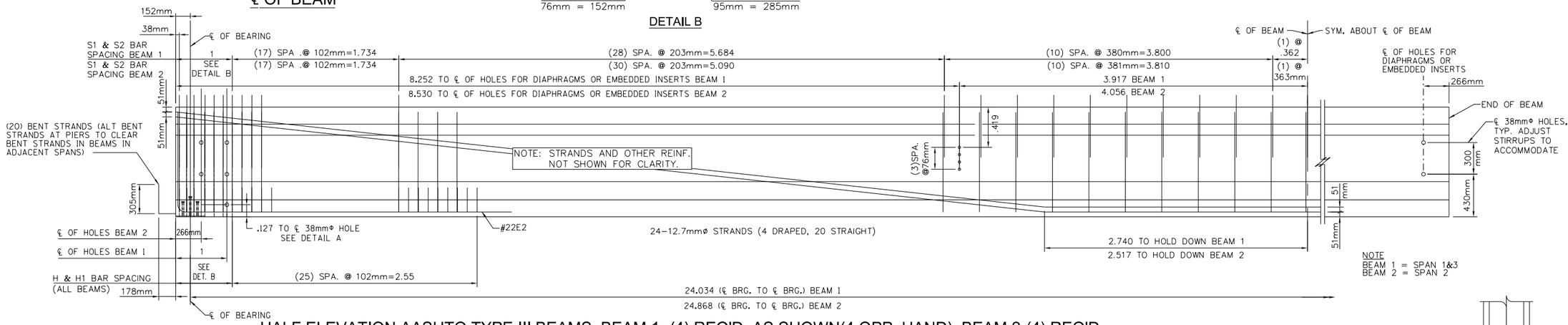
SHOE PLATE



SHOE PL. DETAIL

BEAM	WEIGHT	CAMBER @ RELEASE	CAMBER @ ERECTION	DEAD LOAD DEFLECTION
1	207.2 kN	28mm	49mm	21mm
2	214.3 kN	29mm	50mm	26mm

BEAM DATA



NOTE
BEAM 1 = SPAN 1&3
BEAM 2 = SPAN 2

HALF ELEVATION AASHTO TYPE III BEAMS, BEAM 1- (4) REQ'D. AS SHOWN(4 OPP. HAND), BEAM 2-(4) REQ'D.

(fpe = 1243.4 MPa PER STRAND; LOSSES = 152.83 MPa PER STRAND)–BEAM 1
(fpe = 1240.2 MPa PER STRAND; LOSSES = 156.02 MPa PER STRAND)–BEAM 2

GENERAL NOTES

1. COST OF REINFORCING BARS AND STRUCTURAL STEEL EMBEDDED IN BRIDGE BEAMS IS TO BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BRIDGE MEMBER AASHTO TYPE III.
2. BEAMS TO BE LIFTED BY MEANS OF DEVICES SATISFACTORY TO THE FABRICATOR. BEAMS TO BE CAST, STORED, AND HAULED IN UPRIGHT POSITION. LIFTING DEVICES MUST BE APPROVED BY THE ENGINEER PRIOR TO USE. THE CONTRACTOR SHALL SUBMIT CALCULATIONS FOR DESIGN OF LIFTING DEVICE.
3. THE TOP SURFACES OF THE BEAMS ARE TO BE THOROUGHLY WIRE BRUSHED AND SCORED TRANSVERSELY AFTER INITIAL SET (MIN. DEPTH = 6mm ACROSS ENTIRE FLANGE WIDTH).
4. THE CAMBER AT ERECTION DIMENSION LISTED IS THE CALCULATED VALUE DUE TO THE EFFECT OF PRESTRESSING WITH THE WEIGHT OF THE BEAM ACTING, WITH AN ALLOWANCE FOR CAMBER GROWTH TO 90 DAYS. THE CONTRACTOR SHALL LIMIT THE CAMBER GROWTH TO A VALUE NOT TO EXCEED THE PREDICTED CAMBER AT ERECTION DIMENSION BY 25.4mm AT THE TIME OF DECK SLAB PLACEMENT. CAMBER GROWTH IS TO BE LIMITED BY WEIGHTING, FABRICATION SCHEDULING OR OTHER APPROVED MEANS.
5. DEAD LOAD DEFLECTION IS THE COMPUTED DEFLECTION DUE TO WEIGHT OF SLAB, DIAPHRAGMS, AND SUPERIMPOSED DEAD LOAD.
6. THE DESIGN SHOWN IS BASED ON THE USE OF 12.7mm DIAMETER LOW-RELAXATION STRANDS MEETING THE REQUIREMENTS OF AASHTO M-203 (GRADE 1860). INITIAL PRESTRESSING FORCE SHALL BE 137.8 kN PER STRAND. SLIGHT OVERSTRESSING UP TO 146.8 kN PER STRAND WILL BE ALLOWED TO OFFSET SEATING LOSSES. THE DESIGN IS BASED ON 12.7mm ø STRAND.
7. TYPE III CEMENT MAY BE USED AT THE FABRICATOR'S OPTION.
8. SHOE PLATES MUST BE STRAIGHTENED PRIOR TO CASTING INTO BEAM.
9. REINFORCING BARS PROJECTING FROM THE TOP OF THE GIRDER AND ALL REINFORCING LOCATED WITHIN FOUR FEET OF GIRDER ENDS SHALL BE UNCOATED CORROSION RESISTANT STEEL OR EPOXY COATED.

DESIGN DATA

DESIGN ACCORDING TO AASHTO LRFD SPECIFICATIONS DATED 2020 AND CURRENT INTERIMS.

BEAMS:
f'ci (MIN. COMPRESSIVE STRENGTH OF CONCRETE AT TIME OF INITIAL PRESTRESS) = 38.0 MPa
f'c = 48.3 MPa (ULTIMATE COMPRESSIVE STRENGTH)

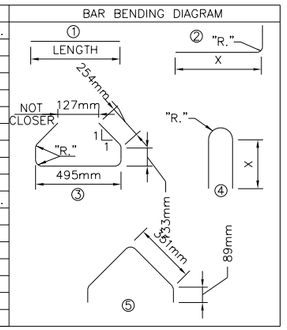
PRESTRESSING STEEL:
12.7mm DIAMETER SEVEN WIRE LOW RELAXATION STRANDS.
fpu = 1861.6 MPa PER STRAND;
fpy = 1709.9 MPa PER STRAND.

CONVENTIONAL REINFORCING BARS:
fy = 413.7 MPa

COMPOSITE SLAB:
f'c = 27.6 MPa
ALLOWANCE FOR FUTURE WEARING SURFACE = 1.44 kPa
LIVE LOAD = HL-93
STAY-IN-PLACE DECK FORM = 0.72 kPa

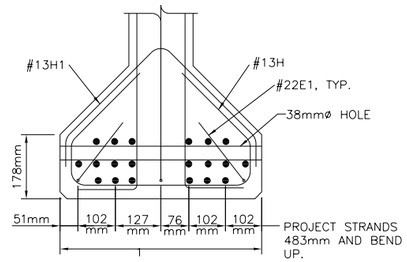
BEAM 1 (SPAN 1&3)						
BAR	TYPE	SIZE	"R."	"X"	LENGTH	No. REQ'D.
E1	②	#22	79mm	2.438	2.641	4
E2	②	#22	79mm	1.041	3.479	2
S1	④	#13	57mm	661mm	1.505	125
S2	②	#13	38mm	1.066	1.320	250
H	③	#13	38mm	---	1.205	64
H1	⑤	#13	38mm	---	855mm	64
T1	①	#13			12.430	4
BEAM 2 (SPAN 2)						
BAR	TYPE	SIZE	"R."	"X"	LENGTH	No. REQ'D.
E1	②	#22	79mm	2.438	2.641	4
E2	②	#22	79mm	1.041	3.479	2
S1	④	#13	57mm	661mm	1.505	129
S2	②	#13	38mm	1.066	1.320	258
H	③	#13	38mm	---	1.205	64
H1	⑤	#13	38mm	---	855mm	64
T1	①	#13			12.840	4

BAR BENDING DIAGRAM



* SPLICE AT MID. SPAN

REINFORCING BARS REQ'D. FOR ONE BEAM



DETAIL A

NAVAJO DIVISION OF
TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

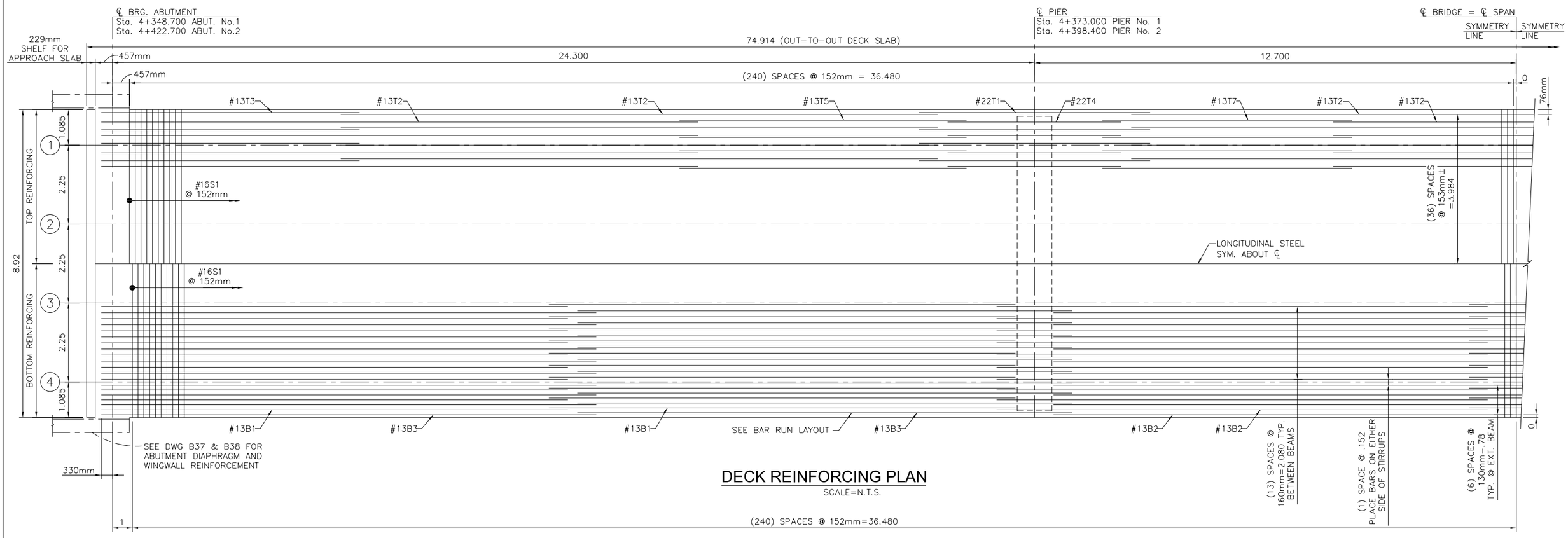
SHEEP DIP WASH PRESTRESSED CONCRETE BEAM DETAILS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B41	

Registered Professional Engineer (Civil)
CERTIFICATE NO.
46583
JONATHAN
M. WOODS
Date Signed 5/5/26
ARIZONA, U.S.A.

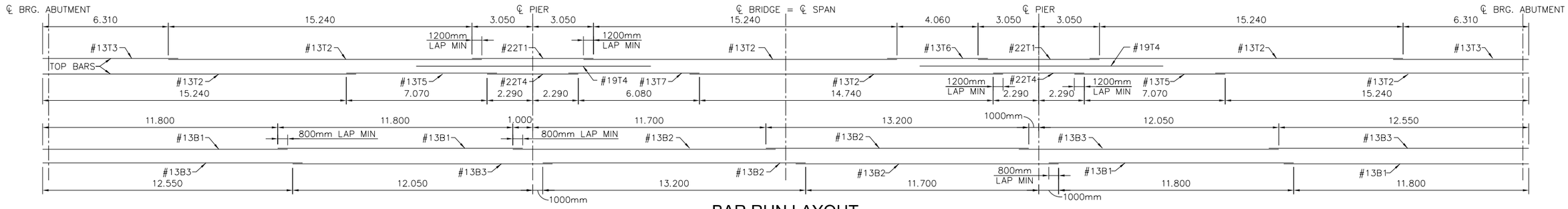
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	91	109



DECK REINFORCING PLAN

SCALE=N.T.S.



BAR RUN LAYOUT

SCALE=N.T.S.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH
DECK REINFORCING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	
DWG: B42	

DIBBLE

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/5/26 ARIZONA, U.S.A.

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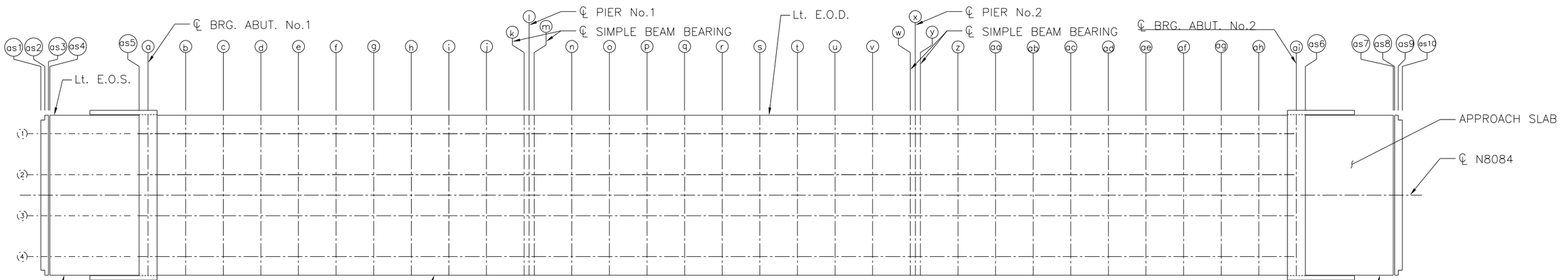
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	92	109

Screed Elevations

		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	aa	ab	ac	ad	ae	af	ag	ah	ai	aj
		CL Abut 1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL Bearing	CL Pier 1	CL Bearing	0.1	HI Point	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL Bearing	CL Pier 2	CL Bearing	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	CL Abut 2
		4348.7	4350.98	4353.42	4355.85	4358.28	4360.72	4363.15	4365.58	4368.02	4370.45	4372.73	4373	4373.27	4375.64	4377.95	4378.15	4380.67	4383.19	4385.7	4388.22	4390.74	4393.26	4395.77	4398.13	4398.4	4398.67	4400.95	4403.39	4405.82	4408.25	4410.67	4413.12	4415.55	4417.99	4420.42	4422.7
		0	2.28	4.72	7.15	9.58	12.02	14.45	16.88	19.32	21.75	24.034	24.3	24.566	26.936	29.25	29.446	31.966	34.486	36.996	39.516	42.036	44.556	47.066	49.434	49.7	49.966	52.246	54.686	57.116	59.546	61.968	64.416	66.846	69.286	71.716	74
Left Edge	4.46	1631.947	1631.961	1631.977	1631.991	1632.003	1632.011	1632.016	1632.018	1632.018	1632.017	1632.017	1632.017	1632.018	1632.021	1632.019	1632.019	1632.019	1632.019	1632.019	1632.019	1632.018	1632.007	1631.994	1631.985	1631.984	1631.983	1631.977	1631.973	1631.967	1631.958	1631.946	1631.930	1631.912	1631.891	1631.870	1631.851
Girder 1	3.375	1631.969	1631.982	1631.998	1632.013	1632.024	1632.033	1632.038	1632.040	1632.039	1632.038	1632.039	1632.039	1632.039	1632.042	1632.041	1632.041	1632.041	1632.041	1632.041	1632.041	1632.040	1632.029	1632.016	1632.007	1632.006	1632.005	1631.999	1631.995	1631.989	1631.980	1631.967	1631.952	1631.933	1631.913	1631.891	1631.872
Girder 2	1.125	1632.014	1632.027	1632.043	1632.058	1632.069	1632.078	1632.083	1632.085	1632.084	1632.083	1632.084	1632.084	1632.084	1632.087	1632.086	1632.086	1632.086	1632.086	1632.086	1632.086	1632.085	1632.074	1632.061	1632.052	1632.051	1632.050	1632.044	1632.040	1632.034	1632.025	1632.012	1631.997	1631.979	1631.958	1631.936	1631.917
N8084	0	1632.037	1632.050	1632.066	1632.080	1632.092	1632.100	1632.105	1632.107	1632.107	1632.105	1632.106	1632.107	1632.107	1632.110	1632.109	1632.109	1632.109	1632.109	1632.109	1632.109	1632.108	1632.096	1632.084	1632.074	1632.073	1632.072	1632.067	1632.062	1632.056	1632.047	1632.035	1632.020	1632.001	1631.980	1631.958	1631.940
Girder 3	1.125	1632.014	1632.027	1632.043	1632.058	1632.069	1632.078	1632.083	1632.085	1632.084	1632.083	1632.084	1632.084	1632.084	1632.087	1632.086	1632.086	1632.086	1632.086	1632.086	1632.086	1632.085	1632.074	1632.061	1632.052	1632.051	1632.050	1632.044	1632.040	1632.034	1632.025	1632.012	1631.997	1631.979	1631.958	1631.936	1631.917
Girder 4	3.375	1631.969	1631.982	1631.998	1632.013	1632.024	1632.033	1632.038	1632.040	1632.039	1632.038	1632.039	1632.039	1632.039	1632.042	1632.041	1632.041	1632.041	1632.041	1632.041	1632.041	1632.040	1632.029	1632.016	1632.007	1632.006	1632.005	1631.999	1631.995	1631.989	1631.980	1631.967	1631.952	1631.933	1631.913	1631.891	1631.872
Right Edge	4.46	1631.947	1631.961	1631.977	1631.991	1632.003	1632.011	1632.016	1632.018	1632.018	1632.017	1632.017	1632.017	1632.018	1632.021	1632.019	1632.019	1632.019	1632.019	1632.019	1632.019	1632.018	1632.007	1631.994	1631.985	1631.984	1631.983	1631.977	1631.973	1631.967	1631.958	1631.946	1631.930	1631.912	1631.891	1631.870	1631.851

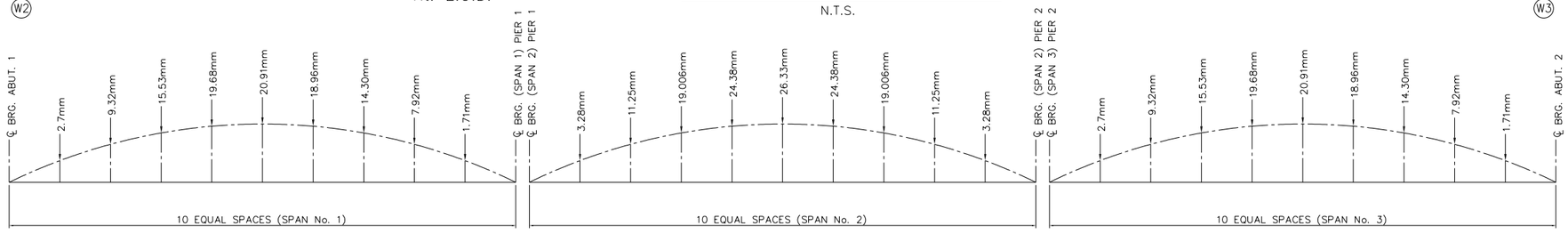
SLAB1					
PVC	A5	A4	A3	A2	A1
4330	4348.243	4343.707	4343.656	4343.55	4342.987
1632.037	1632.034	1632.010	1632.010	1632.009	1632.006
	1631.953	1631.929	1631.929	1631.928	1631.925
	1631.945	1631.921	1631.920	1631.920	1631.916

SLAB2					
PVC	A6	A7	A8	A9	A10
4330	4423.157	4427.693	4427.744	4427.85	4428.413
1632.037	1631.937	1631.900	1631.900	1631.899	1631.894
	1631.855	1631.819	1631.819	1631.818	1631.813
	1631.847	1631.811	1631.811	1631.810	1631.805



TOP OF CONCRETE ELEVATIONS

N.T.S.



NOTE:

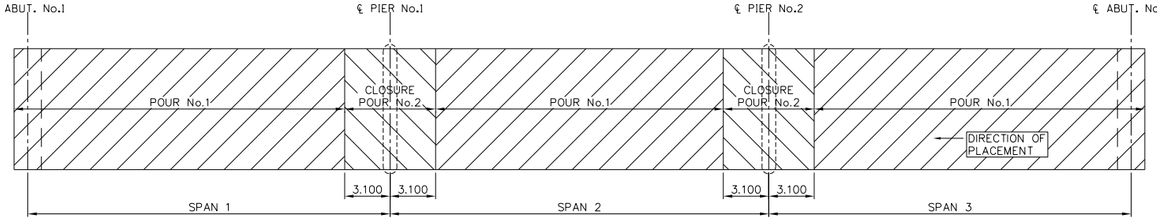
TO COMPENSATE FOR DEAD LOAD DEFLECTIONS DUE TO WEIGHT OF SLAB AND SUPERIMPOSED DEAD LOADS, SET SCREEDS ABOVE FINISH GRADES BY DIMENSIONS (mm) SHOWN IN DEAD LOAD DEFLECTION DIAGRAM.

DEAD LOAD DEFLECTION DIAGRAM

N.T.S.

NOTE:

CONCRETE SHALL BE PLACED THE FULL WIDTH OF THE DECK SLAB AT A FORWARD RATE OF PROGRESS OF NOT LESS THAN 10 METERS PER HOUR. SET RETARDANT SHALL NOT BE USED IF THE ATMOSPHERIC TEMPERATURE AT THE TIME OF PLACEMENT IS LESS THAN 16° C.



CONCRETE DECK PLACEMENT DETAIL

N.T.S.

NOTE:
SEE DWG B38 FOR TOP OF CONCRETE ELEVATIONS AT WINGWALLS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH
TOP OF CONCRETE ELEVATIONS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B43	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA U.S.A.

J:\2017\1017064.19_NDOT_Many_Farms\CAD\N8084-SDB13.dgn

REINFORCING BAR SCHEDULE

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	93	109

--DECK SLAB

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top Trans.	#16S1	#16	1	482	8.82	8.82			EPOXY COATED
Bot. Trans.	#16S1	#16	1	481	8.82	8.82			EPOXY COATED
Bot. Long	#13B1	#13	1	106	12.300	12.300			EPOXY COATED
Bot Long.	#13B2	#13	1	106	13.200	13.200			EPOXY COATED
Bot Long.	#13B3	#13	1	106	13.050	13.050			EPOXY COATED
Top Long.	#22T1	#22	1	54	6.100	6.100			EPOXY COATED
Top Long.	#13T2	#13	1	159	15.740	15.740			EPOXY COATED
Top Long.	#13T3	#13	1	54	6.810	6.810			EPOXY COATED
Top Long.	#22T4	#22	1	52	4.580	4.580			EPOXY COATED
Top Long.	#13T5	#13	1	52	7.570	7.570			EPOXY COATED
Top Long.	#13T6	#13	1	27	5.060	5.060			EPOXY COATED
Top Long.	#13T7	#13	1	26	6.580	6.580			EPOXY COATED
Neg. Mom. Long.	#19T4	#19	1	104	12	12			EPOXY COATED

--ABUTMENT CAP - Quantity is for 2 abutment caps

	MARK	SIZE	TYPE	No. REQ'D	LENGTH	A	B	C	
Top Long	#25A1	#25	1	10	8.766	8.766			
Bot. Long	#29A2	#29	1	8	8.766	8.766			
Bot. Long	#29A3	#29	1	10	882 mm	882 mm			FIELD CUT
Sides Long	#19A4	#19	1	12	8.018	8.018			
Stirrups	#13A5	#13	7	62	3.682	812mm	929 mm	100 mm	
Top Long @ Step	#16A6	#16	8	10	3.958	3.348	305 mm		
Stirrups @ Step	#13A7	#13	8	24	1.422	812mm	305 mm		
Diagonals	#19A8	#19	9	76	1.790	430mm	430 mm	930 mm	
Abutment End	#13A9	#13	8	20	2.100	780mm	660 mm		
Abutment End	#13A10	#13	8	20	1.650	871mm	415 mm		
Stirrups at H Piles	#13A11	#13	10	12	2.945	812mm	929 mm	100 mm	

--ABUTMENT DIAPHRAGMS - Quantity is for 2 abutment diaphragms

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top w/Hooks	#19D1	#19	8	10	9.376	8.570	305 mm		EPOXY COATED
NOT USED	#19D2								
NOT USED	#19D3								
Bot btwn beams	#19D4	#19	1	12	1.68	1.68			
Bot at ends	#19D5	#19	1	8	838 mm	890 mm			
Bottom & Side Cont	#19D6	#19	1	14	8.92	8.92			
Side Cont at Top	#19D7	#19	1	4	8.92	8.92			EPOXY COATED
End U Bars	#13D8	#13	8	12	1.335	775 mm	305 mm		
Stirrups	#13D9	#13	7	66	4.662	812 mm	1.330	115 mm	EPOXY COATED
Shelf Ties	#16D10	#16	6	52	788 mm	221 mm	127 mm	313 mm	
Shelf Bars Cont	#13D11	#13	1	6	8.680	8.680			
Dwls tp approach slab	#19D12	#19	1	54	940 mm	940 mm			EPOXY COATED
Dwls to Wingwall	#19D13	#19	9	16	2.690	780 mm	1.130	780 mm	

--WINGWALLS

@ Abutment No. 1 - Quantity is for 2 wingwalls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Wingwall, Top	#19W1	#19	8	4	5.098	4.498	305 mm		
Wingwall, BOTT.	#19W2a	#19	12	4	5.112	3.383	1.429	305 mm	
Wingwall, HORIZ. E.F.	#19W3	#19	1	16	4.498	4.498			
Wingwall, HORIZ. E.F.	#19W4	#19	1	16	4.130	4.130			
	TO								DECREASE LENGTH BY INCREMENTS OF 675 mm
Wingwall, HORIZ. E.F.	#19W7	#19	1	8	2.105	2.105			
	TO								DECREASE LENGTH BY INCREMENTS OF 675 mm
Bottom U Stirrups	#13W8	#13	8	12	4.340	203 mm	2.070		
Bottom U Stirrups	#13W9	#13	8	2	4.033	203 mm	1.915		
	TO								DECREASE LENGTH BY INCREMENTS OF 286 mm ('B' DIMENSION BY 143 mm)
Bottom U Stirrups	#13W18	#13	8	2	1.459	203 mm	628 mm		
Top U Stirrups	#13W19	#13	8	32	1.533	203 mm	665 mm		

@ Abutment No. 2 - Quantity is for 2 wingwalls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Wingwall, Top.	#19W1	#19	8	4	5.098	4.498	305 mm		
Wingwall, Bot	#19W2a	#19	13	4	5.112	3.383	1.429	305 mm	
Wingwall, Horiz EF	#19W3	#19	1	16	4.498	4.498			
Wingwall, Horiz EF	#19W4	#19	1	8	4.130	4.130			
	TO								DECREASE LENGTH BY INCREMENTS OF 675 mm
Wingwall, Horiz EF	#19W7	#19	1	8	2.105	2.105			
	TO								DECREASE LENGTH BY INCREMENTS OF 675 mm
Bottom U Stirrups	#13W8	#13	8	12	4.340	203 mm	2.070		
Bottom U Stirrups	#13W9	#13	8	2	4.033	203 mm	1.915		
	TO								DECREASE LENGTH BY INCREMENTS OF 286 mm ('B' DIMENSION BY 143 mm)
Bottom U Stirrups	#13W18	#13	8	2	1.459	203 mm	628 mm		
Top U Stirrups	#13W19	#13	8	32	1.533	203 mm	665 mm		

-- APPROACH SLABS - Quantity is for 2 approach slabs

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Bottom Mat	25AS1	#25	1	108	4.435	4.435			EPOXY COATED
Bottom Mat	19AS2	#19	1	42	8.82	8.82			EPOXY COATED
Top Mat	13AS3	#13	1	26	8.82	8.82			EPOXY COATED
Top Mat	13AS4	#13	1	46	4.435	4.435			EPOXY COATED
Sleeper Slab -Ftg.	13SS1	#13	1	84	1.250	1.250			
Sleeper Slab -Ftg.	13SS2	#13	1	16	1.045	1.045			
Sleeper Slab -Ftg.	13SS3	#13	1	16	8.82	8.82			
Sleeper Slab -Ftg.	13SS4	#13	1	4	7.210	7.210			
End block	13SS5	#13	8	42	1.300	355 mm	500 mm		EPOXY COATED
End block at enxtension	13SS6	#13	8	8	1.100	152 mm	500 mm		EPOXY COATED
End block	16SS7	#16	1	2	8.020	8.020			EPOXY COATED
End block	16SS8	#16	1	2	7.210	7.210			EPOXY COATED
Extension	16SS9	#16	1	4	1.000	1.000			EPOXY COATED

--PIER DIAPHRAGMS - Quantity is for 2 pier diaphragms

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Stirrups	#13PD1	#13	14	54	3.902	812mm	1.245	300mm	EPOXY COATED
Bot. Btwn. Beams	#19PD2	#19	1	12	1.425	1.425			
Bot. At Ends	#19PD3	#19	1	8	385 mm	385 mm			
Top Long	#19PD4	#19	1	6	8.564	8.564			EPOXY COATED
Sides, & Bot. Long	#19PD5	#19	1	10	8.564	8.564			
Vert. U Bars-Ends	#13PD6	#13	8	12	1.650	1.050	300mm		
Horiz. U Bars-Ends	#13PD7	#13	8	16	1.380	780mm	300mm		

--PIER CAPS - Quantity is for 2 pier caps

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Top Long	#22P1	#22	1	10	9.104	9.104			
Bottom Long	#22P1	#32	1	16	9.104	9.104			
Sides Long	#19P2	#19	1	8	9.104	9.104			
Stirrups	#13P3	#13	7	68	3.368	812mm	772mm	100mm	
Diagonals	#19P4	#19	9	68	1.790	430mm	430mm	930mm	
Top Long @ Step	#16P5	#16	8	10	3.958	3.348	305mm		
Stirrups @ Step	#13P6	#13	8	24	1.422	812mm	305mm		
Dwls. @ Ends	#19P7	#19	3	36	1.926	1.266	660mm		
Pier Ends	#19P8	#19	11	16	2.713	762mm	770mm	R=385mm	
Bottom Long	#22P9	#22	1	12	973mm	973mm			
Stirrups	#13P10	#13	10	12		812mm	772mm	100mm	

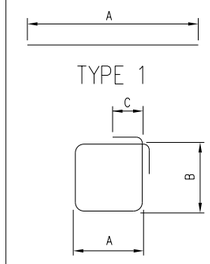
--PIER WALLS - Quantity is for 2 pier walls

	MARK	SIZE	TYPE	No. REQ'D.	LENGTH	A	B	C	REMARKS
Verts. Wall Reinf.	#16PW1	#16	1	100	2.730	2.730			
Horiz. Wall Reinf.	#19PW2	#19	1	40	9.104	9.104			
Verts. Wall Dwls.	#16PW3	#16	1	100	1.574	1.574			
End Wall Reinf.	#19PW4	#19	11	40	2.322	762mm	508mm	R=254mm	

NOTE:
SEE DWG B24 AND B25 FOR BRIDGE BARRIER RAILING REINFORCING STEEL.

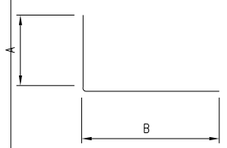
BENDING DIAGRAMS

ALL DIMENSIONS ARE OUT TO OUT

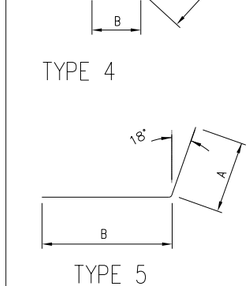


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TYPE 2

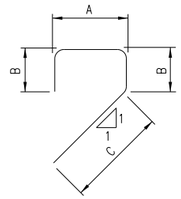


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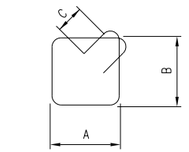


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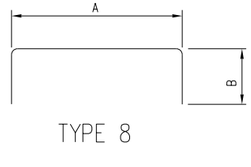
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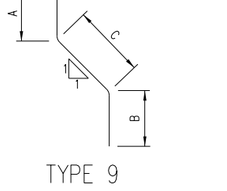
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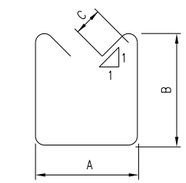
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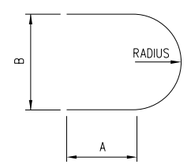
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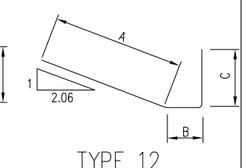
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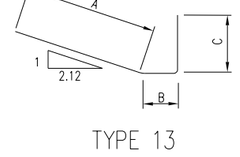
TYPE 10



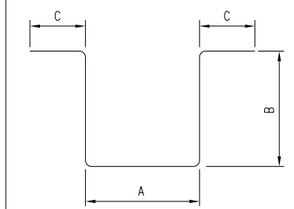
TYPE 11



TYPE 12



TYPE 13



TYPE 14

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH
REINFORCING BAR SCHEDULE

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B44	

Registered Professional Engineer, Civil
CERTIFICATE No. 46583
JONATHAN M. WOODS
Date Signed 5/04/26
ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	94	109

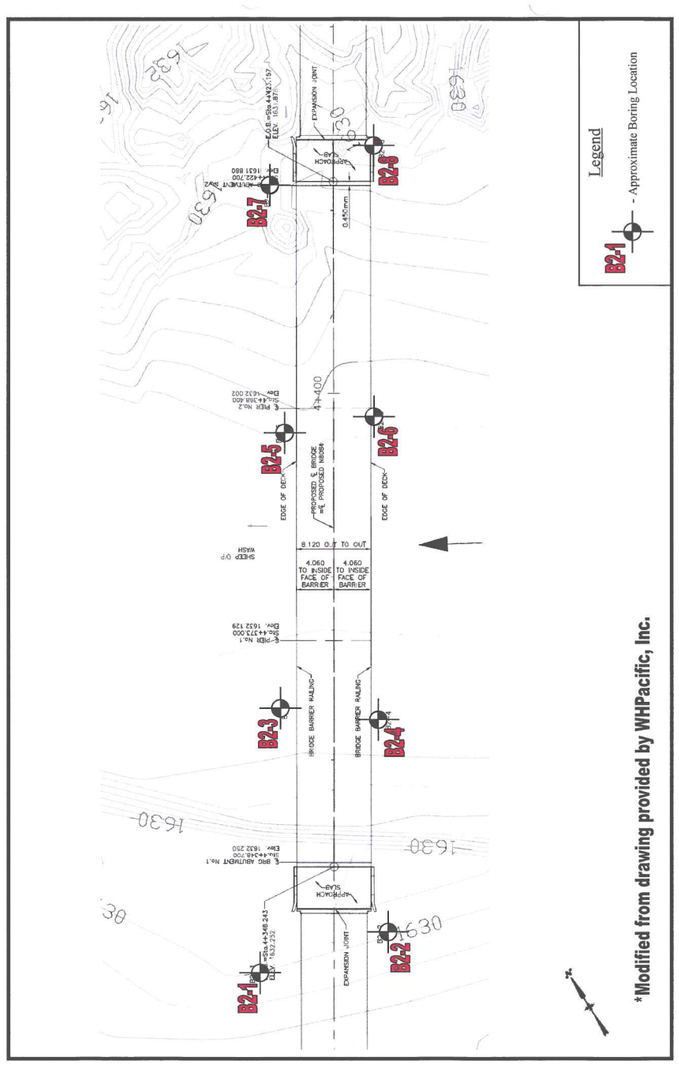


Exhibit A-2

Boring Location Plan

BIA, Indian Route 8084
Bridge 2, Sheep Dip Wash
Many Farms, Arizona

Terracon
Consulting Engineers & Scientists
#4A CR 3499
Flora Vista, New Mexico
505.334.2900 Fax: 505.334.9703

Project No:	69095030
Scale:	NTS
File No:	Boring.doc
Date:	01/19/2011
Project Mngr:	KMP
Drawn By:	HMW
Checked By:	KMP
Approved By:	KMP

GENERAL NOTES

DRILLING & SAMPLING SYMBOLS:

SS:	Split Spoon - 1-3/8" I.D., 2" O.D., unless otherwise noted	HS:	Hollow Stem Auger
ST:	Thin-Walled Tube - 2" O.D., unless otherwise noted	PA:	Power Auger
RS:	Ring Sampler - 2.42" I.D., 3" O.D., unless otherwise noted	HA:	Hand Auger
DB:	Diamond Bit Coring - 4", N, B	RB:	Rock Bit
BS:	Bulk Sample or Auger Sample	WB:	Wash Boring or Mud Rotary

The number of blows required to advance a standard 2-inch O.D. split-spoon sampler (SS) the last 12 inches of the total 18-inch penetration with a 140-pound hammer falling 30 inches is considered the "Standard Penetration" or "N-value". For 3" O.D. ring samplers (RS) the penetration value is reported as the number of blows required to advance the sampler 12 inches using a 140-pound hammer falling 30 inches, reported as "blows per foot," and is not considered equivalent to the "Standard Penetration"or "N-value".

WATER LEVEL MEASUREMENT SYMBOLS:

WL:	Water Level	WS:	While Sampling	N/E:	Not Encountered
WCI:	Wet Cave in	WD:	While Drilling		
DCI:	Dry Cave in	BCR:	Before Casing Removal		
AB:	After Boring	ACR:	After Casing Removal		

Water levels indicated on the boring logs are the levels measured in the borings at the times indicated. Groundwater levels at other times and other locations across the site could vary. In pervious soils, the indicated levels may reflect the location of groundwater. In low permeability soils, the accurate determination of groundwater levels may not be possible with only short-term observations.

DESCRIPTIVE SOIL CLASSIFICATION: Soil classification is based on the Unified Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

CONSISTENCY OF FINE-GRAINED SOILS

Unconfined Compressive Strength, Qu, psf	Standard Penetration or N-value (SS) Blows/Ft.	Consistency
< 500	0 - 1	Very Soft
500 – 1,000	2 - 4	Soft
1,000 – 2,000	4 - 8	Medium Stiff
2,000 – 4,000	8 -15	Stiff
4,000 – 8,000	15 - 30	Very Stiff
8,000+	> 30	Hard

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Standard Penetration or N-value (SS) Blows/Ft.	Ring Sampler (RS) Blows/Ft.	Relative Density
0 – 3	0-6	Very Loose
4 – 9	7-18	Loose
10 – 29	19-58	Medium Dense
30 – 49	59-98	Dense
> 50	> 99	Very Dense

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 – 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300mm)
Cobbles	12 in. to 3 in. (300mm to 75 mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm)
Silt or Clay	Passing #200 Sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 – 12
Modifiers	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1-10
Medium	11-30
High	> 30

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GENERAL NOTES
Description of Rock Properties

WEATHERING

Fresh	Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Very slight	Rock generally fresh, joints stained, some joints may show thin clay coatings, crystals in broken face show bright. Rock rings under hammer if crystalline.
Slight	Rock generally fresh, joints stained, and discoloration extends into rock up to 1 in. Joints may contain clay. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderate	Significant portions of rock show discoloration and weathering effects. In granitoid rocks, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Moderately severe	All rock except quartz discolored or stained. In granitoid rocks, all feldspars dull and discolored and majority show kaolinization. Rock shows severe loss of strength and can be excavated with geologist's pick.
Severe	All rock except quartz discolored or stained. Rock "fabric" clear and evident, but reduced in strength to strong soil. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Very severe	All rock except quartz discolored or stained. Rock "fabric" discernible, but mass effectively reduced to "soil" with only fragments of strong rock remaining.
Complete	Rock reduced to "soil". Rock "fabric" not discernible or discernible only in small, scattered locations. Quartz may be present as dikes or stringers.

HARDNESS (for engineering description of rock – not to be confused with Moh's scale for minerals)

Very hard	Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologist's pick.
Hard	Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Moderately hard	Can be scratched with knife or pick. Gouges or grooves to ¼ in. deep can be excavated by hard blow of point of a geologist's pick. Hand specimens can be detached by moderate blow.
Medium	Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1-in. maximum size by hard blows of the point of a geologist's pick.
Soft	Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very soft	Can be carved with knife. Can be excavated readily with point of pick. Pieces 1-in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

Joint, Bedding and Foliation Spacing in Rock[a]

Spacing	Joints	Bedding/Foliation
Less than 2 in.	Very close	Very thin
2 in. – 1 ft.	Close	Thin
1 ft. – 3 ft.	Moderately close	Medium
3 ft. – 10 ft.	Wide	Thick
More than 10 ft.	Very wide	Very thick

Rock Quality Designator (RQD)[b]		Joint Openness Descriptors	
RQD, as a percentage	Diagnostic description	Openness	Descriptor
Exceeding 90	Excellent	No Visible Separation	Tight
90 – 75	Good	Less than 1/32 in.	Slightly Open
75 – 50	Fair	1/32 to 1/8 in.	Moderately Open
50 – 25	Poor	1/8 to 3/8 in.	Open
Less than 25	Very poor	3/8 in. to 0.1 ft.	Moderately Wide
		Greater than 0.1 ft.	Wide

a. Spacing refers to the distance normal to the planes, of the described feature, which are parallel to each other or nearly so.
b. RQD (given as a percentage) = length of core in pieces 4 in. and longer/length of run.

References: American Society of Civil Engineers. Manuals and Reports on Engineering Practice - No. 56. Subsurface Investigation for Design and Construction of Foundations of Buildings. New York: American Society of Civil Engineers, 1976.
U.S. Department of the Interior, Bureau of Reclamation, Engineering Geology Field Manual.

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NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH
BORING LOGS PLAN & NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B45	

Registered Professional Engineer CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/04/26 ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	95	109

LOG OF BORING NO. B2-1

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+355 5 Meters Left
GPS: UTM NAD 83 Z-12 N=4021157m E=0628249m

Approx. Surface Elev.: 1630 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
1	SC		RS	0.05	25/.05	16.6			**CLAYEY SAND**; red tan to red brown, dry to moist, dense to very dense.
2									
3	SC		SS	0.3	43	15.3			3.8 1626.2
4									**SILTY SAND**; red brown, moist to wet, loose, clayey lenses.
5	SM		RS	0.3	9	15.3			5.3 1624.7
6									**CLAYSTONE**; gray tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
7			SS	0.3	49	14.8			
8			RS	0.05	25/.05	12.0			
9									
10			SS	0.2	86/.2	13.0			
11			RS	0.1	25/.1	10.5			
12			SS	0.08	50/.08	11.5			
13									
14			SS	0.08	50/.08	11.7			
15			SS	0.15	50/.15	9.0			
16									

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ 5.5	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			12-9-09
BORING COMPLETED			12-10-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-2

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+355 5 Meters Right
GPS: UTM NAD 83 Z-12 N=4021153m E=0628263m

Approx. Surface Elev.: 1630 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
1	SC		SS	0.3	24	6.1			**CLAYEY SAND**, red tan to red brown, dry to moist, medium dense to dense.
2									
3	SC		RS	0.3	19	10.1			
4									4.6 1625.5
5	CL		SS	0.3	12	15.5			**LEAN CLAY TO SANDY LEAN CLAY**; red brown, moist to wet, stiff.
6									5.9 1624.1
7			RS	0.2	48/.2	16.0			**CLAYSTONE**; gray and tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
8			SS	0.13	50/.13	15.8			
9			SS	0.25	100/.25	10.8			
10									
11			SS	0.15	50/.15	12.4			
12			SS	0.25	93/.25	14.8			
13									
14			SS	0.2	93/.2	10.3			
15			SS	0.08	50/.08	8.3			
16									

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ 5.2	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			12-9-09
BORING COMPLETED			12-9-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING2.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-3

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+385 5 Meters Left
GPS: UTM NAD 83 Z-12 N=4021180m E=0628266m

Approx. Surface Elev.: 1628.4 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
1	SP		RS	0.3	5	20.5			**POORLY GRADED SAND WITH CLAY**; red tan to red brown, dry to moist, loose, clay lenses.
2	SC								2.3 1626.1
3	CL		SS	0.3	7	24.2			**LEAN CLAY WITH SAND**; red brown, moist to wet, medium stiff, sand lenses.
4									4.4 1623.9
5			RS	0.3	40	15.2	15.9		**CLAYSTONE**; tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
6									
7			SS	0.3	39	15.7			
8			RS	0.13	25/.13	13.6			
9									
10			SS	0.28	82/.28	15.1			
11			SS	0.08	50/.08	7.8			
12									Thin sandstone lenses.
13			SS	0.05	50/.05	6.9			
14			SS	0.1	50/.1	7.3			
15									
16			SS	0.1	50/.1	7.4			

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ NE	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			11-3-09
BORING COMPLETED			11-4-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING3.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-1

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17			SS	0.05	50/.05	9.5			**CLAYSTONE**; gray tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
18			SS	0.13	50/.13	9.1			
19									
20			SS	0.05	50/.05	9.5			
21									
22			SS	0.13	50/.13	7.1			
23			SS	0.08	50/.08	8.1			
24									
25			SS	0.1	50/.1	6.9			
26			SS	0.13	50/.13	7.2			
27									
28			SS	0.1	50/.01	8.2			
29			SS	0.1	50/.1	9.3			
30									30.6 1599.4
			SS	0.05	50/.05	9.8			Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. Groundwater encountered at a depth of about 5.49 meters.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ 5.5	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			12-9-09
BORING COMPLETED			12-10-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-2

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17			SS	0.13	50/.13	7.4			**CLAYSTONE**; gray and tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
18			SS	0.05	50/.05	8.8			
19									
20			SS	0.08	50/.08	8.2			
21			SS	0.08	50/.08	8.9			
22									
23			SS	0.13	50/.13	10.9			
24			SS	0.1	50/.1	9.9			
25									25.9 1604.1
26			SS	0.13	50/.13	10.8			**INTERBEDDED CLAYSTONE AND SHALE**; gray and maroon, moist, fresh, very soft to medium hardness.
27									
28			SS	0.1	50/.1	11.3			
29			SS	0.05	50/.05	9.8			
30									30.6 1599.4
			SS	0.13	50/.13	8.4			Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. Groundwater encountered at a depth of about 5.18 meters.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ 5.2	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			12-9-09
BORING COMPLETED			12-9-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING2.GPJ TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-3

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17			SS	0.05	50/.05	8.9			**CLAYSTONE**; tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
18			SS	0.1	50/.1	7.2			
19									
20			SS	0.1	50/.1	12.8			
21			SS	0.13	50/.13	7.9			
22									
23			SS	0.13	50/.13	8.4			
24			SS	0.15	50/.15	10.2			
25									25.9 1602.4
26			SS	0.13	50/.13	9.3			**INTERBEDDED CLAYSTONE AND SHALE**; gray and maroon, moist, fresh, very soft to medium hardness.
27									
28			SS	0.1	50/.1	8.0			
29			SS	0.1	50/.1	8.6			
30									30.6 1597.7
			SS	0.15	50/.15	10.4			Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	▽ NE	WD	▽
WL	▽		▽
WL			

Terracon

BORING STARTED			11-3-09
BORING COMPLETED			11-4-09
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 99 LOG OF BORING3.GPJ TERRACON.GDT 6/7/11

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NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH BORING LOGS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B46	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	96	109

LOG OF BORING NO. B2-4

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+385 5 Meters Right
GPS: UTM NAD 83 Z-12 N=4021173m E=0628275m

Approx. Surface Elev.: 1628.4 m

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
POORLY GRADED SAND WITH CLAY; red tan to red brown, dry to wet, loose, clay lenses.	1	SP		SS	0.3	5	14.4		
	2	SC							
3.8 1624.6	3	SP		RS	0.3	4	15.6		
CLAYSTONE; green tan, dry to wet, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.	4	SC							
	5			SS	0.3	54	13.6		
	6			RS	0.13	25/.13	12.6	18.1	
	7								
	8			SS	0.15	50/.15	11.5		
	9			SS	0.28	83/.28	14.6		
	10								
	11			SS	0.3	77	14.4		
	12			SS	0.13	50/.13	12.5		
Gray.	13								
	14			SS	0.1	50/.1	11.5		
	15								
	16			SS	0.13	50/.13	6.8		

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-4-09		
BORING COMPLETED	11-4-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

LOG OF BORING NO. B2-5

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+415 5 Meters Left
GPS: UTM NAD 83 Z-12 N=4021205m E=0628283m

Approx. Surface Elev.: 1628.3 m

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
POORLY GRADED SAND; red tan, dry to moist, loose, trace gravel.	1	SP		SS	0.3	7	3.3		
2.3 1626	2								
CLAYEY SAND; red tan to brown, moist, loose to medium dense/stiff to very stiff, clay lenses.	3	SC		SS	0.3	8	18.1		
	4								
	5	SC		SS	0.3	20	17.5		
5.3 1623	6								
CLAYSTONE; gray, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, sandy and shale lenses.	7			SS	0.3	25	17.6		
	8			RS	0.23	47/.23	13.7		
	9								
	10			SS	0.2	84/.2	13.8		
	11			SS	0.25	87/.25	13.1		
	12			SS	0.13	50/.13	13.7		
	13								
	14			SS	0.08	50/.08	12.0		
	15								
	16			SS	0.05	50/.05	8.2		

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	10-21-09		
BORING COMPLETED	10-21-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

LOG OF BORING NO. B2-6

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+415 5 Meters Right
GPS: UTM NAD 83 Z-12 N=4021201m E=0628292m

Approx. Surface Elev.: 1628.3 m

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
POORLY GRADED SAND; red brown, dry to moist, loose.	1	SP		SS	0.3	7	4.5		
2.3 1626	2								
CLAYEY SAND; red brown, moist to wet, very loose.	3	SC		RS	0.3	3	18.1		
4.1 1624.2	4								
CLAYSTONE; gray and tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.	5			RS	0.3	14	17.8		
	6			RS	0.15	25/.15	14.0	17.6	
	7								
	8			SS	0.13	50/.13	10.0		
	9			SS	0.13	50/.13	10.6		
	10								
	11			SS	0.28	88/.28	10.4		
	12			SS	0.25	95/.25	13.5		
	13								
	14			SS	0.13	50/.13	12.3		
	15								
	16			SS	0.1	50/.10	9.9		

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	10-21-09		
BORING COMPLETED	11-5-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

LOG OF BORING NO. B2-4

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
CLAYSTONE; green tan, dry to wet, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.	17			SS	0.15	50/.15	9.1		
	18			SS	0.13	50/.13	10.3		
	19								
	20			SS	0.15	50/.15	8.0		
	21								
	22			SS	0.13	50/.13	10.9		
	23			SS	0.1	50/.10	10.2		
	24								
	25			SS	0.13	50/.13	8.0		
	26								
	27			SS	0.08	50/.08	8.6		
	28								
	29			SS	0.1	50/.1	10.2		
29 1599.4	30								
INTERBEDDED CLAYSTONE AND SHALE; gray and maroon, moist, fresh, very soft to medium hardness.				SS	0.05	50/.05	7.6		
30.8 1597.6									
Exploration terminated at a depth of approximately 30.8 meters below existing ground surface. No groundwater encountered.				SS	0.05	50/.05	16.3		

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-4-09		
BORING COMPLETED	11-4-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

LOG OF BORING NO. B2-5

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
CLAYSTONE; gray, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, sandy and shale lenses.	17			SS	0.05	50/.05	8.6		
	18			SS	0.13	50/.13	8.6		
	19								
	20			SS	0.13	50/.13	7.9		
	21								
	22			SS	0.15	50/.15	9.2		
	23			SS	0.1	50/.10	11.0		
	24								
	25			SS	0.05	50/.05	8.6		
	26								
	27			SS	0.1	50/.1	9.5		
	28								
	29			SS	0.05	50/.05	7.7		
	30								
30.6 1597.7				SS	0.08	50/.08	11.6		
Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.				SS	0.15	50/.15	16.9		

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	10-21-09		
BORING COMPLETED	10-21-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

LOG OF BORING NO. B2-6

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DESCRIPTION	DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m³	TESTS: UNCONFINED STRENGTH, kPa
CLAYSTONE; gray and tan, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.	17			SS	0.08	50/.08	14.3		
	18			SS	0.13	50/.13	10.7		
Thin sandstone lenses.	19								
	20								
	21			SS	0.13	50/.13	12.1		
	22								
	23			SS	0.03	50/.03	18.6		
	24								
	25			SS	0.1	50/.1	13.7		
25.9 1602.4	26			SS	0.03	50/.03	12.7		
INTERBEDDED CLAYSTONE AND SHALE; maroon, moist, fresh, very soft to medium hardness.	27			SS	0.08	50/.08	14.5		
	28								
	29			SS	0.13	50/.13	12.4		
30.6 1597.7	30								
Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.				SS	0.13	50/.13	14.1		

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	10-21-09		
BORING COMPLETED	11-5-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH BORING LOGS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B47	

Registered Professional Engineer (Civil) CERTIFICATE NO. 46583 JONATHAN M. WOODS Date Signed 5/4/26 ARIZONA, U.S.A.

J:_2017_1017064.19_NDOT_Many_Farms\CAD\N8084-SDB-BL03.dgn

BOREHOLE 99 LOG OF BORING1.GPJ TERRACON.GDT 6/7/11

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	97	109

LOG OF BORING NO. B2-7

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+430 5 Meters Left
GPS: UTM NAD 83 Z-12 N=4021229m E=0628296m

Approx. Surface Elev.: 1629.9 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
0									**POORLY GRADED SAND WITH CLAY**; red tan to red brown, dry to moist, medium dense, trace gravel, clay lenses.
1	SP		RS	0.3	12	2.5			
2	SC								
3	SP		SS	0.3	14	2.6			
4	SC								
5	SP		RS	0.3	26	2.4			
5.3	SC								1624.6
6	SC		SS	0.3	10	19.8			**CLAYEY SAND**; red brown, dry to wet, medium dense/stiff, trace gravel to with gravel, clay lenses.
7									
8	SC		RS	0.3	12	8.4	20.3		
8.5									1621.4
9			SS	0.3	66	13.2			**CLAYSTONE**; light gray, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
10									
11			SS	0.13	50/.13	13.4			
12			SS	0.25	85/.25	12.4			
13									
14			SS	0.13	50/.13	6.5			Switched from HSA to air rotary drilling.
15			SS	0.28	95/.28	17.7			
16									

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-9-09		
BORING COMPLETED	11-10-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 89 - LOG OF BORING1.GPJ - TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-8

Page 1 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

Boring Location: Station 4+430 5 Meters Right
GPS: UTM NAD 83 Z-12 N=4021226m E=0628308m

Approx. Surface Elev.: 1629.9 m

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
0									**POORLY GRADED SAND**; red tan, dry to moist, loose to medium dense, clay lenses.
1	SP		SS	0.3	7	1.6			
2									
3	SP		RS	0.3	19	1.0			
4									
4.7									1625.2
5	SC		SS	0.3	9	11.5			**CLAYEY SAND**; tan to brown to red brown, dry to moist, loose to medium dense.
6	SC		RS	0.3	12	12.1	18.9		
7.6									1622.3
8			SS	0.03	50/.3	4.2			**INTERBEDDED SANDSTONE AND SHALE**; light gray to gray, dry to moist, complete weathering to fresh, very soft to moderately hard.
8.8									1621.1
9			SS	0.28	90/.28	13.1			**INTERBEDDED CLAYSTONE AND SHALE**; light gray and maroon, dry to moist, fresh, very soft to moderately hard.
10									
11			SS	0.1	50/.1	7.3			
12			SS	0.23	96/.23	14.8			
13									
14			SS	0.3	67	13.4			
15			SS	0.3	69	18.8			
16									

Continued Next Page

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-5-09		
BORING COMPLETED	11-6-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 89 - LOG OF BORING2.GPJ - TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-7

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT kN/m	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17									**CLAYSTONE**; light gray, dry to moist, complete weathering near top of unit decreasing to fresh, very soft to medium hardness, shale lenses.
18			SS	0.08	50/.08	8.5			
19									
20									Sandstone lenses.
21									
21.3									1608.6
22			SS	0.08	50/.08	13.0			**INTERBEDDED CLAYSTONE AND SHALE**; maroon, moist, fresh, very soft to medium hardness.
23									
24									
25			SS	0.15	50/.15	15.2			
26									
27									
28			SS	0.13	50/.13	14.6			
29									
30									
30.6			SS	0.08	50/.08	13.7			1599.3

Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-9-09		
BORING COMPLETED	11-10-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 89 - LOG OF BORING1.GPJ - TERRACON.GDT 6/7/11

LOG OF BORING NO. B2-8

Page 2 of 2

CLIENT: Bureau of Indian Affairs

SITE: N8084 at Sheep Dip Wash, Many Farms, Arizona

PROJECT: N8084 - Bridge 2; Sheep Dip Wash

DEPTH, m.	USCS SYMBOL	SAMPLES: CORE SIZE	SAMPLES: TYPE	SAMPLES: RECOVERY, m	SAMPLES: SPT-N BLOWS \ 0.3 m	TESTS: WATER CONTENT, %	TESTS: DRY UNIT WT	TESTS: UNCONFINED STRENGTH, kPa	DESCRIPTION
17			SS	0.15	50/.15	12.6			**INTERBEDDED CLAYSTONE AND SHALE**; light gray and maroon, dry to moist, fresh, very soft to moderately hard.
18			SS	0.3	80	15.2			
19									
20			SS	0.13	50/.13	13.2			
21									
22			SS	0.15	50/.15	13.0			
23			SS	0.15	50/.15	13.0			
24									
25			SS	0.08	50/.08	11.5			
26			SS	0.05	50/.05	7.2			
27									
28			SS	0.13	50/.13	7.2			
29			SS	0.13	50/.13	11.9			
30									
30.6			SS	0.13	50/.13	12.9			1599.3

Exploration terminated at a depth of approximately 30.6 meters below existing ground surface. No groundwater encountered.

The stratification lines represent the approximate boundary lines between soil and rock types: in-situ, the transition may be gradual.

*All blow counts have been converted to N-value blow counts.
**Boring elevations provided by WHPacific, Inc.

WATER LEVEL OBSERVATIONS, m			
WL	NE	WD	
WL			
WL			

Terracon

BORING STARTED	11-5-09		
BORING COMPLETED	11-6-09		
RIG	CME-75	FOREMAN	HMW
APPROVED	KMP	JOB #	69095030

BOREHOLE 89 - LOG OF BORING2.GPJ - TERRACON.GDT 6/7/11

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NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

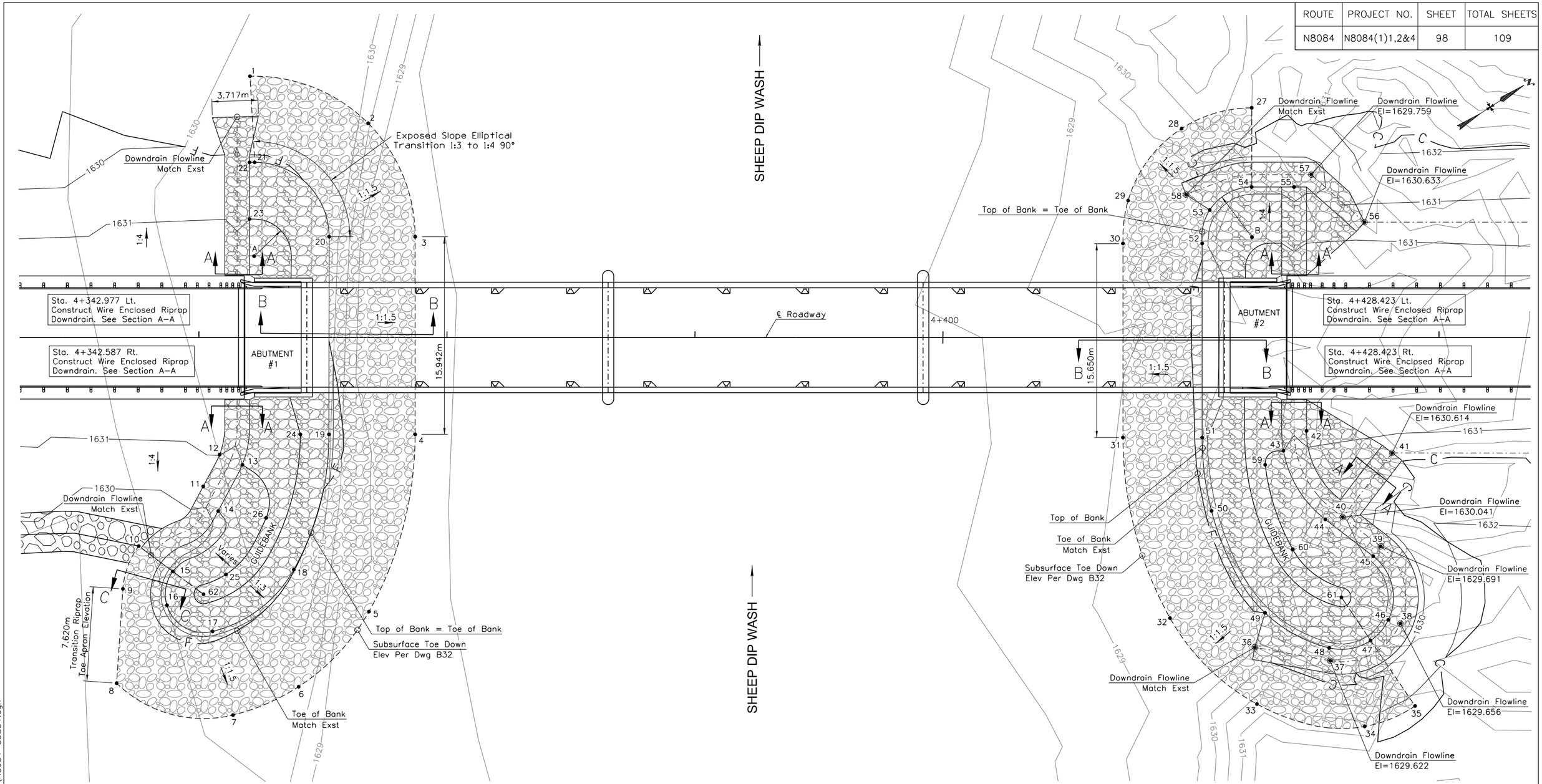
N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH BORING LOGS

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B48	

Registered Professional Engineer (Civil) — CERTIFICATE NO. 46583 — JONATHAN M. WOODS — Date Signed 5/4/26 — ARIZONA, U.S.A.

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	98	109



LEGEND

- EXPOSED WIRE ENCLOSED RIPRAP
- BURIED WIRE ENCLOSED RIPRAP
- DRAINAGE FLOW ARROW

WIRE ENCLOSED RIPRAP RADIUS POINTS			
POINT	STATION	OFFSET	RADIUS
Ⓐ	4+344.453	6.552 Lt.	3.000
Ⓑ	4+426.381	5.606 Lt.	3.000

CHANNEL GRADING PLAN

SCALE = 1:150

NOTES

1. See Dwg D5-D6 For Wire Enclosed Riprap Details and Notes.
2. See Dwg B50 For Riprap Layout Points, Details, and Sections A-A, B-B, and C-C.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

SHEEP DIP WASH CHANNEL GRADING PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B49	

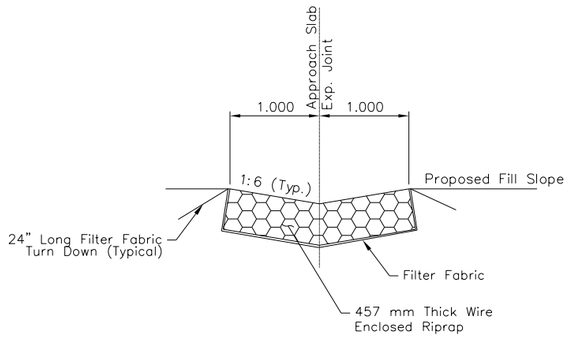
Registered Professional Engineer CERTIFICATE NO. 37878 JOSHUA E. PAPWORTH Date Signed 5/5/26 ARIZONA, U.S.A.

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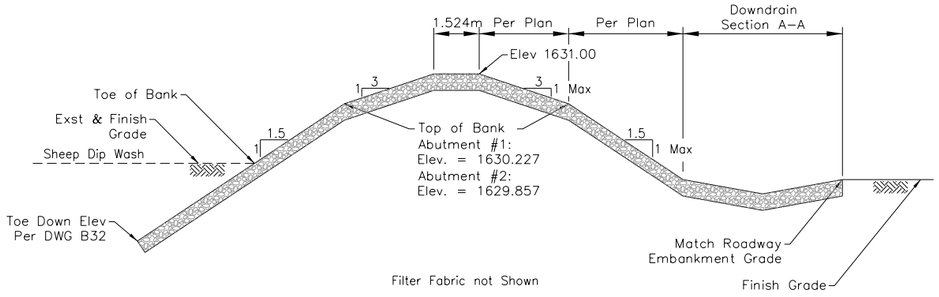
ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	99	109

RIPRAP POINT TABLE		
POINT	NORTHING	EASTING
1	591160.730	266908.772
2	591166.668	266917.138
3	591164.872	266926.878
4	591156.201	266940.256
5	591145.301	266950.221
6	591137.252	266952.220
7	591131.563	266951.252
8	591125.087	266943.995
9	591129.649	266937.892
10	591132.596	266935.687
11	591139.578	266934.475
12	591142.079	266933.045
13	591143.171	266934.723
14	591139.510	266936.799
15	591133.791	266938.901
16	591131.909	266940.915
17	591133.849	266944.699
18	591142.063	266944.082
19	591150.365	266936.473
20	591159.042	266923.112
21	591157.276	266914.805
22	591156.926	266914.578
23	591154.438	266918.417
24	591148.431	266935.220
25	591137.247	266941.431
26	591142.454	266939.362
62	591134.864	266941.789

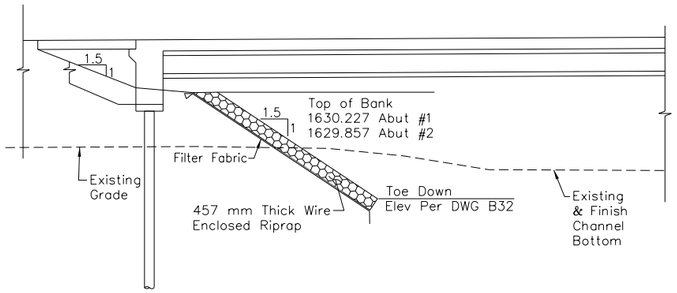
RIPRAP POINT TABLE		
POINT	NORTHING	EASTING
27	591227.135	266954.845
28	591221.487	266953.174
29	591214.701	266955.698
30	591212.471	266958.375
31	591203.959	266971.507
32	591199.226	266985.792
33	591201.333	266995.419
34	591207.646	267001.666
35	591211.949	267002.488
36	591203.682	266991.483
37	591208.187	266995.701
38	591214.577	266996.257
39	591216.628	266990.179
40	591215.337	266986.535
41	591221.503	266984.350
42	591216.669	266979.113
43	591214.242	266979.445
44	591214.060	266985.927
45	591215.688	266990.519
46	591213.923	266995.489
47	591211.820	266996.103
48	591208.693	266994.792
49	591205.888	266989.606
50	591206.738	266980.355
51	591209.318	266974.981
52	591217.829	266961.849
53	591219.822	266959.915
54	591223.662	266960.204
55	591226.530	266962.062
56	591229.756	266967.533
57	591228.232	266961.974
58	591218.875	266957.841
59	591212.388	266979.592
60	591210.541	266986.526
61	591211.735	266991.912



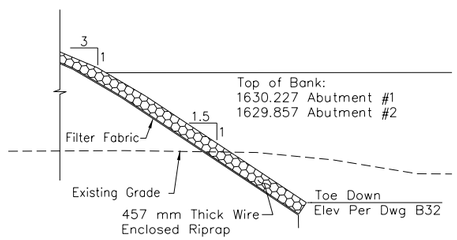
SECTION A-A
NTS



SECTION THROUGH GUIDEBANK
NTS



SECTION B-B
NTS



SECTION C-C
NTS

ITEM 25303-1000: WIRE ENCLOSED RIPRAP

STRUCTURE	ABUTMENT	THICKNESS t [mm]	VOLUME [m^3]
SHEEP DIP	1	457	1257.21
SHEEP DIP	2	457	1244.14
		TOTAL	2501.35

NOTES

1. SEE DWG D5–D6 FOR WIRE ENCLOSED RIPRAP DETAILS AND NOTES.
2. SEE DWG B49 FOR CHANNEL GRADING PLAN AND SECTION A–A, B–B, AND C–C LOCATIONS.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

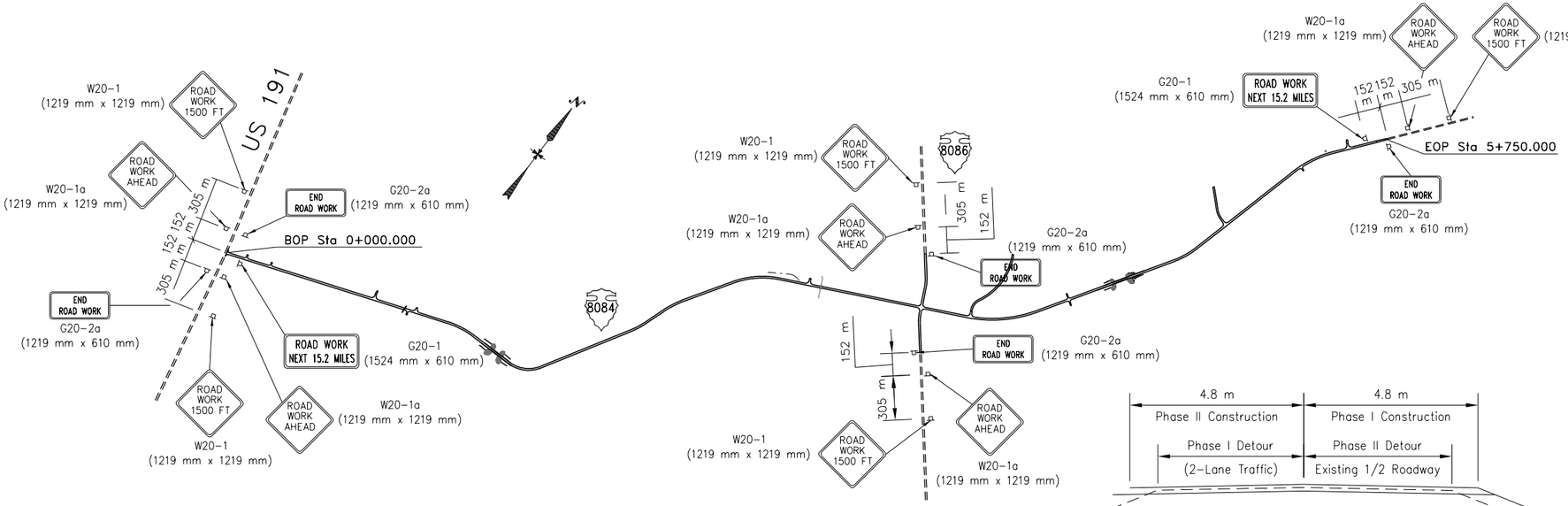
SHEEP DIP WASH
RIPRAP POINTS AND DETAILS

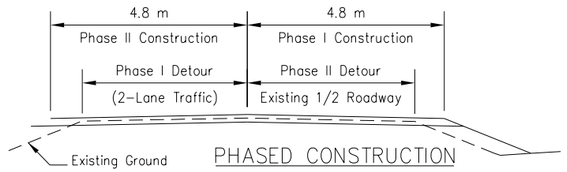
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: B50	

Registered Professional Engineer (Civil) CERTIFICATE NO. 37878 JOSHUA E. PAPWORTH Date Signed 5/5/26 ARIZONA, U.S.A.

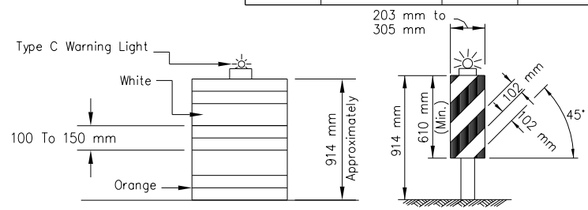
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	100	109



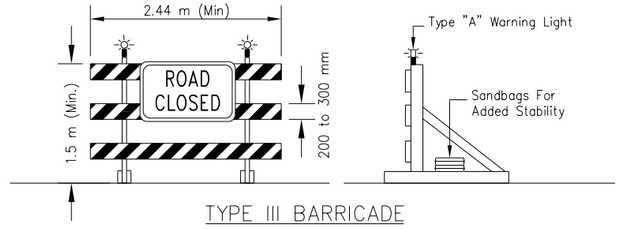


PHASED CONSTRUCTION



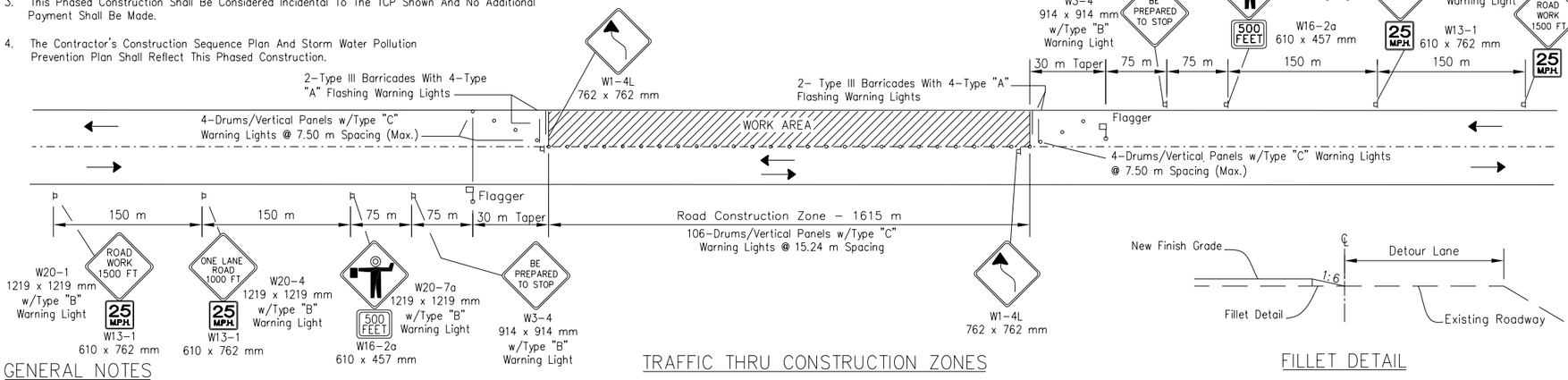
DRUM

VERTICAL PANEL (Alternate)



TYPE III BARRICADE

1. The Contractor May Construct Half The New Roadway (Under The Phase Construction Plan Shown) While Detouring Two-Way Traffic On The Other (Existing) Half. Once The First Half of The Roadway Is Built Up To The New Grades, Then Traffic Shall Be Directed To The New Half of Roadway While The Other (Existing) Half is Constructed.
2. All (New) Drainage Pipe Installations Shall Be In Accordance With The Phased Construction Plan Above, As Well As Removal Of Existing Pipes. All the Pipe Installation And Removal Shall Be Considered Incidental To Pipe Items Shown And No Additional Payment Will Be Made.
3. This Phased Construction Shall Be Considered Incidental To The TCP Shown And No Additional Payment Shall Be Made.
4. The Contractor's Construction Sequence Plan And Storm Water Pollution Prevention Plan Shall Reflect This Phased Construction.



TRAFFIC THRU CONSTRUCTION ZONES

FILLET DETAIL

TEMPORARY TRAFFIC CONTROL DEVICES

DESIGNATION	DETAIL	MINIMUM SIZE (mm)	DESIGNATION	DETAIL	MINIMUM SIZE (mm)
W20-1	ROAD WORK 1500 FT	1219 x 1219	W1-4R W1-4L		762 x 762 762 x 762
W20-1a	ROAD WORK AHEAD	1219 x 1219	W16-2a	500 FEET	610 x 457
W20-4	ONE LANE ROAD 1000 FT	1219 x 1219	G20-2a	END ROAD WORK	1219 x 610
W20-7a		1219 x 1219	Type III Barricade		As Shown
W13-1	25 M.P.H.	610 x 762	R11-2	ROAD CLOSED	1219 x 762
Drums or Vertical Panels		As Shown	G20-1	ROAD WORK NEXT 5.5 MILES	1524 x 610
Type A Warning Lights		N/A			
Type C Warning Lights		N/A	W3-4	BE PREPARED TO STOP	914 x 914

GENERAL NOTES

1. All Traffic Control Devices Shall Be in Accordance With the MUTCD (Latest Edition and Amendments) and the Supplemental Specifications for This Project.
2. The Traffic Control Details Shown Are Only a Guide. The Contractor Is Solely Responsible For Preparing and Implementing a Traffic Control Plan (TCP) in Accordance With These Details, Section 635 of FP-14, and the MUTCD Under Contract Item 63501-0000. Any Additional Traffic Control Devices Called For on the Contractor's TCP Will Not Be Measured For Payment But Shall Be Considered Incidental to the Bid Items For Traffic Control Shown in the Bid Schedule. See the Supplemental Specifications For Additional Requirements. A Maximum Traffic Speed of 25 mph is Allowed Through Construction Zone.
3. Signs W20-1a, G20-1 and G20-2a Shall Be Placed at the Project Limits and Remain in Place Through the Duration of the Project.
4. Flaggers Shall Be Stationed Left & Right As Shown When Equipment Is Crossing or Working Within the Existing Roadway Prism.
5. In Areas of Existing Roadway Widening And/Or Crossed By The General Public, the Contractor Shall Ensure That No Roadway Drop-Offs Are Left Exposed During Non-Working Hours. The Contractor Shall Initiate Corrective Means to Achieve a 1:6 Or Flatter Slope As Shown in the Fillet Detail.
6. At the End of Each Working Day, It Will Be the Contractor's Responsibility to Provide a Driving Surface Free of Obstructions. Access to All Adjoining Properties and BIA/County System Routes Shall Be Maintained at All Times (Day and Night).
7. All Traffic Control Devices (Except at Detour Road Locations and as Noted in Above Note #3) Such as Construction Signs, Drums, Barricades, etc., Shall Be Removed to a Location at Least Nine (9) Meters From the Edge of the Shoulder When Construction Is Not in Progress.
8. During Construction Operations, Traffic Shall Be Moved Through the Work Zone Using Pilot Cars (As Required). Applicable Signs and Other Items (Two-Way Radio Contact) Related to the Pilot Cars and Traffic Control Shall Be Considered Incidental Obligations of the Contractor.
9. The Contractor Has the Option to Either Use Drums or Vertical Panels, But Shall Not Use a Combination of Both. No Traffic Cones Are Allowed.
10. The Contractor Has the Option to Utilize Detour Roads in Accordance With the MUTCD in Conjunction With or in Lieu of Using the "Traffic Thru Construction Zones" Details Shown on this Plan and in Accordance With Section 107 and 204. The Cost of Any Detour Roads (Including All Detour Related Earthwork and Maintenance) Shall Be Considered Incidental to the Temporary Traffic Control Bid Items. The Contractor Is Responsible For All Necessary Permits and Clearances For Any Detour Roads.
11. It is the Responsibility of the Contractor to Maintain the Existing Roadway And/Or Detour in a Drivable Condition During Construction. This Work is Considered Incidental to Item 63501-0000.
12. At Locations Where New Road Construction Intersects Existing Roadways And At Tie-Ins With Existing Roads at The End of of The New Construction, Special Traffic Control Procedures Shall be Included as Needed in The Contractor's TCP. These Include But Are Not Necessarily Limited to The following: Type III Barricades With "Road Closed"/Detour Signs; Flaggers; Drums, Etc.
13. The Traffic Control on This Project Shall Be Coordinated With The Project Construction Schedule. The Contractor's TCP Shall Reflect This Coordination.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

TEMPORARY TRAFFIC CONTROL PLAN

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T1	

Registered Professional Engineer CERTIFICATE NO. 25015 ANDREW JOHN SPEAR State of Arizona

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	101	109

63401-0700 PAVEMENT MARKINGS TYPE D: SOLID YELLOW - 102 mm EQUIVALENT

STATION TO STATION			LOCATION	DESCRIPTION	LENGTH (m)	QUANTITY (m)
N8084						
0+012.00	To	0+180.00	C. Lt. & Rt.	No Passing Lt. & Rt.	168.00	336.00
0+180.00	To	0+315.00	C. Lt.	No Passing Lt.	135.00	135.00
0+900.00	To	1+100.00	C. Rt.	No Passing Rt.	200.00	200.00
1+100.00	To	2+760.00	C. Lt. & Rt.	No Passing Lt. & Rt.	1,660.00	3,320.00
2+760.00	To	2+870.00	C. Lt.	No Passing Lt.	110.00	110.00
3+120.00	To	3+270.00	C. Rt.	No Passing Rt.	150.00	150.00
3+270.00	To	3+417.00	C. Lt. & Rt.	No Passing Lt. & Rt.	147.00	294.00
3+441.00	To	3+880.00	C. Lt. & Rt.	No Passing Lt. & Rt.	439.00	878.00
3+880.00	To	4+020.00	C. Lt.	No Passing Lt.	140.00	140.00
4+200.00	To	4+300.00	C. Rt.	No Passing Rt.	100.00	100.00
4+300.00	To	4+710.00	C. Lt. & Rt.	No Passing Lt. & Rt.	410.00	820.00
4+710.00	To	4+850.00	C. Lt.	No Passing Lt.	140.00	140.00
5+280.00	To	5+420.00	C. Rt.	No Passing Rt.	140.00	140.00
5+420.00	To	5+750.00	C. Lt. & Rt.	No Passing Lt. & Rt.	330.00	660.00
N8086						
7+750.00	To	7+988.00	C. Lt. & Rt.	No Passing Lt. & Rt.	238.00	476.00
8+012.00	To	8+210.00	C. Lt. & Rt.	No Passing Lt. & Rt.	198.00	396.00
				TOTAL:	**4,705.00**	**8,295.00**

63401-0800 PAVEMENT MARKINGS TYPE D: BROKEN YELLOW - 102 mm EQUIVALEN

STATION TO STATION			LOCATION	DESCRIPTION	LENGTH (m)	QUANTITY (m)
N8084						
0+180.00	To	0+315.00	C. Rt.	Passing Allowed Rt.	135.00	135.00
0+315.00	To	0+900.00	C. Lt. & Rt.	Passing Allowed Lt. & Rt.	585.00	585.00
0+900.00	To	1+100.00	C. Lt.	Passing Allowed Lt.	200.00	200.00
2+760.00	To	2+870.00	C. Rt.	Passing Allowed Rt.	110.00	110.00
2+870.00	To	3+120.00	C. Lt. & Rt.	Passing Allowed Lt. & Rt.	250.00	250.00
3+120.00	To	3+270.00	C. Lt.	Passing Allowed Lt.	150.00	150.00
3+880.00	To	4+020.00	C. Rt.	Passing Allowed Rt.	140.00	140.00
4+020.00	To	4+200.00	C. Lt. & Rt.	Passing Allowed Lt. & Rt.	180.00	180.00
4+200.00	To	4+300.00	C. Lt.	Passing Allowed Lt.	100.00	100.00
4+710.00	To	4+850.00	C. Rt.	Passing Allowed Rt.	140.00	140.00
4+850.00	To	5+280.00	C. Lt. & Rt.	Passing Allowed Lt. & Rt.	430.00	430.00
5+280.00	To	5+420.00	C. Lt.	Passing Allowed Lt.	140.00	140.00
				TOTAL:	**2,560.00**	**2,560.00**

63401-0700 PAVEMENT MARKINGS TYPE D: SOLID WHITE - 102 mm EQUIVALENT

STATION TO STATION			LOCATION	DESCRIPTION	LENGTH(m)	QUANTITY (m)
N8084						
0+012.00	To	0+703.00	Left Edge Line	Solid White, 102mm	691.00	691.00
0+737.00	To	0+903.00	Left Edge Line	Solid White, 102mm	166.00	166.00
0+937.00	To	2+883.00	Left Edge Line	Solid White, 102mm	1,946.00	1,946.00
2+917.00	To	3+643.00	Left Edge Line	Solid White, 102mm	726.00	726.00
3+677.00	To	5+600.00	Left Edge Line	Solid White, 102mm	1,923.00	1,923.00
5+634.00	To	5+750.00	Left Edge Line	Solid White, 102mm	116.00	116.00
0+012.00	To	0+866.00	Right Edge Line	Solid White, 102mm	854.00	854.00
0+900.00	To	5+750.00	Right Edge Line	Solid White, 102mm	4,850.00	4,850.00
N8086						
7+750.00	To	7+988.00	Left Edge Line	Solid White, 102mm	238.00	238.00
8+012.00	To	8+210.00	Left Edge Line	Solid White, 102mm	198.00	198.00
				Solid White, 102mm		
7+750.00	To	7+988.00	Right Edge Line	Solid White, 102mm	238.00	238.00
8+012.00	To	8+210.00	Right Edge Line	Solid White, 102mm	198.00	198.00
				TOTAL:	**12,144.00**	**12,144.00**

63401-1500 PAVEMENT MARKINGS TYPE H: SOLID WHITE - 102 mm EQUIVALENT

STOP BARS						
STATION		**LOCATION**	**TYPE**	**DESCRIPTION**	**LENGTH(m)**	**QUANTITY (m)**
N8084						
0+013.00		Lt.	White Stop Bar	Solid White, 300mm	3.30	9.90
0+720.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.50	10.50
0+920.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.50	10.50
2+900.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.70	11.10
3+660.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.50	10.50
4+940.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.50	10.50
5+617.00		Turnout Lt.	White Stop Bar	Solid White, 300mm	3.50	10.50
N8086						
7+987.00		Rt.	White Stop Bar	Solid White, 300mm	3.30	9.90
8+013.00		Lt.	White Stop Bar	Solid White, 300mm	3.30	9.90
				TOTAL:	**31.10**	**93.30**

ITEMS 63308-2000: OBJECT MARKERS, TYPE 2

OBJECT MARKER, TYPE 2			
CULVERT STATION	**DESCRIPTION**	**LOCATION**	**EACH**
0+133.0	Pipe Loc.	Inlet & Outlet	2
0+447.0	Pipe Loc.	Inlet & Outlet	2
0+504.0	Pipe Loc.	Inlet & Outlet	2
0+683.0	Pipe Loc.	Inlet & Outlet	2
1+030.0	Pipe Loc.	Inlet & Outlet	2
1+595.0	Pipe Loc.	Inlet & Outlet	2
1+840.8	Pipe Loc.	Inlet & Outlet	2
2+506.3	Pipe Loc.	Inlet & Outlet	2
2+541.0	Pipe Loc.	Inlet & Outlet	2
2+571.0	Pipe Loc.	Inlet & Outlet	2
2+592.0	pipe Loc.	Inlet & Outlet	2
2+612.0	Pipe Loc.	Inlet & Outlet	2
2+632.0	Pipe Loc.	Inlet & Outlet	2
2+653.0	Pipe Loc.	Inlet & Outlet	2
2+683.0	Pipe Loc.	Inlet & Outlet	2
2+861.3	Pipe Loc.	Inlet & Outlet	2
3+165.0	Pipe Loc.	Inlet & Outlet	2
4+130.0	Pipe Loc.	Inlet & Outlet	2
4+178.0	Pipe Loc.	Inlet & Outlet	2
4+505.3	Pipe Loc.	Inlet & Outlet	2
4+772.0	Pipe Loc.	Inlet & Outlet	2
4+960.0	Pipe Loc.	Inlet & Outlet	2
4+980.0	Pipe Loc.	Inlet & Outlet	2
5+000.0	Pipe Loc.	Inlet & Outlet	2
5+020.0	Pipe Loc.	Inlet & Outlet	2
5+125.8	Pipe Loc.	Inlet & Outlet	2
5+512.4	Pipe Loc.	Inlet & Outlet	2
		TOTAL	**54**

ITEMS 63308-3000: OBJECT MARKER, TYPE 3

STATION	DESCRIPTION	LOCATION	EACH
1+306.0988	Bridge Loc.	Rt. & Lt.	2
1+374.4012	Bridge Loc.	Rt. & Lt.	2
4+343.1988	Bridge Loc.	Rt. & Lt.	2
4+428.2012	Bridge Loc.	Rt. & Lt.	2
		TOTAL	**8**

ITEM 63318-1020: MILE POST, 51 mm x 51 mm Square Steel Tube

STATION	LOC.	DESCRIPTION		QUANTITY (Ea.)
		MILES	KILOMETERS	
1+609	Lt. & Rt.	MILE 1	KM 1.61	2
3+215	Lt. & Rt.	MILE 2	KM 3.22	2
4+824	Lt. & Rt.	MILE 3	KM 4.83	2
			TOTAL	**6**

Note: Stations are Calculated in Miles & Converted to Kilometers.

Note: Station Equation at 2+853.318Bk = 2+850.000Ahd

SEE DWG T6 FOR DETAILS

N8084

ITEM 63309-0100: DELINEATOR

STATION		SIDE	TYPE 1A	TYPE1B
ROUTE N8084				
POB	0+004.273			
	0+141.516		2	
	0+278.759		2	
	0+416.002		2	
	0+553.245		2	
	0+690.488		2	
C1	0+827.731	LT		1
B1	0+917.731	LT		1
A1	1+007.731	LT		1
PC	1+074.444	LT		1
	1+109.049	LT		1
	1+143.655	LT		1
	1+178.260	LT		1
PT	1+212.865	LT		1
A2	1+263.721	LT		1
B2	1+314.577	LT		1
B1	1+314.577	RT		1
A1	1+365.432	RT		1
PC	1+416.288	RT		1
	1+435.688	RT		1
	1+455.089	RT		1
	1+474.489	RT		1
	1+493.890	RT		1
	1+513.290	RT		1
	1+532.690	RT		1
	1+552.091	RT		1
PT	1+571.491	RT		1
A2	1+610.995	RT		1
B2	1+670.252	RT		1
C2	1+760.252	RT		1
C1	1+828.676	RT		1
B1	1+918.676	RT		1
A1	1+977.933	RT		1
PC	2+017.437	RT		1
	2+045.330	RT		1
	2+073.222	RT		1
PT	2+101.115	RT		1
A2	2+146.064	RT		1
A1	2+146.064	LT		1
PC	2+191.013	LT		1
	2+231.490	LT		1
	2+271.967	LT		1
PT	2+312.444	LT		1
A2	2+370.550	LT		1
B2	2+428.657	LT		1
B1	2+428.657	LT		1
A1	2+486.763	LT		1
PC	2+544.869	LT		1
	2+576.285	LT		1
	2+607.701	LT		1
	2+639.117	LT		1
	2+670.532	LT		1
	2+701.948	LT		1
	2+733.364	LT		1
PT	2+764.780	LT		1
A2	2+831.493	LT		1
B2	2+921.493	LT		1
C2	3+011.493	LT		1
	3+134.647		2	
	3+257.801		2	
	3+380.955		2	
C1	3+396.477	RT		1
B1	3+486.477	RT		1
A1	3+576.477	RT		1
PC	3+643.190	RT		1
	3+684.683	RT		1
	3+726.176	RT		1
	3+767.669	RT		1
	3+809.163	RT		1
	3+850.656	RT		1
	3+892.149	RT		1
	3+933.642	RT		1

N8084

ITEM 63309-0100: DELINEATOR

STATION		SIDE	TYPE 1A	TYPE1B
ROUTE N8084				
PT	3+975.135	RT		1
A2	4+057.370	RT		1
B2	4+147.370	RT		1
C2	4+237.370	RT		1
	4+318.726		2	
C1	4+384.559	RT		1
B1	4+474.559	RT		1
A1	4+564.559	RT		1
PC	4+646.794	RT		1
	4+677.937	RT		1
	4+709.080	RT		1
	4+740.222	RT		1
PT	4+771.365	RT		1
A2	4+838.078	RT		1
B2	4+928.078	RT		1
C2	5+018.078	RT		1
C1	5+090.053	LT		1
B1	5+180.053	LT		1
A1	5+270.053	LT		1
PC	5+336.766	LT		1
	5+371.814	LT		1
	5+406.861	LT		1
	5+441.909	LT		1
	5+476.957	LT		1
	5+512.004	LT		1
PT	5+547.052	LT		1
A2	5+614.701	LT		1
B2	5+682.351	LT		1
C2	5+750.000	LT		1
TOTALS			18	91

SEE DWG C9 FOR DETAILS

N8086

ITEM 63309-0100: DELINEATOR

STATION		SIDE	TYPE 1A	TYPE1B
ROUTE N8086				
POB	7+750.000			
C1	7+696.207	LT		1
B1	7+750.000	LT		1
A1	7+803.793	LT		1
PC	7+857.586	LT		1
	7+881.449	LT		1
PT	7+905.312	LT		1
A2	7+935.091	LT		1
B2	7+964.871	LT		1
B1	7+964.871	RT		1
A1	7+994.650	RT		1
PC	8+024.429	RT		1
	8+048.217	RT		1
PT	8+072.004	RT		1
A2	8+118.003	RT		1
B2	8+164.001	RT		1
C2	8+210.000	RT		1
TOTALS			0	16

SEE DWG C9 FOR DETAILS

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

TRAFFIC QUANTITIES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T2	

Registered Professional Engineer — CERTIFICATE NO. 25015 — ANDREW JOHN SPEAR — Date Signed 5/4/26 — ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	102	109

PAVEMENT MARKING NOTES

1. THE PAVEMENT MARKING DRAWINGS ARE SCHEMATIC ONLY AND NOT TO SCALE. THE CONTRACTOR SHALL FOLLOW ALL DIMENSIONS AND DETAILS WHEN INSTALLING PAVEMENT MARKINGS.

2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE FINAL SURFACE COURSE IS PLACED SO THAT THE STRIPING IS OFFSET ONE FOOT CLEAR OF THE CONSTRUCTION JOINT, UNLESS OTHERWISE DIRECTED BY THE AWARDING OFFICAL REPRESENTATIVE.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT AND INSTALLATION OF PERMANENT PAVEMENT MARKINGS ON THE FINAL SURFACE COURSE FOLLOWING CONTROL POINTS THAT HAVE BEEN SET NO MORE THAN 50 FEET APART ALONG THE LINES TO BE STRIPED.

5. THE FINAL STRIPING SHALL BE A TWO PART EPOXY PAVEMENT MARKING MATERIAL (TYPE D), PLACED 30 DAYS AFTER THE COMPLETION OF THE PAVEMENT SURFACE, OR AS DIRECTED BY THE AWARDING OFFICIAL REPRESENTATIVE. ALL OTHER MARKINGS SHALL BE APPLIED AT THE SAME TIME.

6. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE TO THE SATISFACTION OF THE AOR, BY SWEEPING AND AIR-JET BLOWING, IMMEDIATELY PRIOR TO THE PLACEMENT OF ALL PAVEMENT MARKINGS. THE ROADWAY SURFACE SHALL BE DRY.

7. WHEN STRIPE OBLITERATION IS NECESSARY, IT SHALL BE ACCOMPLISHED BY APPROVED METHODS, AS INDICATED IN THE SPECIAL PROVISIONS. PAINTING OVER STRIPING, REMOVAL OF PAVEMENT, AND OVERLAYING PAVEMENT DO NOT CONSTITUTE STRIPE OBLITERATION.

8. THE CONTRACTOR SHALL BREAK THE CENTER LINES AND ADJACENT EDGE LINES ACROSS ANY INTERSECTIONS WITH DEDICATED ROADWAYS, OR AS OTHERWISE DIRECTED BY THE AWARDING OFFICIAL REPRESENTATIVE. IN ADDITION, THE CONTRACTOR SHALL NOT PLACE ANY CENTER LINES WITHIN 10 FEET OF THE NEAREST EDGE OF PAVEMENT OF THE INTERSECTING ROADWAY.

9. WHERE RAISED PAVEMENT MARKERS ARE PLACED ALONG SOLID STRIPING, THE NEAREST EDGE OF EACH MARKER SHALL BE OFFSET ONE INCH FROM THE NEAREST EDGE OF THE STRIPING. ALL RAISED PAVEMENT MARKERS SHALL BE INSTALLED SO THAT THE REFLECTIVE FACE OF EACH MARKER IS FACING THE DIRECTION OF TRAFFIC AND IS PERPENDICULAR TO THE DIRECTION OF TRAFFIC FLOW. ALL RAISED PAVEMENT MARKERS SHALL HAVE AN ABRASION-RESISTANT COATING ON THE FACE OF THE PRISMATIC REFLECTORS AND SHALL BE INSTALLED WITH A BITUMINOUS ADHESIVE THAT IS ON THE APPROVED PRODUCTS LIST.

SIGNING NOTES

1. ALL SIGNS SHALL BE IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE PROJECT SPECIAL PROVISIONS.

2. THE CONTRACTOR SHALL INVENTORY ALL SIGNS TO BE REMOVED OR COVERED, AND NOTE DAMAGED SIGNS TO THE ENGINEER AT TIME OF COVERING OR REMOVAL. ALL SIGNS DAMAGED BY COVERING OR REMOVAL SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO AWARDING OFFICIAL REPRESENTATIVE.

3. SIGN LOCATIONS AND POST LENGTHS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE SIGN LOCATIONS AND ACTUAL POST LENGTHS WITH THE ENGINEER PRIOR TO CONSTRUCTING THE FOUNDATIONS FOR THE SIGN SUPPORTS.

4. THE BOTTOM OF EACH SIGN SHALL BE AT LEAST 7 FEET ABOVE THE NEAREST EDGE OF PAVEMENT AND AT LEAST 7 FEET ABOVE THE GROUND UNDER THE SIGN.

5. OFFSETS FOR ALL SIGNS SHALL BE MEASURED FROM THE CENTERLINE OF THE ROADWAY TO CENTER OF THE SIGN.

6. ALL NEW SIGNS SHALL BE FABRICATED OF FLAT SHEET ALUMINUM WITH DIRECT APPLIED COPY OR SCREEN PRINTED LEGEND AS INDICATED IN THE SPECIAL PROVISIONS.

7. THE AWARDING OFFICIAL REPRESENTATIVE MAY MODIFY THE SIGNING PLANS.

8. THE CONTRACTOR SHALL REMOVE EXISTING SIGNING WHERE INDICATED IN THE SIGN SUMMARY.

9. RETRO-REFLECTIVE SHEETING MATERIAL SHALL CONFORM TO ASTM 4956 TYPE IX OR XI AND THE SPECIAL PROVISIONS. GRAFFITI RESISTANT OVERLAY FILM SHALL BE APPLIED TO RETROREFLECTIVE SHEETING MATERIAL.

10. ALL SIGNS SHALL HAVE A MINIMUM OF TWO __-INCH SIZE ANTI-THEFT BOLTS.

11. POSTS SHALL BE MADE OF STEEL AND CONFORM TO FP-03, SECTION 718.08. STEEL POSTS SHALL NOT EXTEND ABOVE THE TOP OF SIGN. STEEL POSTS SHALL BE INSTALLED TO A MINIMUM DEPTH OF 3 FEET. FIELD SPLICES ARE NOT PERMITTED ON TELESCOPING POSTS.

12. THE CONTRACTOR SHALL DELINEATE ALL NEW GUARD RAIL END TREATMENTS IN ACCORDANCE WITH ADOT STD DWGS AND ADOT STANDARD SPECIFICATIONS. THERE SHALL BE NO MEASUREMENT OR PAYMENT FOR THE GUARD RAIL END TREATMENT DELINEATION.

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

TRAFFIC GENERAL NOTES

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T2A	

Registered Professional Engineer (Civil)
CERTIFICATE NO.
25015
ANDREW JOHN SPEAR
Date Signed 5/4/26
ARIZONA, U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	103	109

SIGN INSTALLATIONS

STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m^2)	NO. of POSTS	kg/m	TOTAL NO. SIGN SYSTEMS
Place at BOP In Location Visible to Westbound N8084 Traffic	12' OFF EOP	W1-7 OM4-2 OM4-2		1219 x 610 457 x 457 457 x 457	0.74 0.21 0.21	2	4.10	1
0+720 (on turnout) 0+920 (on turnout) 2+900 (on turnout) 3+660 (on turnout) 4+940 (on turnout) 5+617 (on turnout)	Lt. Lt. Lt. Lt. Lt. Lt.	R1-1	STOP	762 x 762	0.58	1	4.10	6
0+160	Lt.	W3-1a		914 x 914	0.84	2	4.10	1
0+150 5+690	Rt. Rt.	R2-1(35)	SPEED LIMIT 35	610 x 762	0.46	1	4.10	2
1+950	Lt.					1		1
3+240 3+600 5+690	Lt. Rt. Lt.	R2-1(50)	SPEED LIMIT 50	610 x 762	0.46	1	4.10	3
0+040 3+300 3+520	Rt. Lt. Rt.	Route N8084	8084	457 x 610	0.28	1	4.10	3
0+200	Lt.	M2-1 M1-4	JCT 191	533 x 381 457 x 610	0.20 0.28	1	4.10	1
3+300	Rt.	M2-1 Route No.	JCT 8086	533 x 381 457 x 610	0.20 0.28	1	4.10	1
3+540	Lt.					1		1
2+000	Lt.	W3-5-35	SPEED LIMIT 35	914 x 914	0.84	2	4.10	1
1+280 1+282 2+837 3+55 4+566 5+596	Rt. Lt. Lt. Rt. Rt. Lt.	W1-2L		762 x 762	0.58	1	4.10	6
0+993 1+680 2+464 4+066 4+894 5+241	Rt. Lt. Rt. Lt. Lt. Rt.	W1-2R		762 x 762	0.58	1	4.10	6
0+315 0+900 2+870 3+120 4+020 4+200 4+850 5+280	Lt. Rt. Lt. Rt. Lt. Rt. Lt. Rt.	R4-1	DO NOT PASS	610 x 762	0.46	1	4.10	10
3+250 3+560	Rt. Lt.	W2-1		762 x 762	0.58	1	4.10	2

SIGN INSTALLATIONS

STATION	LOC.	SIGN DETAIL NO.	DESCRIPTION	SIGN PANEL SIZE (mm)	AREA OF SIGN (m^2)	NO. of POSTS	kg/m	TOTAL NO. SIGN SYSTEMS
0+315 0+900 1+720 1+800 2+870 3+120 4+020 4+200 4+850 5+280	Rt. Lt. Rt. Lt. Rt. Lt. Rt. Lt. Rt. Lt.	W14-3	NO PASSING ZONE	914 x 1219 x 1219	0.52	2	4.10	10
0+180 1+100 1+600 1+900 2+760 3+270 3+880 4+300 4+710 5+420	Rt. Lt. Rt. Lt. Rt. Lt. Rt. Lt. Rt. Lt.	R4-2	PASS WITH CARE	610 x 762	0.46	1	4.10	10
5+740	Rt.	W11-4 W11-4P	CATTLE XING	762 x 762 610 x 457	0.58 0.28	2	4.10	2
1+266 1+414	Rt. Lt.	I-3	Chinle Wash	610 x 457	0.28	1	4.10	2
4+200 4+490	Rt. Lt.	I-3	Sheep Dip Wash	610 x 457	0.28	1	4.10	2
0+012	Lt.	D3-1 D3-1 R1-1	N8084 STOP	457 x 229 457 x 229 914 x 914	0.10 0.10 0.84	2	4.10	1
1+897 2+269	Rt. Lt.	W1-4L		914 x 914	0.84	2	4.10	2
5+725	Rt.	W8-3	PAVEMENT ENDS	914 x 914	0.84	2	4.10	1

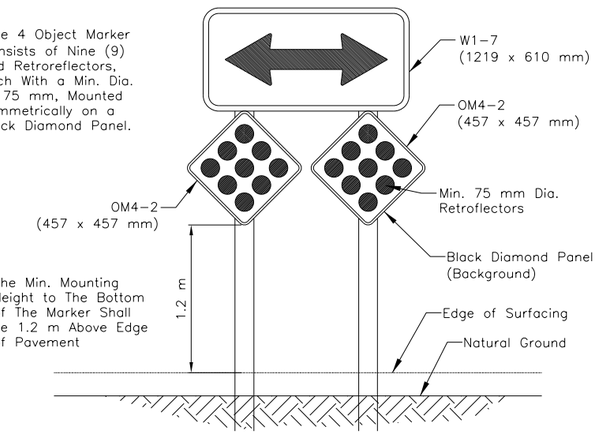
N8086 STATIONING

7+983 8+017	Rt. Lt.	R1-1	STOP	914 x 914	0.84	2	4.10	2
7+853 8+166	Rt. Lt.	W3-1a		914 x 914	0.84	2	4.10	2
7+800 8+205	Rt. Lt.	M2-1 Route No.	JCT 8084	533 x 381 457 x 610	0.20 0.28	1	4.10	2
7+827 8+111	Rt. Lt.	W2-1		762 x 762	0.58	1	4.10	2
7+780 8+180	Lt. Rt.	W8-3	PAVEMENT ENDS	914 x 914	0.84	2	4.10	2

63301-0000: Sign System..... TOTAL 84 Ea

63302-0003: Sign Installation, 1-POST & Hardware: 4.10 kg/m..... TOTAL 43 Ea

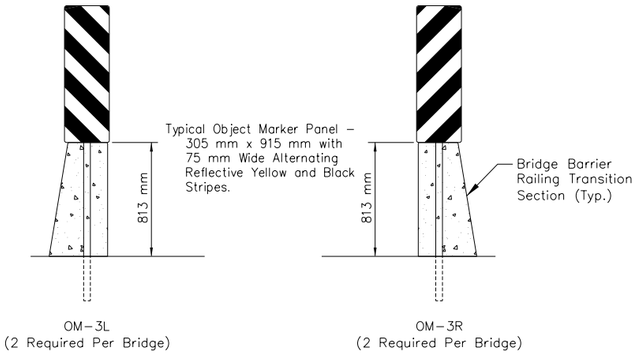
Note: Type 4 Object Marker Consists of Nine (9) Red Retroreflectors, Each With a Min. Dia. of 75 mm, Mounted Symmetrically on a Black Diamond Panel.



PERMANENT BARRICADE SIGN

Intersection of N8084 with US 191

NOTE: Place Type 3 Object Marker Between End Of Concrete Barrier And First Guardrail Post.

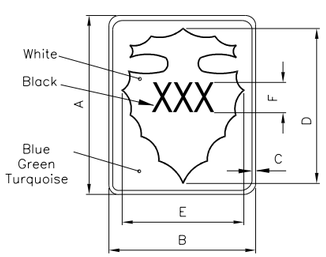


OM-3L
(2 Required Per Bridge)

OM-3R
(2 Required Per Bridge)

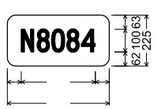
TYPE 3 OBJECT MARKER
BRIDGE RAIL INSTALLATION
N.T.S.

SIGN	DIMENSION (mm)					F NUMERALS				
	A	B	C	D	E	DIGITS IN ROUTE	1	2	3	4
MIN.	610	457	13	495	343	SIZE & SERIES (mm)	370	296	237	198









NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T.

N8084(1)1,2&4 MANY FARMS

SIGN SUMMARY

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T3	

Registered Professional Engineer CERTIFICATE No. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 Navajo Nation

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SINGLE POST REQUIREMENT CHART

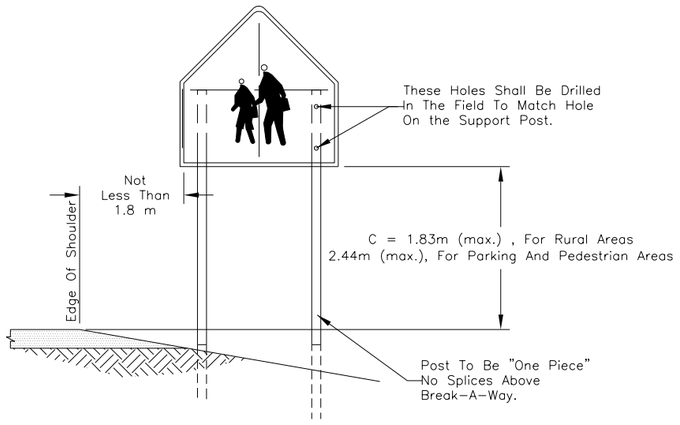
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
DOES NOT APPLY	2.976 kg/m	0.36	0.36	0.36	0.36	0.36	0.36	0.34	0.32	0.30	0.27	0.26	A (m^2) SIGN AREA (W x D)
	3.348 kg/m	0.47	0.47	0.47	0.47	0.47	0.43	0.39	0.36	0.33	0.32	0.30	
	4.092 kg/m	0.62	0.62	0.62	0.62	0.62	0.56	0.51	0.47	0.44	0.41	0.38	
	4.464 kg/m	0.68	0.68	0.68	0.68	0.68	0.68	0.62	0.58	0.52	0.47	0.46	
	5.952 kg/m	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.80	0.74	0.70	0.65	

DOUBLE POST REQUIREMENT CHART

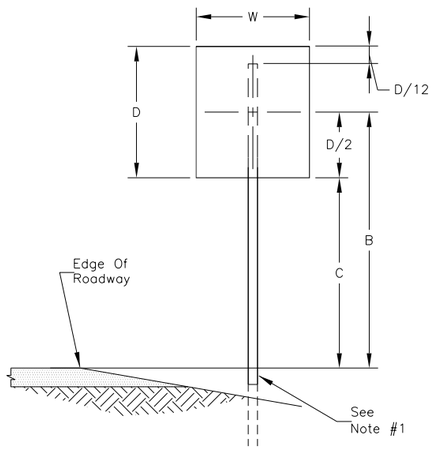
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
2.74	2.976 kg/m	1.50	1.28	1.12	1.00	0.90	0.82	0.75	0.70	0.64	0.60	0.57	A (m^2) SIGN AREA (W x D)
3.08	3.348 kg/m	1.69	1.45	1.27	1.13	1.01	0.92	0.85	0.78	0.72	0.68	0.63	
4.03	4.092 kg/m	2.20	1.89	1.65	1.47	1.32	1.20	1.10	1.01	0.94	0.88	0.83	
4.91	4.464 kg/m	2.69	2.31	2.03	1.79	1.62	1.47	1.35	1.24	1.15	1.08	1.01	
6.83	5.952 kg/m	3.73	3.20	2.80	2.49	2.24	2.03	1.87	1.72	1.60	1.50	1.40	

THREE POST REQUIREMENT CHART

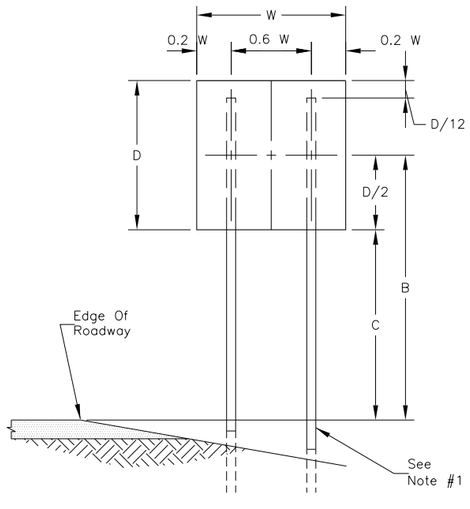
K factor (B x A)	POST WEIGHT	B = Height To Bottom Of Traffic Sign + 1/2 Height Of Traffic Sign (Meter)											
		1.83	2.13	2.44	2.74	3.05	3.35	3.66	3.96	4.27	4.57	4.87	
4.12	2.976 kg/m	2.25	1.92	1.68	1.50	1.35	1.23	1.12	1.04	0.97	0.90	0.85	A (m^2) SIGN AREA (W x D)
4.65	3.348 kg/m	2.54	2.17	1.90	1.69	1.52	1.38	1.27	1.17	1.09	1.01	0.96	
6.02	4.092 kg/m	3.30	2.82	2.47	2.19	1.98	1.79	1.64	1.52	1.41	1.32	1.24	
7.40	4.464 kg/m	4.04	3.47	3.03	2.69	2.42	2.20	2.02	1.86	1.73	1.62	1.51	
10.20	5.952 kg/m	5.58	4.78	4.19	3.73	3.35	3.05	2.79	2.57	2.40	2.23	2.09	



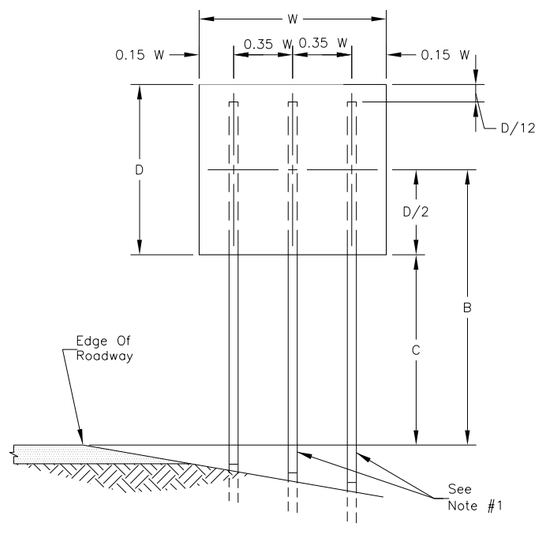
TYPICAL ROADSIDE SIGN LOCATION



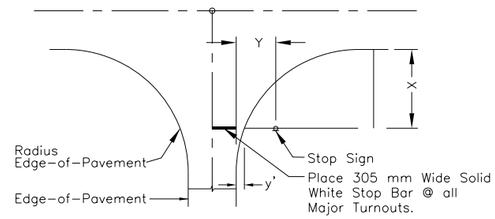
SINGLE POST SIZE (TYP.)



DOUBLE POST SIZE (TYP.)



THREE POST SIZE (TYP.)



STOP SIGN LOCATION AT INTERSECTION

RADIUS OF TURNOUT (m)	X (m)	Y' (m)	Y (m)= Y'+LO(m)	LENGTH OF STOP BAR
3.00	1.80	0.25	2.05	1/2 Turnout width + Y'
6.00	3.00	0.80	2.60	1/2 Turnout width + Y'
9.00	4.50	1.21	3.01	1/2 Turnout width + Y'
12.00	6.00	1.61	3.41	1/2 Turnout width + Y'
15.00	7.50	2.01	3.81	1/2 Turnout width + Y'

y'= Distance of Roadway Turnout EOP to Radius EOP
Lateral Offset (LO) From EOP =1.80 m

ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	104	109

GENERAL NOTES:

1. THE CONTRACTOR SHALLL BE REQUIRED TO ADJUST THE LENGTH OF SIGN SUPPORT POSTS. THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE FOR THE APPROPRIATE BID ITEMS SHOWN IN THE BID SCHEDULE.
2. SIGN DIMENSION EQUAL TO OR IN EXCESS OF 762 mm X 762 mm SIZE SHALL BE INSTALLED WITH A MINIMUM OF TWO (2) STEEL POSTS.

METHOD TO DETERMINE NUMBER OF POST(s) & POST WEIGHT REQUIREMENT:

For A 1.52 m Wide x 1.22 m High Traffic Sign.
Located On A Rural Highway.

GIVEN: W= 1.52 m
D= 1.22 m
C= 1.83 m For Rural Areas

SOLUTION: 1.) B = C + D/2
B= 1.83 + (1.22/2)
B= 2.44 m

2.) A = W x D
A= 1.52 x 1.22
A= 1.85 sq. m

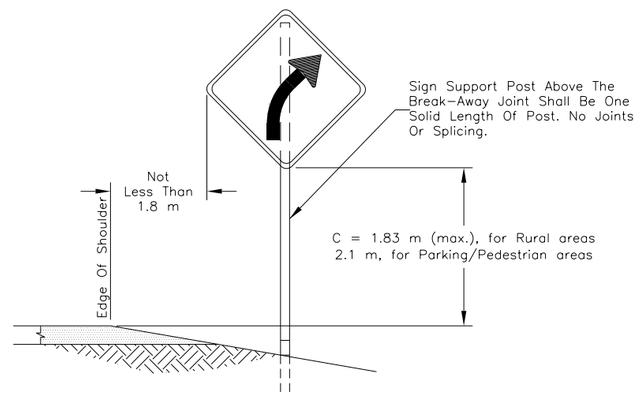
3.) K factor = A x B
K factor= 1.85 x 2.44
K factor= 4.51 cu. m

4.) Begin With The Single Post Chart For Column Of B= 2.44 m, And Continue Down Until The Area Of The Sign Equals Or Exceeds 1.85 sq. m, OR Down The K factor Column Until The Value Equals or Exceeds 4.51 cu. m. Both The Area & K factor Exceed The Single Post Chart So Go To The Double Post Chart.

Select Two (2) Posts Of 4.46 kg/m Yields A Factor Of 4.91 Which Is Optimum.

EXAMPLE:

K factor	POST WEIGHT	2.44	
4.03	4.09 kg/m	1.65	
4.51-> 4.91	4.46 kg/m	2.03	<-1.85
6.83	5.95 kg/m	2.80	



TYPICAL ROADSIDE SIGN LOCATION

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

PERMANENT SIGNING DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T4	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Arizona U.S.A. Date Signed 5/4/26

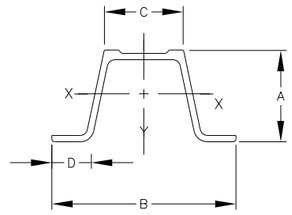
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	105	109

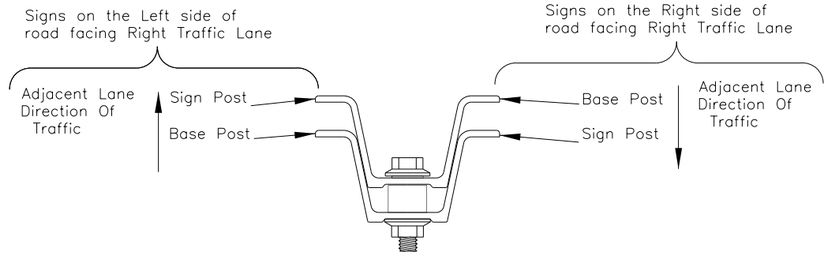
RIB–BAK U–CHANNEL SIGN SUPPORTS

WEIGHT	DIMENSIONS (mm)				AREA	X–X AXIS		Y–Y AXIS	
*kg/m	A	B	C	D	mm^2	$I(mm^4)$	$S(mm^3)$	$I(mm^4)$	$S(mm^3)$
2.97	38.30	76.91	33.12	16.10	54.83	81.99	42.27	195.62	50.96
3.71	38.68	79.35	33.15	18.33	51.28	103.22	51.29	249.73	62.92
4.08	39.47	78.77	32.72	16.94	55.74	112.38	54.89	278.04	70.62
4.45	48.34	85.85	33.73	18.42	62.45	188.65	73.24	374.60	87.34
5.94	50.27	85.78	34.04	19.10	80.77	260.14	97.99	476.58	111.10

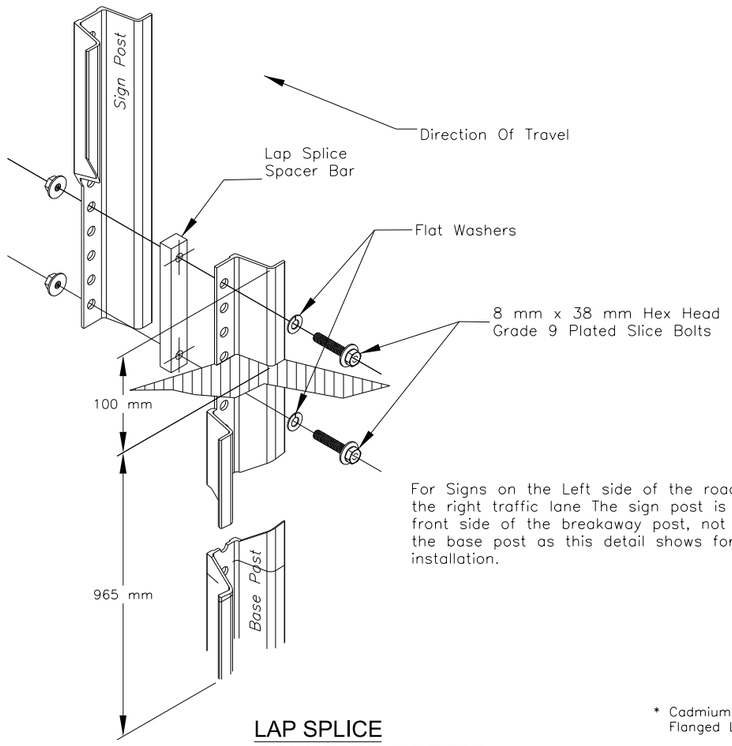
* ±5%



RIB-BAK U-CHANNEL



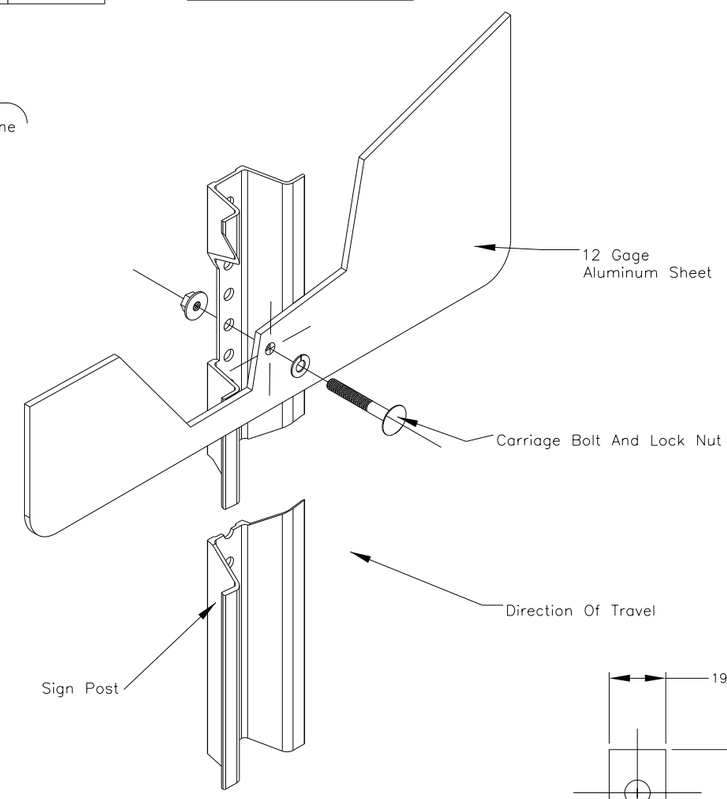
LAP SPLICE - TOP VIEW

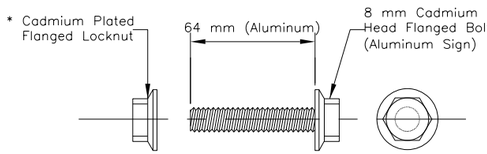


For Signs on the Left side of the road which face the right traffic lane The sign post is place on the front side of the breakaway post, not on the back of the base post as this detail shows for standard sign installation.

LAP SPLICE CONNECTION DETAIL

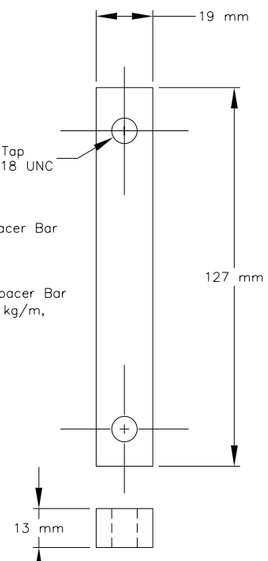
NOTE: After Final Installation and Tightening, All Posts and Sign Bolt Threads Shall Be "Jammed" To Help Prevent Loosening. Jamming Shall Not Be So Severe As To Prevent Nut Removal.





BOLTS AND LOCKNUT - SIGN ATTACHMENT

* Flanged Locknut Required For Carriage And Hex.



NOTE: The GOLD ANODIZED 13 mm Thick Spacer Bar Is To Be Used With 4.45 kg/m And 5.94 kg/m Posts Only.

The SILVER ANODIZED 10 mm Thick Spacer Bar Is To Be Used With 2.97 kg/m, 3.71 kg/m, And 4.08 kg/m Posts Only.

LAP SPLICE SPACER BAR

GENERAL NOTES

1. BASE POST AND SIGN POST SHALL BE RIB–BAK U–CHANNEL FABRICATED FROM HOT ROLLED CARBON STEEL BARS CONFORMING TO THE REQUIREMENTS OF ASTM A499. YIELD POINT AND TENSILE STRENGTH OF STEEL SHALL BE 550 AND 689.47 MPa (MINIMUM), RESPECTIVELY.
2. STEEL POSTS SHALL BE UNIFORM, MODIFIED, FLANGED CHANNEL SECTION OF RIB–BAK DESIGN. WEIGHT OF THE STEEL SHALL BE AS SPECIFIED BY THE USER, ±5% BEFORE PUNCHING. THE POST SHALL BE PUNCHED WITH CONTINUOUS 9mmø HOLES ON 25mm INTERVAL ON CENTERS FOR THE ENTIRE LENGTH OF POST.
3. STEEL POSTS SHALL BE MACHINE STRAIGHTENED TO HAVE A SMOOTH UNIFORM FINISH, FREE FROM DEFECTS AFFECTING STRENGTH, DURABILITY, AND APPEARANCE. ALL HOLES AND EDGES SHALL BE FREE OF BURRS. THE PERMISSIBLE TOLERANCE FOR STRAIGHTNESS SHALL BE WITHIN 6.35mm IN 1.52 METER.
4. STEEL POSTS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM 123 OR PAINTED WITH A BAKED–ON ALKYD RESIN, OR PAINTED WITH A POLYESTER POWDER. BOLTS, NUTS, AND WASHERS SHALL BE CADMIUM PLATED IN ACCORDANCE WITH ASTM A–165 OR ZINC PLATED IN ACCORDANCE WITH ASTM B–633.
5. SPLICE HARDWARE SHALL CONSIST OF TWO FULLY THREADED, 8mm X 38mm GRADE–9 PLATED HEX HEAD BOLTS, FLAT WASHERS, AND SELF LOCKING HEX NUTS PER POST. IN ADDITION, ONE 19mm X 127mm PLATED SPACER BAR PER POST, TO STIFFEN THE SPLICE CONNECTION. EACH SPACER SHALL BE DRILLED AND TAPPED WITH 8mm–18 UNC THREADS. THE SPACER SHALL BE FABRICATED FROM HOT ROLLED CARBON STEEL BAR CONFORMING TO ASTM A–36 OR M–1020.
6. BOLTS AND LOCK NUT HARDWARE FOR SIGN ATTACHMENT SHALL BE CARRIAGE HEAD TYPE, 8mm–18 UNC, AND SHALL BE CADMIUM PLATED CONFORMING TO ASTM B–766.
7. AN APPROVED ALTERNATE BREAKAWAY SYSTEM AND SIGN SUPPORT POST ASSEMBLY MAY BE SUBMITTED TO THE COR/AOTR FOR REVIEW AND APPROVAL PRIOR TO IT'S USE.
8. THE CONTRACTOR HAS THE OPTION TO USE "ANTI–THEFT" NUTS IN LIEU OF JAMMING THE BOLT THREADS. NO ADDITIONAL PAYMENT WILL BE MADE IN RELATION TO USING ANTI–THEFT BOLTS.
9. SUPPLEMENTAL SIGNS ON THE OPPOSITE SIDE OF ROADWAY SHALL HAVE THE U–CHANNEL REVERSED SO THAT RIB–BAK IS FACING AWAY FROM THE OPPOSING TRAFFIC.

INSTALLATION PROCEDURE

STEP 1:
DRIVE BASE POST TO WITHIN APPROXIMATELY 300 mm ABOVE GROUND LEVEL. PLACE ONE BOLT AND CUT WASHER IN FIFTH HOLE FROM THE TOP, AND SECURELY TIGHTEN THREADED SPACER ONTO BOLT.

STEP 2:
DRIVE BASE POST TO 100 mm ABOVE GROUND LEVEL. PLACE REMAINING BOLT AND CUT WASHER IN FIRST HOLE FROM THE END, AND SECURELY TIGHTEN THREADED SPACER ONTO BOLT.

STEP 3:
DIG OUT APPROXIMATELY 50 mm FROM AROUND BACK OF GROUND POST TO ALLOW ROOM FOR TOP POST TO BE ATTACHED.

STEP 4:
NEST TOP POST ONTO PROTRUDING BASE POST BOLTS, THROUGH THE FIRST AND FIFTH HOLES OF THE TOP POST.

STEP 5:
PLACE A SELF–LOCKING FLANGE NUT ON EACH BOLT. TIGHTEN NUTS AND TAMP EARTH AROUND POST FIRMLY.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

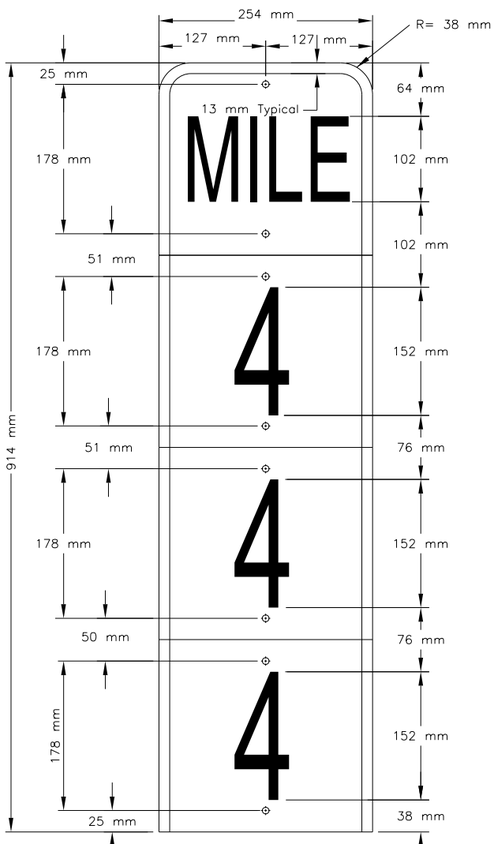
LAP SPLICE U–CHANNEL BREAKAWAY SYSTEM POST & HARDWARE DETAILS

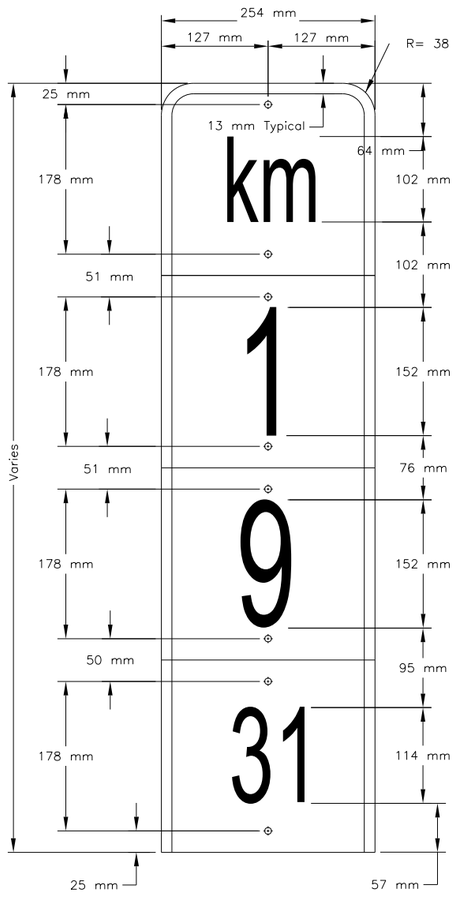
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T5	

Registered Professional Engineer, CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

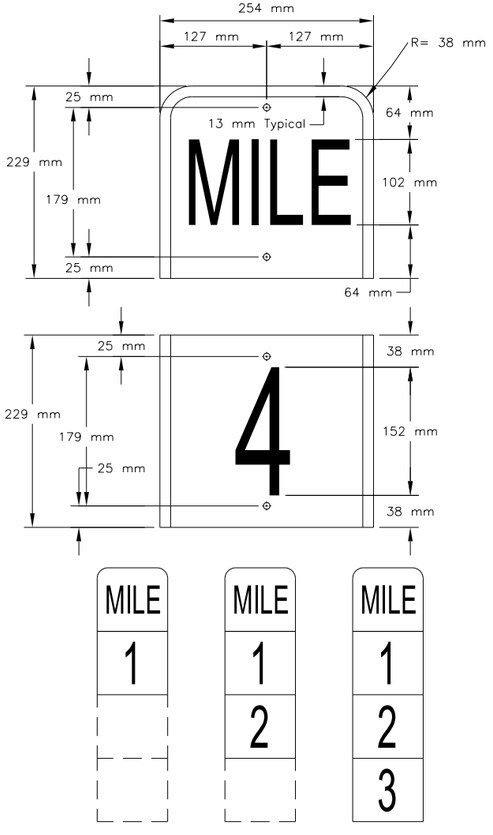
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
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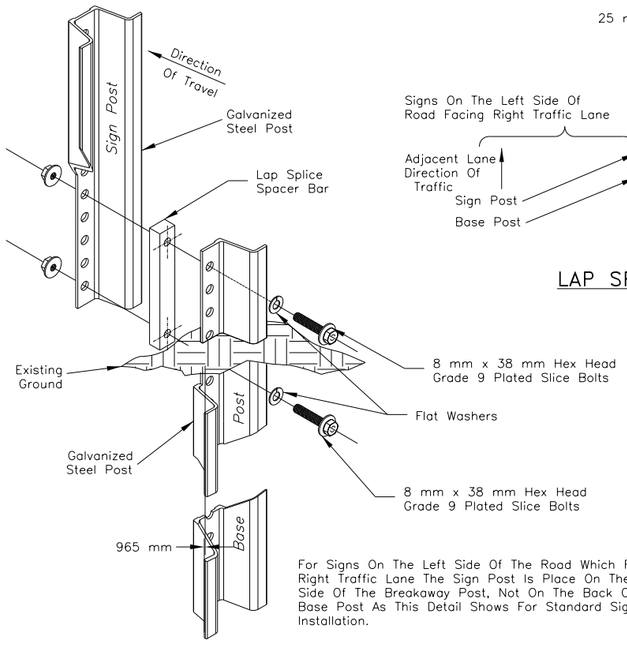




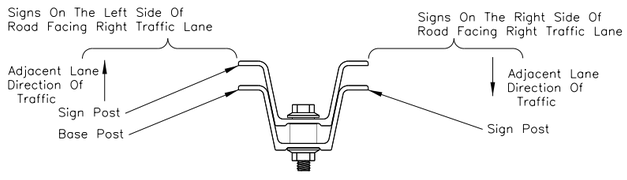
TYPICAL MILEPOST DETAIL



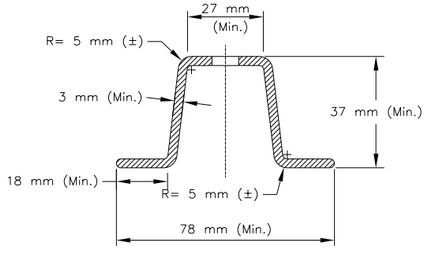
STANDARD NUMERAL POSITION



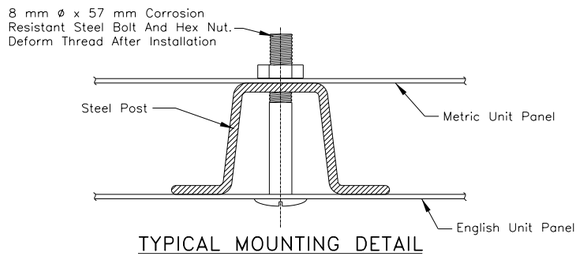
LAP SPLICE CONNECTION DETAIL



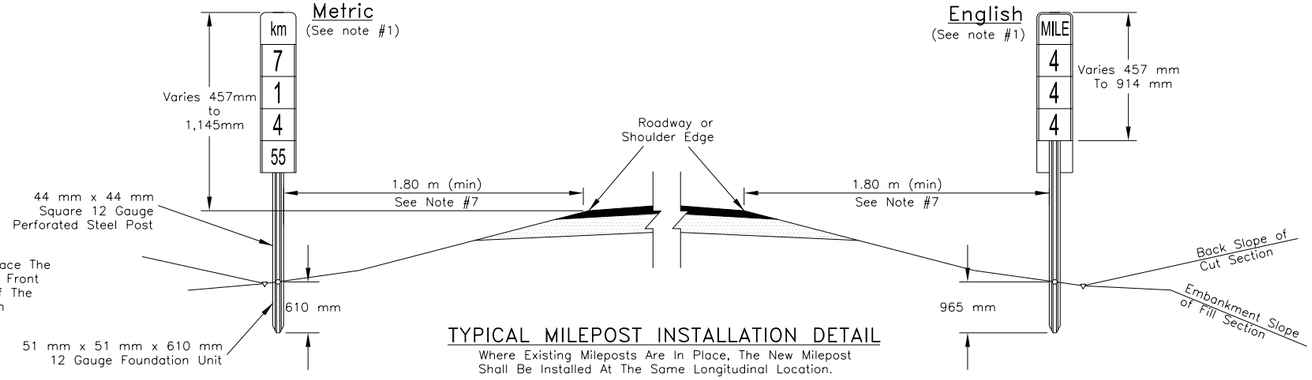
LAP SPLICE – TOP VIEW



SECTION A–A



TYPICAL MOUNTING DETAIL FOR BACKPLATE



TYPICAL MILEPOST INSTALLATION DETAIL

Where Existing Mileposts Are In Place, The New Milepost Shall Be Installed At The Same Longitudinal Location.

GENERAL NOTES

1. The Mile Posts Shall Be Placed On Both Sides Of The Roadway With English Unit Panel On Approaching Traffic And Metric Unit Panel On Opposing Traffic.
2. Mile Post Plates Shall Be Fabricated From 16 Gage Minimum Thickness 5052–H38 Or 6061–T6 Aluminum Alloy.
3. All Surfaces To Be Covered With Reflective Sheeting, And Shall Be Prepared In Accordance With Supplemental Specification Section 718.11, Table 718–3.
4. The Border And Legend Shall Be Standard Reflectivity Silver–White. The Background Shall Be Standard Reflectivity Green And May Be Reverse Silk–Screened.
5. The Back Side Of The Aluminum Sheets Shall Be Etched By Approved Methods To Reduce Glare From Reflected Sunlight.
6. Steel Posts Shall Conform To ASTM A499 – Yield Point And Tensile Strength Of Steel Shall Be 550 & 689.47 MPa(Minimum) Respectively And Shall Not Weight Less Than 2.98 kg/m. An Approved Alternate Breakaway Assembly May Be Submitted To The AOTR/COR For Review And Approval Prior To It's Use. The Posts Shall Be Galvanized After Fabrication In Accordance With ASTM A–123, Or Painted With A Baked–On Alkyd Resin, Or With A Polyester Powder Coating.
7. Install Mile Post Marker 1.80 Meter (Maximum) From Roadway Shoulder. At Guardrail Locations, The Mile Post Marker Shall Line Up With The Guardrail Posts.
8. The Post Lengths Shall Be Determined In The Field Based On Finish Ground Elevation With Respect To Edge Of Pavement Elevation.

ITEM 63318-1020: MILE POST, 51 mm x 51 mm Square Steel Tube

STATION	LOC.	DESCRIPTION		QUANTITY (Ea.)
		MILES	KILOMETERS	
1+609	Lt. & Rt.	MILE 1	KM 1.61	2
3+215	Lt. & Rt.	MILE 2	KM 3.22	2
4+824	Lt. & Rt.	MILE 3	KM 4.83	2
			TOTAL	**6**

Note: Stations are Calculated in Miles & Converted to Kilometers.

Note: Station Equation at 2+853.318Bk = 2+850.000Ahd

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

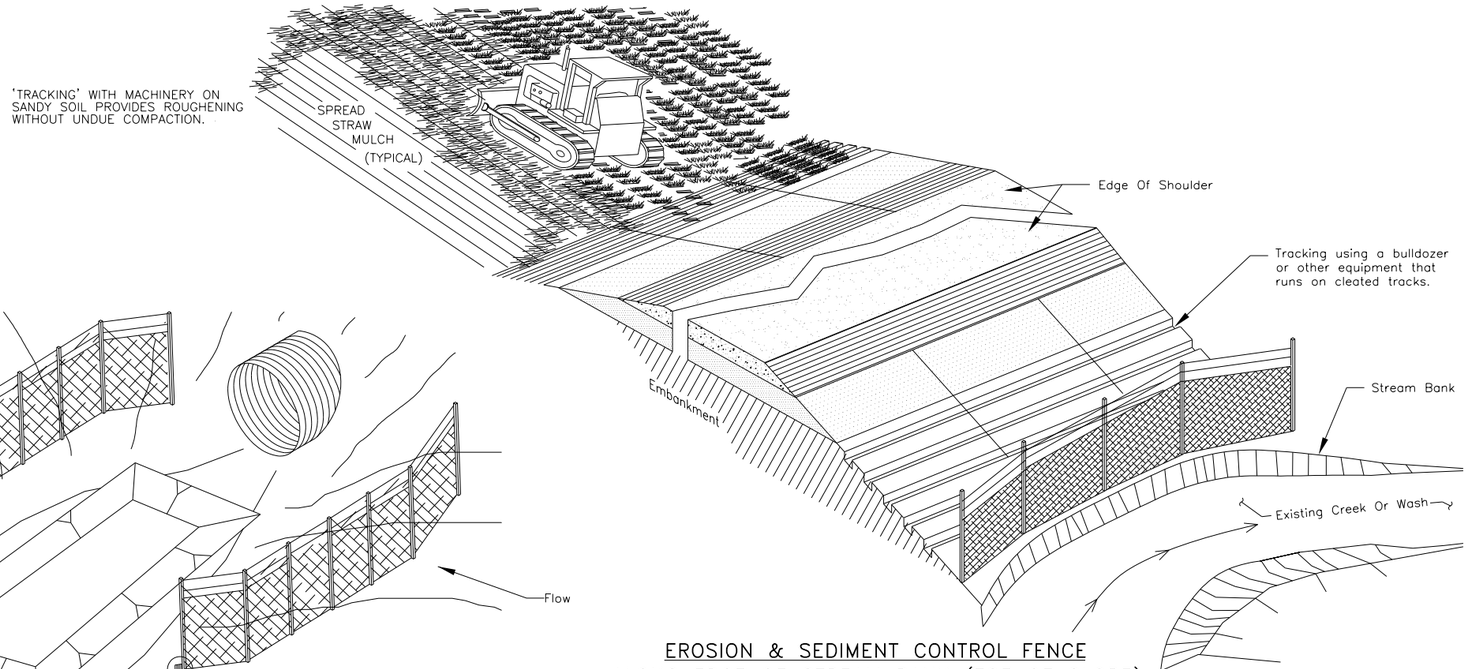
STANDARD MILEPOST DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: T6	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR STATE OF ARIZONA

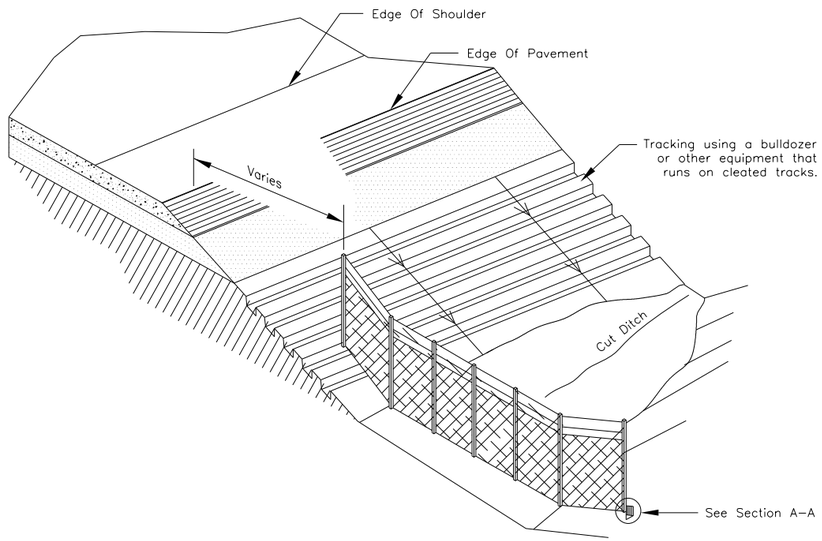
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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
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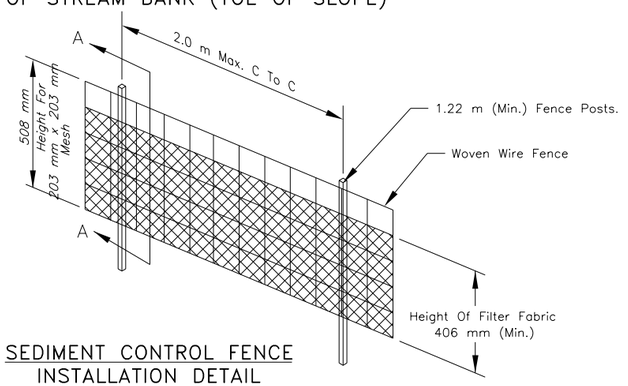


EROSION & SEDIMENT CONTROL FENCE
AT DRAINAGE STRUCTURE

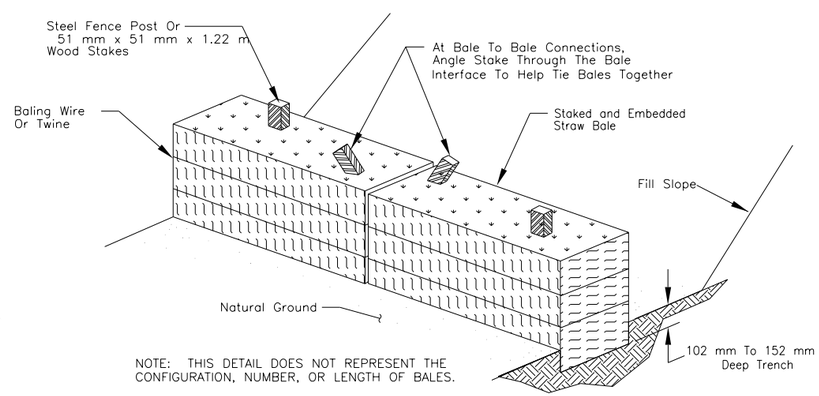
EROSION & SEDIMENT CONTROL FENCE
ALONG EDGE OF STREAM BANK (TOE OF SLOPE)



EROSION & SEDIMENT CONTROL FENCE
IN MINOR SWALES OR CUT DITCHES
(APPROX 60 m SPACING FOR FABRIC)



SEDIMENT CONTROL FENCE
INSTALLATION DETAIL

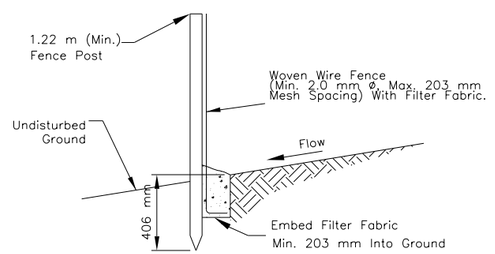


NOTE: THIS DETAIL DOES NOT REPRESENT THE CONFIGURATION, NUMBER, OR LENGTH OF BALES.

TYPICAL STRAW BALE STAKING
AND TRENCHING DETAIL

GENERAL NOTES

1. THE CONTRACTOR SHALL PREPARE AND SUBMIT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN FULL DETAIL FOR ALL PHASES OF THE WORK FOR REVIEW AND APPROVAL AT LEAST 14 CALENDAR DAYS BEFORE IMPLEMENTATION. THE PLAN SHALL MEET THE REQUIREMENTS HEREIN AND SECTION 157 OF THE FP-14 AS MODIFIED IN THE SUPPLEMENTAL SPECIFICATION. SEE SPECIAL CONTRACT REQUIREMENTS FOR NPDES PERMIT REQUIREMENTS.
2. THE SILT FENCING CONSISTS OF 914 mm SEDIMENT CONTROL FABRIC CLOTH WITH BURIED-TOE, AND STEEL POSTS (TEE OR U TYPE) SPACED AT 2.00 m WITH 2 mm SIZE WELDED WIRE BACK-UP FENCE.
3. WOVEN WIRE FABRIC TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 610 mm AT THE TOP AND MID-SECTION. GEOTEXTILE MATERIAL FOR SILT FENCING SHALL BE TYPE-V UNDER SUB-SECTION 714.01 OF FP-14.
4. WHEN TWO SECTION OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 152 mm AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.
5. SILT FENCE SHALL BE INSTALLED PARALLEL TO THE TOE OF ALL ROADWAY EMBANKMENT FILLS IN LOCATIONS WHERE THE TOE OF THE FILLS ARE WITHIN 2.0 m OF EXISTING STREAMS, CREEKS OR WASHES; IN AREAS WITH HIGHLY EROSIVE SOILS AND/OR WHERE EMBANKMENTS ARE AT A 1:3 OR STEEPER SLOPE. THE SILT FENCE SHALL BE PLACED 1 m TO 2 m DOWNHILL FROM THE TOE OF THE FILL AND IN ACCORDANCE WITH SECTION 157 OF THE FP-03 AND THE SUPPLEMENTAL SPECIFICATIONS.
6. STRAW BALES MAY BE USED AT THE TOP OF CUT BACKSLOPES AND FOR DIKES PROVIDED THEY ARE PROPERLY ANCHORED WITH STEEL FENCE POSTS OR 51 mm x 51 mm x 1.22 m WOOD STAKES (TWO PER BALE) ANCHORED 508 mm INTO THE NATURAL GROUND. STRAW BALES SHALL BE CERTIFIED 0.5% WEED FREE. DO NOT USE STRAW BALES IN AREAS OF CONCENTRATED FLOW AND CUT DITCHES.
7. FURNISHING AND PLACEMENT OF SILT FENCE MATERIAL AND OTHER EROSION CONTROL MEASURES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 15701-0000.
8. SEDIMENT/SILT FENCING SHALL BE PLACED AT ALL LOCATIONS WHERE EMBANKMENTS HAVE SLOPE DISTANCES OF 30.0 m OR GREATER. THE SEDIMENT FENCING WILL BE PLACED AT THE TOE OF SLOPES OFFSET 1-2 METERS.
9. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL SWPPP MEASURES WEEKLY AND AFTER EACH SIGNIFICANT STORM EVENT (I.E. 25 mm OF MOISTURE IN 24 HOURS).
10. PRIOR TO FINAL ACCEPTANCE, ALL PROJECT AREAS(AS DETERMINED BY AOTR/COR) SHOWING EROSION DAMAGE CAUSED BY THE CONTRACTOR'S FAILURE TO PROPERLY MAINTAIN HIS EROSION CONTROL STRUCTURES SHALL BE REPAIRED TO REMOVE SAID DAMAGE. ANY SPECIFIED EROSION CONTROL MATERIALS, STRUCTURES, OR DEVICES DAMAGED OR LOST DUE TO IMPROPER INSTALLATION, THE CONTRACTOR'S NEGLIGENCE OR IMPROPER MAINTENANCE, SHALL ALSO BE REPAIRED AND/OR REPLACED TO PROJECT REQUIREMENTS PRIOR TO FINAL ACCEPTANCE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO BID ITEM 15701-0000, NO ADDITIONAL PAYMENT WILL BE MADE.



SECTION A-A

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

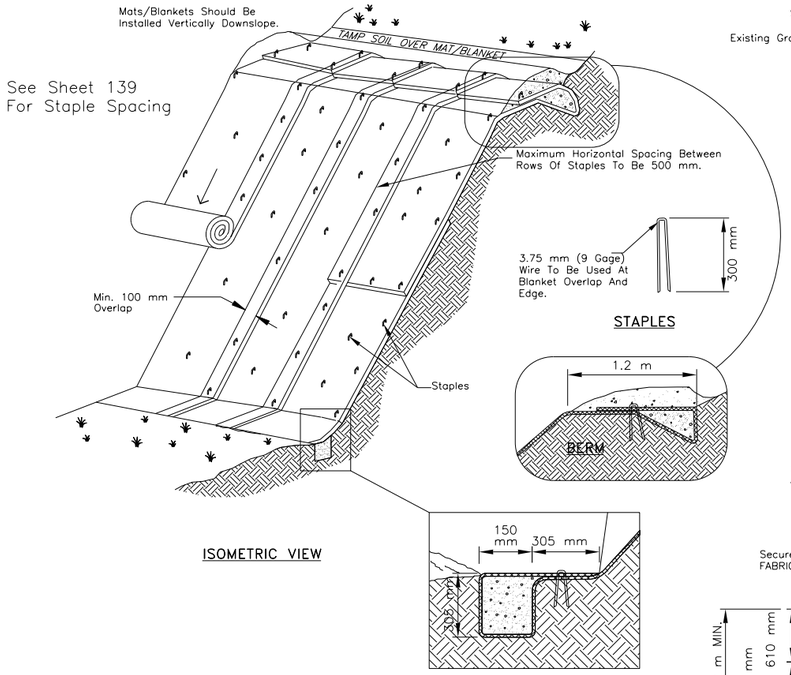
STORMWATER POLLUTION AND EROSION/SEDIMENT CONTROL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: E1	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 NATIONWIDE U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
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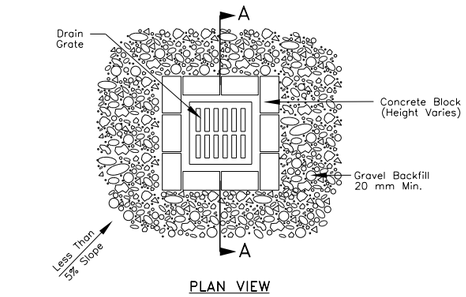


EROSION BLANKETS & TURF REINFORCEMENT MATS SLOPE INSTALLATION

NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.

2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.

3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.

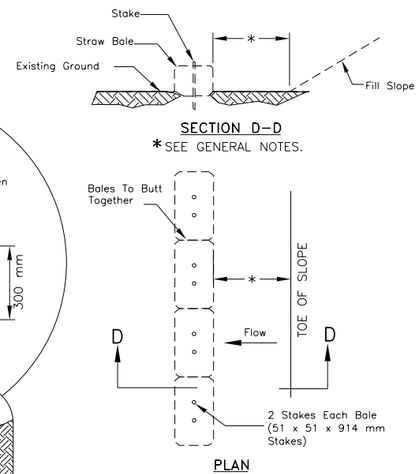


BLOCK AND GRAVEL DROP INLET SEDIMENT BARRIER

NOTES:
1. DROP INLET SEDIMENT BARRIERS ARE TO BE USED FOR SMALL, NEARLY LEVEL DRAINAGE AREAS. (LESS THAN 5%)

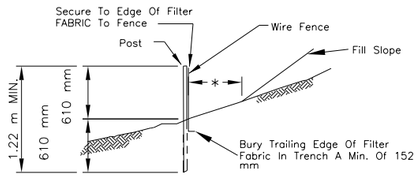
2. EXCAVATE A BASIN OF SUFFICIENT SIZE ADJACENT TO THE DROP INLET.

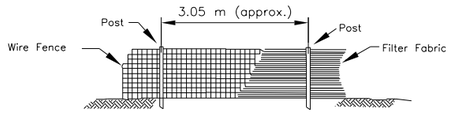
3. THE TOP OF THE STRUCTURE (PONDING HEIGHT) MUST BE WELL BELOW THE GROUND ELEVATION DOWNSLOPE TO PREVENT RUNOFF FROM BYPASSING THE INLET. A TEMPORARY DIKE MAY BE NECESSARY ON THE DOWNSLOPE SIDE OF THE STRUCTURE.



STRAW BALE SILT BARRIER

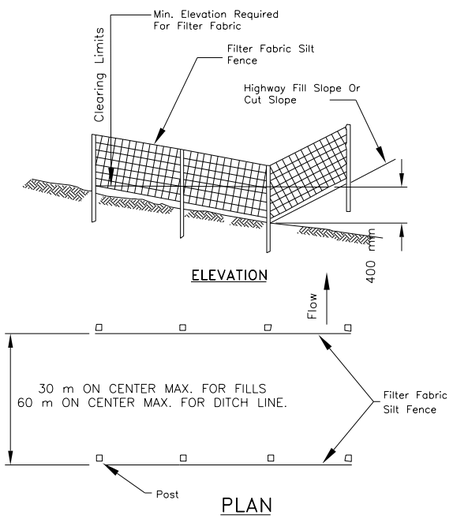
*SEE GENERAL NOTES



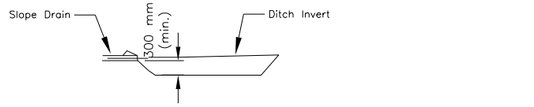


FILTER FABRIC SILT FENCE

* SEE GENERAL NOTES

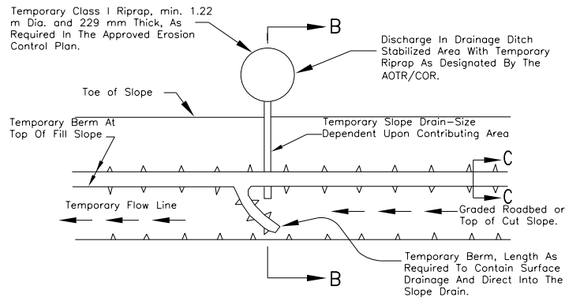


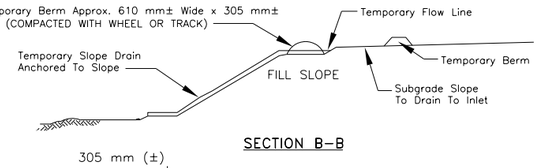
SILT FENCE EROSION CHECK



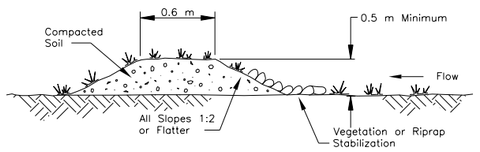
SEDIMENT TRAP

(Traps shall not fill to beyond one–half capacity prior to cleaning)



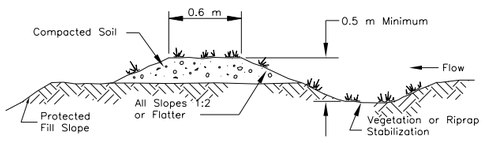


TEMPORARY SLOPE DRAIN, BERM. (FOR FILL AND CUT SLOPES) [NOTES: TEMPORARY BERMS MAY ALSO BE CONSTRUCTED OF STRAW BALES SET 104–152 mm INTO GROUND.]



TYPICAL TEMPORARY DIVERSION DIKE

(FOR TOP OF CUT BACK SLOPES.)



TYPICAL FILL DIVERSION

TEMPORARY DIVERSION DIKE

NOTES:
1. THE CHANNEL BEHIND THE DIKE SHALL HAVE POSITIVE GRADE TO A STABILIZED OUTLET.

2. THE DIKE SHALL BE ADEQATELY COMPACTED TO PREVENT FAILURE.

3. THE DIKE SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT SEEDING OR RIPRAP.

4. THE DIVERSION DIKE SHALL EXTEND TO THE BOTTOM OF CUT BACK SLOPE AND INTERCEPT THE CUT DITCH.

GENERAL NOTES

1. SEE DWG D7 FOR RECP AND STAPLE PATTERN DETAILS.

2. THE CONTRACTOR SHALL INSTALL GEOTEXTILE FABRIC, TYPE N, AROUND CONCRETE STRUCTURE, AS FOLLOWS:

   A. CONSTRUCT FINISH GRADING AROUND STRUCTURE TO BE PLACED.
   B. CUT TRENCHES FOR FOOTING OF SLAB.
   C. INSTALL 1.22m OF GEOTEXTILE FABRIC ANCHORED ON FLOOR AND TOP ALONG THE CUT FACE OF TRENCH AS SHOWN
   D. PLACE CONCRETE FORMS, REINFORCEMENTS,AND SUBSEQUENT CONCRETE.

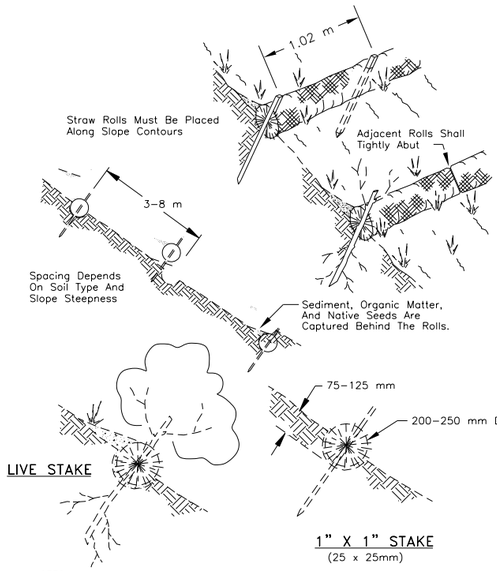
3. CONSTRUCT SEDIMENT BASINS AND TRAPS, EROSION CHECKS AND/OR FILTERS IN STRATEGIC LOCATIONS ON THE PROJECT TO FILTER STORM RUNOFF BEFORE IT LEAVES THE PROJECT CONSTRUCTION LIMITS OR ENTERS A STREAM AS SHOWN IN THE APPROVED SWPPP.

4. CLEAN ALL SEDIMENT BASINS AND TRAPS OF ACCUMULATED SEDIMENT WHEN HALF FULL OF SEDIMENT.

5. USE DRAIN PIPE, RIPRAP, GEOTEXTILE FABRIC, OR GRASS–LINED WATERWAY FOR TEMPORARY SLOPE DRAINS IT CHANNEL RUNOFF DOWN SLOPES, CHANNEL WATER INTO SLOPE DRAINS WITH STRAW BALES, WATTLES OR EARTH BERMS CONSTRUCTED AT THE TOP OF A CUT SLOPE. ANCHOR SLOPE DRAINS TO THE SLOPE.

6. THE CONTRACTOR SHALL ADJUST THE DIMENSIONS AND/OR LOCATIONS OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO FIT ACTUAL FIELD CONDITIONS.

7. REMOVE AND DISPOSE OF EROSION CONTROL MEASURES WHEN THE PERMANENT EROSION CONTROL MEASURES ARE SATISFACTORILY ESTABLISHED AND DRAINAGE DITCHES AND CHANNELS ARE LINED AND STABILIZED, IN ACCORDANCE WITH SECTION 157 OF FP–14.



NOTES:
1.STRAW ROLL INSTALLATION REQUIRED THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 75–125 mm DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

STRAW ROLLS

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS
NAVAJO D.O.T. N8084(1)1,2&4 MANY FARMS

STORMWATER POLLUTION AND EROSION/SEDIMENT CONTROL

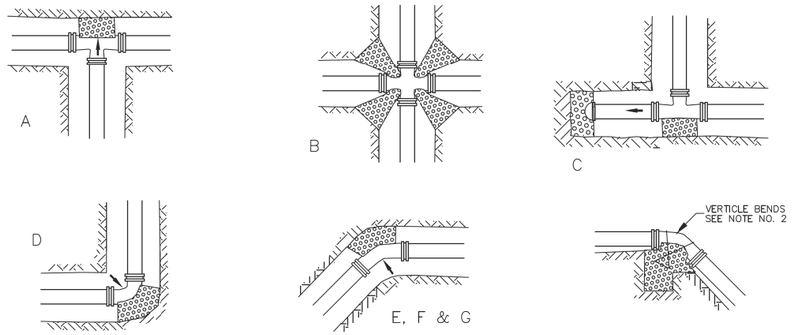
DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: E2	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR Date Signed 5/4/26 ARIZONA U.S.A.

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ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
N8084	N8084(1)1,2&4	109	109

NOTE: UNITS ON THIS SHEET ARE US CUSTOMARY



CONCRETE THRUST BLOCK

SIZE OF THRUST FACE

PIPE NOM. SIZE	A TEE OR PLUG	B CROSS (EACH)	C CAP	D 90° BEND	E 45° BEND	F 22 1/2° BEND	G 11 1/4° BEND
2"	7" X 7"	6" X 6"	7" X 7"	9" X 9"	6" X 6"	5" X 5"	4" X 4"
4"	14" X 14"	12" X 12"	14" X 14"	16" X 16"	12" X 12"	9" X 9"	6" X 6"
6"	20" X 20"	17" X 17"	20" X 20"	24" X 24"	18" X 18"	13" X 13"	9" X 9"
8"	26" X 26"	22" X 22"	26" X 26"	31" X 31"	23" X 23"	16" X 16"	12" X 12"
10"	33" X 33"	28" X 28"	33" X 33"	39" X 39"	29" X 29"	20" X 20"	14" X 14"
12"	39" X 39"	33" X 33"	39" X 39"	47" X 47"	34" X 34"	25" X 25"	17" X 17"
14"	43" X 43"	36" X 36"	43" X 43"	51" X 51"	37" X 37"	27" X 27"	19" X 19"
16"	49" X 49"	41" X 41"	49" X 49"	58" X 58"	43" X 43"	30" X 30"	22" X 22"
18"	55" X 55"	46" X 46"	55" X 55"	65" X 65"	48" X 48"	34" X 34"	24" X 24"

NOTES: 1. SIZE OF THRUST FACE BASED ON 160 PSI PIPE LINE PRESSURE AND 2000 PSI SOIL BEARING
2. AT VERTICAL BENDS, PROVIDE SUFFICIENT WEIGHT TO RESIST OUTWARD THRUST
3. KEEP CONCRETE BEHIND BELL OF FITTING. DO NOT LET IT RUN AGAINST PIPE OR IN JOINT
4. 48 HOURS IS MINIMUM CONCRETE CURE TIME BEFORE PRESSURIZING WATER MAIN

1	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

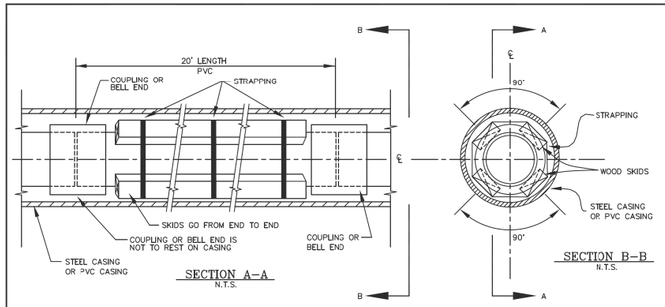
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION.

STANDARD DRAWING NO. W-11
CONCRETE THRUST BLOCK

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. DATE: 1/93	CHECKED BY: P.S. DATE: 1/93	APPR. BY: P.S. DATE: 1/93	AUTOCAD DRAWING



INSTALLATION OF PVC PIPE IN CASING
N.T.S.

STEEL PIPE CASING

STEEL CASING, ASTM A53, TYPE E, GRADE B - INFO TABLE							
PIPE SIZE	2"	4"	6"	8"	10"	12"	14"
CASING SIZE:	8" or 10"	8" or 10"	12"	14"	14"	20"	22"
CASING SCH:	20	20	20	10	10	10	10
WALL THICKNESS	0.25	0.25	0.25	0.25	0.25	0.25	0.25
TEST PRESS. (psi)	1220	1220	820	750	750	520	440

NOTES: 1. SEAL ENDS OF CASING. STEEL CASING SHALL BE BUTT-WELDED AND WATER TIGHT.
2. AT MINIMUM, STRAP AT BOTH ENDS AND MIDDLE OF EACH JOINT OF PIPE.
3. ROAD BORING BY NECA IS 8", 10", 14", OR 20".

CORRUGATED METAL PIPE CASING

CORRUGATED METAL PIPE CASING: SHALL MEET AASHTO M36 AND AASHTO M218, PIPE CLASSIFICATION SHALL BE TYPE I, HELICAL CORRUGATIONS, SHEET THICKNESS SHALL BE 16 GAUGE. PIPE FABRICATION METHOD SHALL BE HELICAL CORRUGATIONS WITH A CONTINUOUS WELD SEAM IN WHICH THE ENDS HAVE BEEN ENROLLED TO FORM ANNULAR CORRUGATIONS. JOINING SYSTEM FOR CMP CASING SHALL BE COUPLING BANDS WITH ANNULAR CORRUGATIONS WHICH ARE NOT WATER TIGHT.

3	01/16	MODIFIED STEEL PIPE CASING TABLE AND NOTE #3	WZS
2	08/13	MODIFIED PER BIA LETTER DATED 07/18/13	WZS
1	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

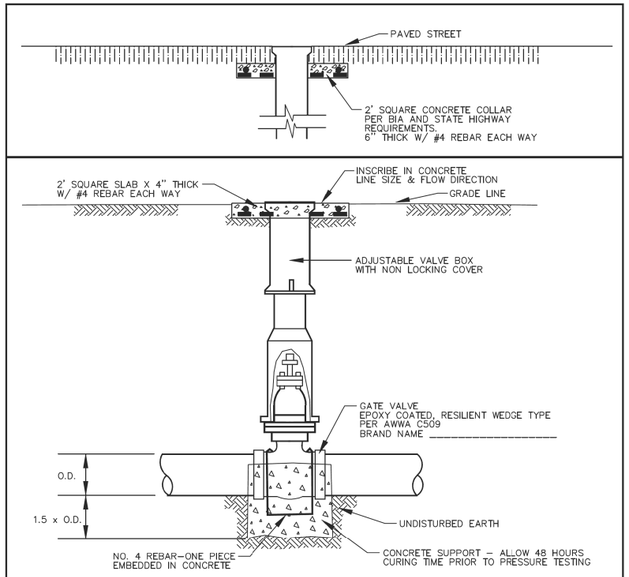
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION.

STANDARD DRAWING NO. W-24
INSTALLATION OF PVC PIPE
IN CASING

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. DATE: 12/92	CHECKED BY: P.S. DATE: 12/92	APPR. BY: P.S. DATE: 12/92	AUTOCAD DRAWING



TYPICAL WATER MAIN VALVE INSTALLATION
NOT TO SCALE

01	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

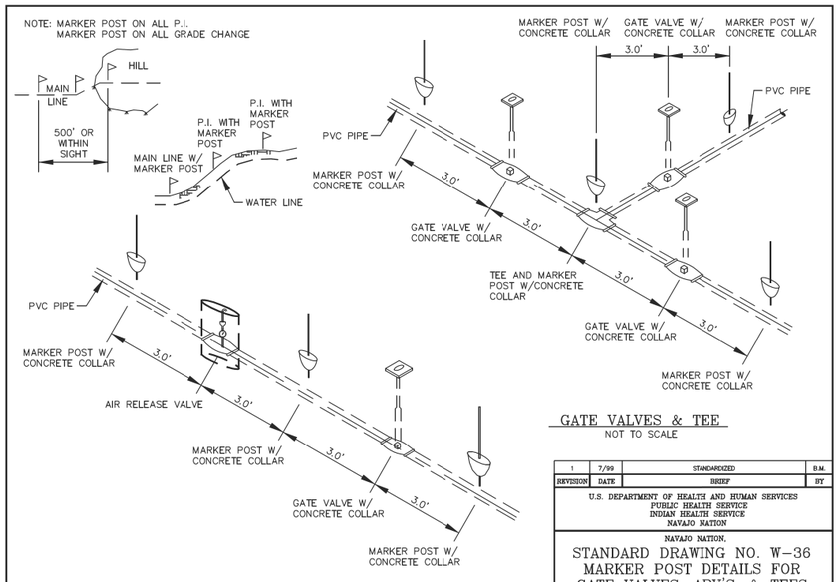
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION.

STANDARD DRAWING NO. W-16
TYPICAL WATER MAIN VALVE
INSTALLATION

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. DATE: 12/92	CHECKED BY:12-92 DATE: P.S.	APPR. BY: P.S. DATE: 12/92	AUTOCAD DRAWING



GATE VALVES & TEE
NOT TO SCALE

AIR RELEASE VALVE & GATE VALVE
NOT TO SCALE

1	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

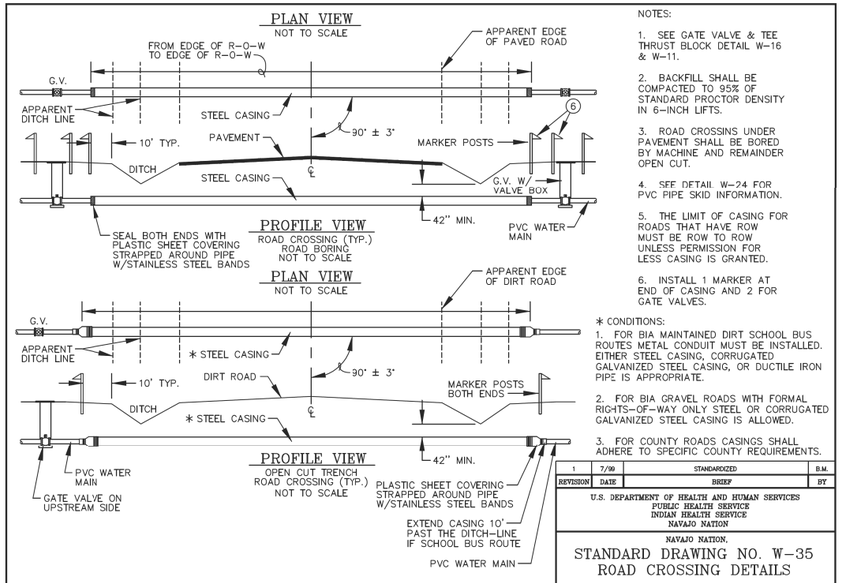
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION.

STANDARD DRAWING NO. W-36
MARKER POST DETAILS FOR
GATE VALVES, ARV'S, & TEES

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY:H.M.S. DATE: 11/16/93	CHECKED BY: M.M DATE: 11/23/93	APPR. BY: M.M. DATE: 11/23/93	AUTOCAD DRAWING



NOTES:

1. SEE GATE VALVE & TEE THRUST BLOCK DETAIL W-16 & W-11.
2. BACKFILL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY IN 6-INCH LIFTS.
3. ROAD CROSSINS UNDER PAVEMENT SHALL BE BORED BY MACHINE AND REMAINDER OPEN CUT.
4. SEE DETAIL W-24 FOR PVC PIPE SKID INFORMATION.
5. THE LIMIT OF CASING FOR ROADS THAT HAVE ROW MUST BE ROW TO ROW UNLESS PERMISSION FOR LESS CASING IS GRANTED.
6. INSTALL 1 MARKER AT END OF CASING AND 2 FOR GATE VALVES.

* CONDITIONS:

1. FOR BIA MAINTAINED DIRT SCHOOL BUS ROUTES METAL CONDUIT MUST BE INSTALLED. EITHER STEEL CASING, CORRUGATED GALVANIZED STEEL CASING, OR DUCTILE IRON PIPE IS APPROPRIATE.
2. FOR BIA GRAVEL ROADS WITH FORMAL RIGHTS-OF-WAY ONLY STEEL OR CORRUGATED GALVANIZED STEEL CASING IS ALLOWED.
3. FOR COUNTY ROADS CASINGS SHALL ADHERE TO SPECIFIC COUNTY REQUIREMENTS.

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REVISION	DATE	BRIEF	BY

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
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STANDARD DRAWING NO. W-35
ROAD CROSSING DETAILS

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. DATE: 12/92	CHECKED BY: P.S. DATE: 12/92	APPR. BY: P.S. DATE: 12/92	AUTOCAD DRAWING

NAVAJO D.O.T.

NAVAJO DIVISION OF TRANSPORTATION
DEPARTMENT OF ROADS

N8084(1)1,2&4 MANY FARMS

NTUA ROAD CROSSING DETAIL

DESIGNED BY: AJS	REVISED:
DRAWN BY: DBB	BY:
DATE: 5/4/2026	DIBBLE
DWG: U1	

Registered Professional Engineer (Civil) CERTIFICATE NO. 25015 ANDREW JOHN SPEAR United States of America ARIZONA U.S.A.

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