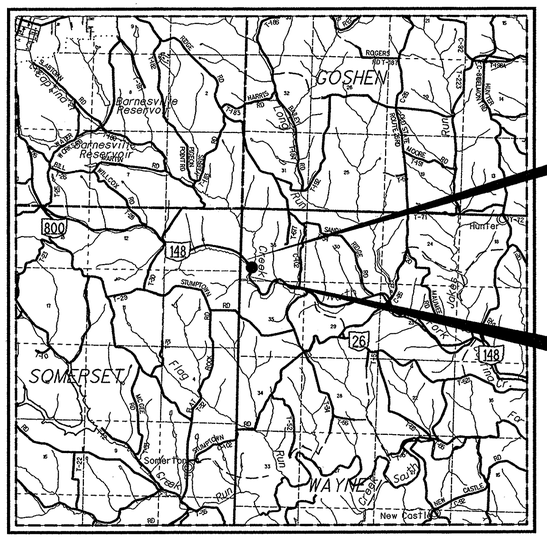
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

BEL-148-3.12

WAYNE TOWNSHIP
BELMONT COUNTY



LOCATION MAP

LATITUDE: 39°56'20" N LONGITUDE: 81°7'15" W

SCALE IN MILES
0 1 2 3 4

N

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
STATE & FEDERAL ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2011)	630
DESIGN YEAR ADT (2031)	760
DESIGN HOURLY VOLUME (2031)	693
DIRECTIONAL DISTRIBUTION	55%
TRUCKS (24 HOUR B&C)	8%
DESIGN SPEED	55 MPH
LEGAL SPEED	55 MPH
DESIGN FUNCTIONAL CLASSIFICATION: RURAL MINOR ARTERIAL	
NHS PROJECT	NO

DESIGN EXCEPTIONS	APPROVAL DATE	SHEET NUMBERS
HORIZONTAL ALIGNMENT	3-25-2010	7
SHOULDER WIDTH	3-25-2010	2
STOPPING SIGHT DISTANCE	3-25-2010	7
SUPERELEVATION	3-25-2010	14

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVENUE
NEW PHILADELPHIA, OHIO

INDEX OF SHEETS:

PROJECT DESCRIPTION

IMPROVEMENT OF 0.05 MILE OF SR 148 BY REPLACEMENT OF ONE STRUCTURE OVER N. FORK OF CAPTINA CREEK INCLUDING APPROACH RECONSTRUCTION.

PROJECT EARTH DISTURBED AREA: 0.66 ACRES
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA: 0.41 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.9 ACRES

2010 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 4.

ENGINEER'S SEAL:

STATE OF OHIO
ZACH DEEMS
E-59429
REGISTERED
PROFESSIONAL ENGINEER

SIGNED:
DATE: 1-6-2011

STANDARD CONSTRUCTION DRAWINGS

BP-3.1	10/19/07	TC-41.20	1/19/01				
		TC-42.20	1/21/11				
DM-4.3	4/17/09	TC-52.10	1/19/07				
DM-4.4	4/17/09	TC-52.20	1/19/07				
		TC-65.10	1/21/05				
GR-1.1	7/16/04	TC-65.11	1/21/05				
GR-2.1	1/16/04						
GR-3.6	10/16/09						
GR-4.1	1/21/11						
AS-1-81	7/19/02						
CS-1-08	7/18/08						
TST-1-99	4/18/08						
MT-101.60	4/17/09						
MT-105.10	1/16/09						

SUPPLEMENTAL SPECIFICATIONS

800-2010	1/21/11
832	5/5/09
898	1/21/11

SPECIAL PROVISIONS

WATERWAY PERMIT CONDITIONS
3/2/2011

APPROVED Lloyd V. Maddum, P.E.
DATE 1/12/11 DISTRICT DEPUTY DIRECTOR

APPROVED Terry Leary II
DATE 3-9-11 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E034(824)
PID NO. 24864
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
BEL-148-3.12
1/30

BEL - SR-148-3.12
110303 PID - 24864
Dist 11 5/19/2011

0:\2009\0922 01.dgn 1/6/2011 9:24:46 AM soh

[A] STA. 461+25 TO STA. 461+75
VARIES 11.2′ TO 12.0′
STA. 463+50 TO STA. 464+00
VARIES 12.0′ TO 10.7′

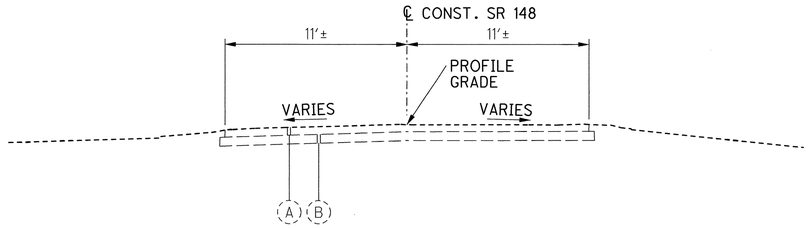
[B] STA. 461+25 TO STA. 461+75
VARIES 10.9′ TO 12.0′
STA. 463+50 TO STA. 464+00
VARIES 12.0′ TO 11.2′

[C] TREATED SHOULDER WIDTH
STA. 461+25 TO STA. 461+75
VARIES 2′ TO 6′
STA. 463+50 TO STA. 464+00
VARIES 6′ TO 2′

[D] TREATED SHOULDER WIDTH
STA. 461+25 TO STA. 461+75
VARIES 2′ TO 6′
STA. 463+50 TO STA. 464+00
VARIES 6′ TO 2′

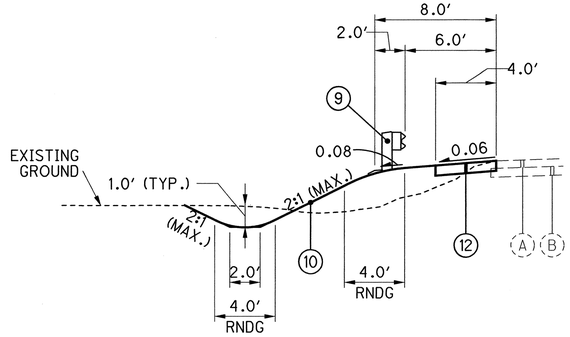
[E] STA. 461+87.78 TO STA. 462+17.78 - 0.08
STA. 463+17.41 TO STA. 463+40 - 0.08
STA. 463+40 TO STA. 463+47.41 - VARIES
SEE SUPERELEVATION TABLE

[F] STA. 461+25 TO STA. 461+75 - VARIES
STA. 461+75 TO STA. 463+40 - 0.08
STA. 463+40 TO STA. 464+00 - VARIES



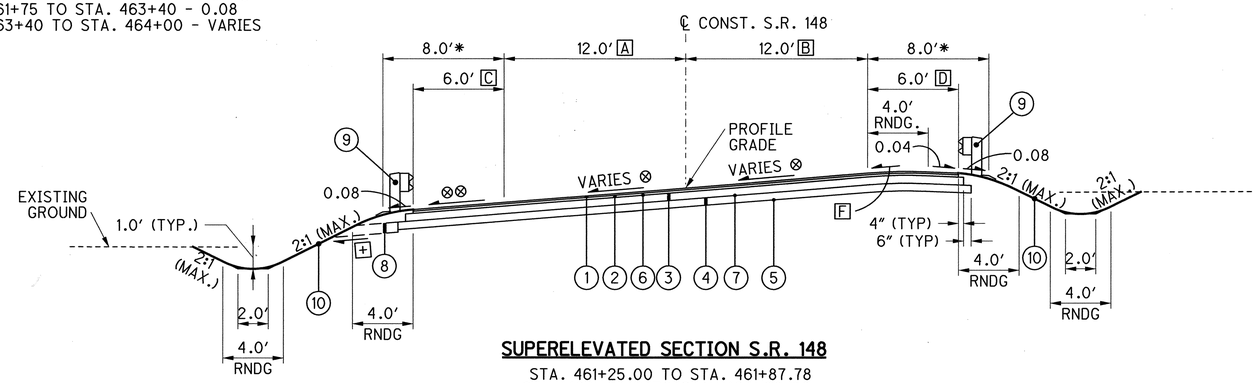
ADJOINING PAVEMENT SECTION

STA. 461+25.00
STA. 464+00.00



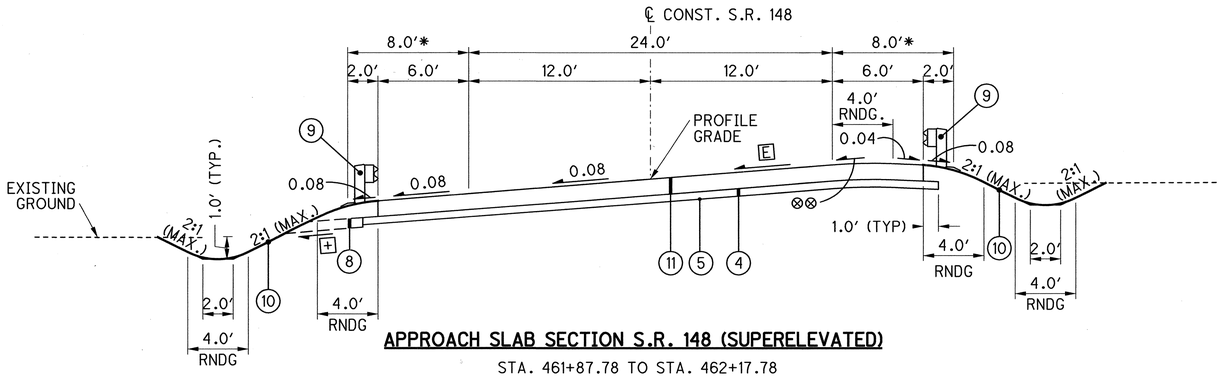
GUARDRAIL DETAIL

STA. 459+81.2 TO 461+25 LT.
STA. 461+08.4 TO 461+25 RT.
STA. 464+00 TO 465+55.5 LT.
STA. 464+00 TO 464+33.3 RT.



SUPERELEVATED SECTION S.R. 148

STA. 461+25.00 TO STA. 461+87.78
STA. 463+47.41 TO STA. 464+00.00



APPROACH SLAB SECTION S.R. 148 (SUPERELEVATED)

STA. 461+87.78 TO STA. 462+17.78
STA. 463+17.41 TO STA. 463+47.41

⊞ SLOPE AT 8% PREF., 4% MIN. TO OBTAIN POSITIVE OUTLET
⊗ SEE SUPERELEVATION TABLE FOR PROPOSED CROSS SLOPE
⊗⊗ MATCH PAVEMENT CROSS SLOPE
* NDC = 10.0′

LEGEND:

(1)	ITEM 448	1 ¼″ ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M, AS PER PLAN
(2)	ITEM 448	1 ¾″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22
(3)	ITEM 301	6″ ASPHALT CONCRETE BASE, PG64-22
(4)	ITEM 304	6″ AGGREGATE BASE
(5)	ITEM 204	SUBGRADE COMPACTION
(6)	ITEM 407	TACK COAT FOR INTERMEDIATE COURSE @ 0.040 GAL. / S.Y.
(7)	ITEM 408	PRIME COAT @ 0.40 GAL/S.Y.
(8)	ITEM 605	AGGREGATE DRAINS, AS PER PLAN
(9)	ITEM 606	GUARDRAIL, TYPE 5
(10)	ITEM 659	SEEDING AND MULCHING
(11)	ITEM 898	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), AS PER PLAN, (T=17″)
(12)	ITEM 304	8″ AGGREGATE BASE

(A) 6½″± EXISTING ASPHALT
(B) EXISTING AGGREGATE BASE

TYPICAL SECTIONS

BEL-148-3.12

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

AT&T OHIO
3935 NORTHPOINTE DRIVE
ZANESVILLE, OH 43701

ATTN: MRS. SANDI RANDOLPH
PHONE: 740 454 3455

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLAN ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

EXISTING PLANS

EXISTING PLANS ENTITLED S.H.105-SEC.E-2&F. MAY BE INSPECTED IN THE ODOT DISTRICT 11 OFFICE IN NEW PHILADELPHIA.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM 448 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M, AS PER PLAN

MATERIALS FURNISHED FOR FINE AND COARSE AGGREGATES USED IN THIS ITEM SHALL EXCLUDE ALL STONE AND CRUSHED CARBONATE STONE.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS-SECTIONS EVEN THOUGH OTHERWISE SHOWN.

STREAM CHANNEL EXCAVATION

STREAM CHANNEL EXCAVATION AREAS ARE SHOWN ON SHEET 7 TO REMOVE ACCUMULATED SEDIMENT AND DEBRIS FROM THE STREAM. THE REMOVAL OF SEDIMENT AND DEBRIS IS LIMITED TO THE MINIMUM NECESSARY TO RESTORE THE STREAM IN THE IMMEDIATE VICINITY TO MATCH THE EXISTING ADJACENT STREAM ELEVATIONS. ALL EXCAVATED MATERIAL MUST BE DISPOSED OF IN AN UPLAND AREA. ALL EXCAVATION AND DISPOSAL SHALL BE PERFORMED IN ACCORDANCE WITH CMS 203 EXCEPT AS MODIFIED BY THIS NOTE. ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE EXCAVATION AND DISPOSAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 - EXCAVATION, AS PER PLAN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO COVER ALL ABOVE DESCRIBED WORK FOR THE FOUR STREAM CHANNEL EXCAVATION ISLANDS SHOWN ON SHEET 7:

ITEM 203 - EXCAVATION, AS PER PLAN 92 CU. YD.

NORTHERN ISLAND
*1235 SF x 0.3 FT / 27 = 14 CY
SOUTHWESTERN ISLAND
*1777 SF x 0.8 FT / 27 = 53 CY
SOUTHEASTERN ISLAND
*1224 SF x 0.5 FT / 27 = 23 CY
CENTRAL ISLAND
*149 SF x 0.3 FT / 27 = 2 CY

* COMPUTER GENERATED AREA

ITEM 605 - AGGREGATE DRAINS, AS PER PLAN

THIS ITEM SHALL BE PERFORMED IN ACCORDANCE WITH CMS 605.07. THE AGGREGATE SHALL BE NO. 57 GRAVEL, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

ITEM 203 EMBANKMENT, AS PER PLAN

ALL EMBANKMENT REQUIREMENTS SHALL BE IN ACCORDANCE WITH ITEM 203 EMBANKMENT EXCEPT AS NOTED BELOW.

EMBANKMENT

PLACE AND COMPACT EMBANKMENT MATERIAL IN 6 INCH LIFTS FOR THE CONSTRUCTION OF THE APPROACH EMBANKMENTS.

SPECIAL BENCHING

AS SHOWN ON THE CROSS SECTIONS, NEW FILL IS REQUIRED ON THE SIDES OF THE EXISTING EMBANKMENTS. SPECIAL BENCHING, HORIZONTAL BENCHES CUT INTO EXISTING SLOPING SURFACES TO PERMIT PLACEMENT AND COMPACTION OF NEW FILL IN HORIZONTAL LIFTS, IS SHOWN ON THE CROSS SECTIONS FROM STA. 463+17.41, RT. TO STA. 464+50, RT. THE LENGTH OF ANY GIVEN BENCH THAT IS EXPOSED SHALL NOT EXCEED THE QUANTITY OF EMBANKMENT FILL WHICH MAY BE PROPERLY PLACED AND COMPACTED IN ONE DAY.

ALTHOUGH CROSS-SECTIONS INDICATE SPECIFIC DIMENSIONS FOR PROPOSED BENCHING OF THE EMBANKMENT FOUNDATION IN CERTAIN AREAS, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. BENCH ALL OTHER SLOPED EMBANKMENT AREAS SET FORTH IN 203.05. NO ADDITIONAL PAYMENT WILL BE MADE FOR BENCHING REQUIRED UNDER THE PROVISIONS OF 203.05.

PAYMENT

ESTIMATED QUANTITIES FOR ITEM 203 - EMBANKMENT, AS PER PLAN ARE CARRIED FROM THE CROSS SECTION SHEETS TO THE GENERAL SUMMARY.

ITEM 204 - PROOF ROLLING

PRIOR TO THE PLACEMENT AND COMPACTION OF NEW FILL ON THE EXCAVATED BENCHES, PROOF ROLL THE ENTIRE EXPOSED EMBANKMENT FOUNDATION IN ACCORDANCE WITH ITEM 204.06 PROOF ROLLING IN ORDER TO DETECT ANY SOFT, WET, OR WEAK ZONES. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING. SEE PLAN SHEET NO. 11-13 FOR ADDITIONAL INFORMATION.

ITEM 204 - PROOF ROLLING 1 HOUR

SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, TOPSOIL 137 CU. YD.
1233 x (111 ÷ 1000) = 137

659, REPAIR SEEDING AND MULCHING 62 SQ. YD
1233 x 0.05 = 62

659, COMMERCIAL FERTILIZER 0.17 TON
(1233 x 9 x (30 ÷ 1000)) ÷ 2000 = 0.17

659, LIME 0.25 ACRES
1233 x 9 ÷ 43560 = 0.25

659, WATER 7 M. GAL.
(1233 x 9 x (300 ÷ 1000)) x 2) ÷ 1000 = 6.66

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

PROJECT REFERENCE COORDINATES

LOCATION	NORTHING	EASTING
CONTROL POINTS		
CONTROL POINT #50 IRON PIN SET - 11.5' E. OF E. EOP, 33.5' SW OF SOUTH GATE POST	709,727.3625	2,355,043.7900
CONTROL POINT #51 IRON PIN SET - 6.5' W. OF W. EOP, 19' NW OF NW CORNER OF BRIDGE	709,356.7158	2,355,308.3100
℄ CONST. S.R. 148		
P.O.T. 459+00.00	708,961.3402	2,355,284.0055
P.C. 459+93.99	709,046.0304	2,355,324.7642
P.C.C. 462+06.27	709,252.4376	2,355,361.6049
P.C.C. 463+15.39	709,355.6944	2,355,328.8972
P.T. 464+65.41	709,477.3386	2,355,241.5718
P.O.T. 465+68.47	709,554.3457	2,355,173.0686
℄ EX. R/W S.R. 148		
P.T. 457+79.53	708,850.6078	2,355,226.3887
P.C. 459+79.59	709,025.6629	2,355,323.2375
P.T. 464+27.51	709,441.9284	2,355,273.0121
P.C. 472+19.79	710,024.0626	2,354,735.5855
INTERSECTIONS		
℄ CONST. 464+39.99= ℄ R/W 464+49.46	709,458.0554	2,355,258.1237

NOTE: COORDINATE POINTS ARE BASED ON AN ASSUMED COORDINATE SYSTEM.

BM #1 - ELEV. 1013.27
IRON PIN SET 9' EAST OF EDGE OF PAVEMENT

STA. 460+32.70, 19.92' RT.

BM #2 - ELEV 1007.40
IRON PIN SET 6' WEST OF EDGE OF PAVEMENT

STA. 463+26.75, 17.24' LT.

CALCULATED SAH CHECKED PDL

GENERAL NOTES

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MAINTENANCE OF TRAFFIC

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 70 CONSECUTIVE CALENDAR DAYS, WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON THIS SHEET. A DISINCENTIVE SHALL BE ASSESSED IN THE AMOUNT OF $7800 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

LENGTH AND DURATION OF ROAD CLOSURE AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. DETOUR SHALL NOT BE UTILIZED DURING LOCAL SCHOOL DISTRICT SCHEDULE. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

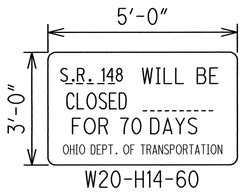
NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

ODOT WILL PROVIDE, ERECT AND REMOVE SIGNS AND SIGN SUPPORTS ON DETOUR ROUTE ONLY, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE CONTRACTOR SHALL MAINTAIN THE DETOUR SIGNS AND SIGN SUPPORTS ERECTED BY ODOT.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC:

S.R. 148 AND S.R. 800 INTERSECTION
S.R. 148 AND S.R. 26 INTERSECTION

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.



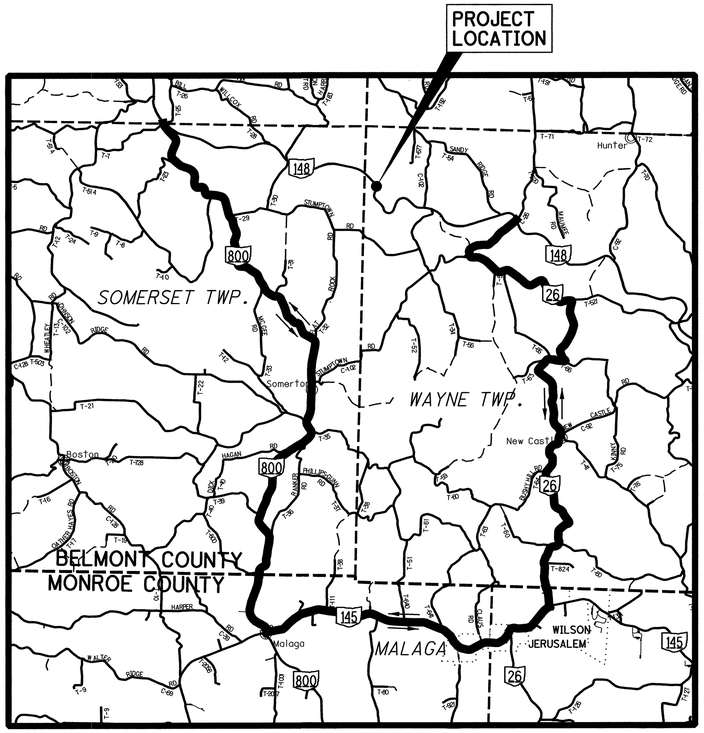
NOTICE OF CLOSURE SIGN DETAIL

DESIGNATED LOCAL DETOUR ROUTE

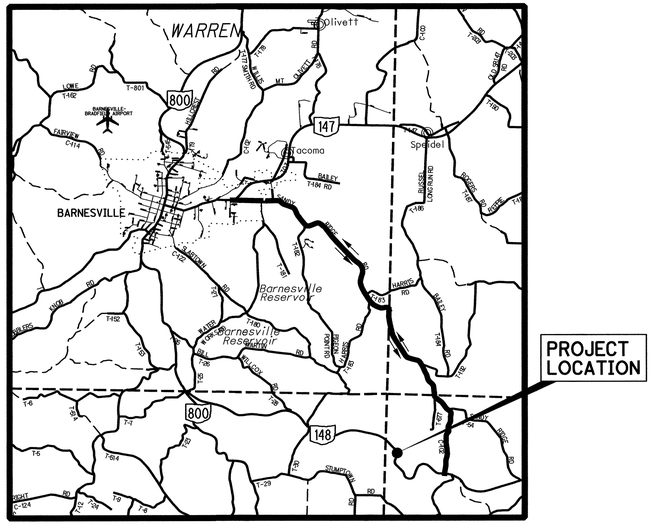
IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED DETOUR ROUTE OR "DESIGNATED LOCAL DETOUR ROUTE." THIS ROUTE IS AS SHOWN ON THIS SHEET. DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS REASONABLY SMOOTH AND FREE FROM HOLES, RUTS, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DETERMINED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DETERMINED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE DESIGNATED LOCAL DETOUR ROUTE.

ITEM 448	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22	30 CU. YD.
ITEM 407	TACK COAT	60 GAL.
ITEM 301	ASPHALT CONCRETE BASE, PG 64-22	90 CU. YD.
ITEM 304	AGGREGATE BASE	50 CU. YD.



DETOUR MAP
NOT TO SCALE



DESIGNATED LOCAL DETOUR ROUTE
NOT TO SCALE

CALCULATED SAH
CHECKED PDL

MAINTENANCE OF TRAFFIC NOTES

BEL-148-3.12

4
30

SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
3	4		8	9	10	11	12	13	15		OFFICE CALCS.								
																		ROADWAY	
LUMP														201	11000	LUMP		CLEARING AND GRUBBING	
			381											202	38000	381	FT	GUARDRAIL REMOVED	
				7	81	71	209	56						203	10000	424	CU YD	EXCAVATION	
92														203	10001	92	CU YD	EXCAVATION, AS PER PLAN	3
				14	22	37	168	125						203	20001	366	CU YD	EMBANKMENT, AS PER PLAN	3
											681			204	10000	681	SQ YD	SUBGRADE COMPACTION	
1														204	45000	1	HOUR	PROOF ROLLING	
			612.50											606	13000	612.50	FT	GUARDRAIL, TYPE 5	
			3											606	25000	3	EACH	ANCHOR ASSEMBLY, TYPE A	
			4											606	32160	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE TST	
																		EROSION CONTROL	
			187											601	32204	187	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER	
137														659	00300	137	CU YD	TOPSOIL	
				125	236	125	341	406						659	10000	1233	SQ YD	SEEDING AND MULCHING	
62														659	14000	62	SQ YD	REPAIR SEEDING AND MULCHING	
0.17														659	20000	0.17	TON	COMMERCIAL FERTILIZER	
0.25														659	31000	0.25	ACRE	LIME	
7														659	35000	7	M GAL	WATER	
														832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
														832	30000	5000	EACH	EROSION CONTROL	
																		DRAINAGE	
			29											605	31101	29	FT	AGGREGATE DRAINS, AS PER PLAN	3
																		PAVEMENT	
	90										69			301	46000	159	CU YD	ASPHALT CONCRETE BASE, PG64-22	
	50										147			304	20000	197	CU YD	AGGREGATE BASE	
	60													407	10000	60	GALLON	TACK COAT	
											16			407	14000	16	GALLON	TACK COAT FOR INTERMEDIATE COURSE	
											166			408	10000	166	GALLON	PRIME COAT	
											20			448	46050	20	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
											14			448	46905	14	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG70-22M, AS PER PLAN	3
	30													448	47020	30	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	
																		TRAFFIC CONTROL	
									15					621	00100	15	EACH	RPM	
			16											626	00100	16	EACH	BARRIER REFLECTOR	
									4					630	84900	4	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
									4					630	86002	4	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
									0.10					642	00100	0.10	MILE	EDGE LINE, TYPE 1	
									0.05					642	00300	0.05	MILE	CENTER LINE, TYPE 1	
																		FOR STRUCTURE BEL-148-0314 ESTIMATED QUANTITIES SEE SHEET NO. 19	
	LUMP													614	11000	LUMP		MAINTAINING TRAFFIC	
														619	16010	3	MONTH	FIELD OFFICE, TYPE B	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	

CALCULATED SAH
CHECKED NAQ

GENERAL SUMMARY

BEL-148-3.12

BEGIN PROJECT
STA. 461+25
SLM 3.12

E034(824)

END PROJECT
STA. 464+00
SLM 3.17

E034(824)

NORTH FORK
CAPTINA CREEK

WOODS

VEGETATION

CONST.
LIMITS

Ex R/W

℄ CONST. S.R. 148

AC Sta. 459+93.99

PCC Sta. 462+06.27

PCC Sta. 463+15.39

PT Sta. 464+65.41

N 25° 42' 00" E

N 41° 39' 19" W

S.R. 148

460

461

462

463

464

465

1000

1010

1020

1030

1040

STRUCTURE NO.
BEL-148-0314

PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY)	1.62 ACRES
PROJECT EARTH DISTURBED AREA	0.66 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	0.41 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	4.9 ACRES
IMPERVIOUS (PAVED) AREA FOR PRE-CONSTRUCTION SITE	0.30 ACRES
IMPERVIOUS (PAVED) AREA FOR POST CONSTRUCTION SITE	0.37 ACRES
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.50
RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE	0.52
POST CONSTRUCTION BMP: THE PERMANENT PROJECT EDA DOES NOT EXCEED ONE ACRE FOR THE PROJECT. NO POST-CONSTRUCTION BMPS ARE REQUIRED.	
IMMEDIATE RECEIVING WATERS	NORTH FORK CAPTINA CREEK
SUBSEQUENT RECEIVING WATER	CAPTINA CREEK

PROJECT DESCRIPTION

IMPROVEMENT OF 0.05 MILE OF SR 148 BY REPLACEMENT OF ONE STRUCTURE OVER N. FORK OF CAPTINA CREEK INCLUDING APPROACH RECONSTRUCTION.

USGS QUADRANT NO. N3952.5-W8100
HUNTER, OHIO

LATITUDE: N 39°56'20"
LONGITUDE: W 81°07'15"

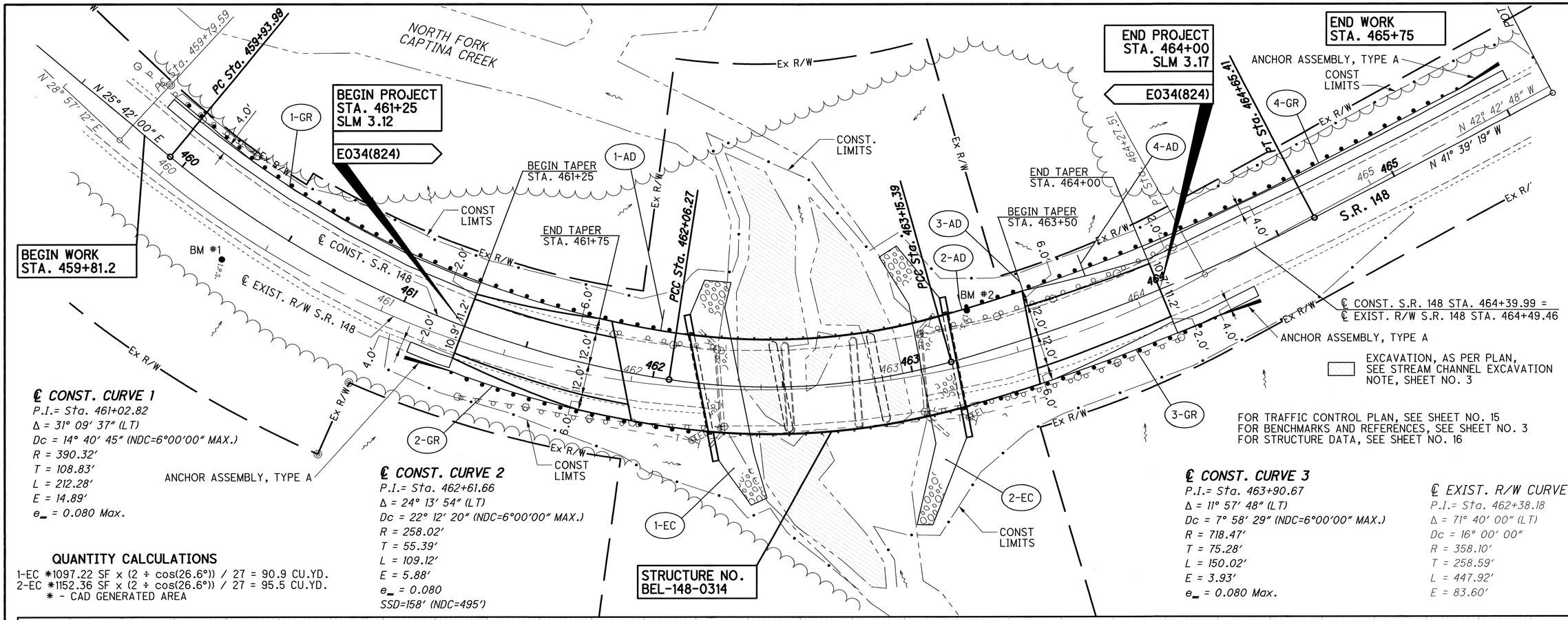
DEFINED TO APPROXIMATE CENTER OF PROJECT.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SAH
CHECKED PDL

PROJECT SITE PLAN
S.R. 148

BEL-148-3.12



℄ CONST. CURVE 1
P.I.= Sta. 461+02.82
Δ = 31° 09' 37" (LT)
Dc = 14° 40' 45" (NDC=6°00'00" MAX.)
R = 390.32'
T = 108.83'
L = 212.28'
E = 14.89'
e_{max} = 0.080 Max.

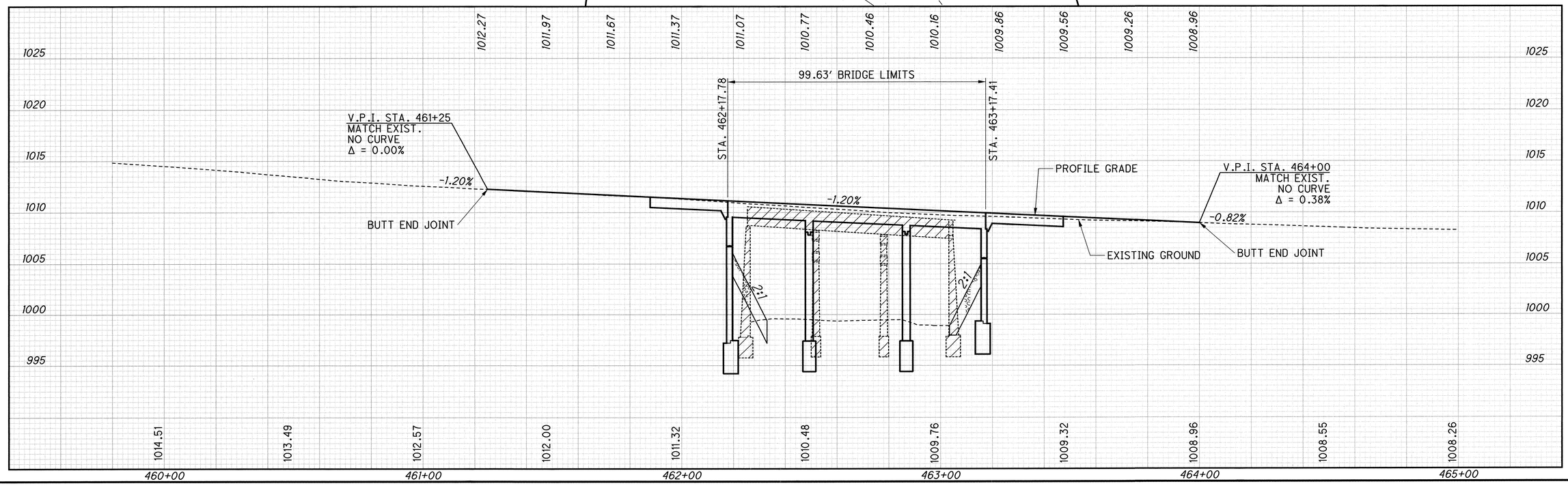
℄ CONST. CURVE 2
P.I.= Sta. 462+61.66
Δ = 24° 13' 54" (LT)
Dc = 22° 12' 20" (NDC=6°00'00" MAX.)
R = 258.02'
T = 55.39'
L = 109.12'
E = 5.88'
e_{max} = 0.080
SSD=158' (NDC=495')

℄ CONST. CURVE 3
P.I.= Sta. 463+90.67
Δ = 11° 57' 48" (LT)
Dc = 7° 58' 29" (NDC=6°00'00" MAX.)
R = 718.47'
T = 75.28'
L = 150.02'
E = 3.93'
e_{max} = 0.080 Max.

℄ EXIST. R/W CURVE 1
P.I.= Sta. 462+38.18
Δ = 71° 40' 00" (LT)
Dc = 16° 00' 00"
R = 358.10'
T = 258.59'
L = 447.92'
E = 83.60'

FOR TRAFFIC CONTROL PLAN, SEE SHEET NO. 15
FOR BENCHMARKS AND REFERENCES, SEE SHEET NO. 3
FOR STRUCTURE DATA, SEE SHEET NO. 16

QUANTITY CALCULATIONS
1-EC *1097.22 SF x (2 ÷ cos(26.6°)) / 27 = 90.9 CU.YD.
2-EC *1152.36 SF x (2 ÷ cos(26.6°)) / 27 = 95.5 CU.YD.
* - CAD GENERATED AREA



HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED SAH
CHECKED PDL

PLAN AND PROFILE
S.R. 148 - STA. 459+81.2 TO STA. 565+55.5

BEL-148-3.12

7
30

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE			202 GUARDRAIL REMOVED FT			601 ROCK CHANNEL PROTECTION, TYPE C WITH FABRIC FILTER CU.YD.				605 AGGREGATE DRAINS, AS PER PLAN FT		606 GUARDRAIL, TYPE 5 FT	606 BRIDGE TERMINAL ASSEMBLY, TYPE TST EACH	606 ANCHOR ASSEMBLY, TYPE A EACH		626 BARRIER REFLECTOR (TYPE A2, SPACED @ 50') EACH		
1-GR	7	459+81.23	462+12.41	LT.			72									218.75	1			5		
2-GR	7	461+08.41	462+23.62	RT.			103									93.75	1	1		3		
3-GR	7	463+15.31	464+33.28	RT.			103									93.75	1	1		3		
4-GR	7	463+18.34	465+55.46	LT.			103									206.25	1	1		5		
1-AD	7	462+00		LT.										8								
2-AD	7	463+25		LT.										6								
3-AD	7	463+50		LT.										6								
4-AD	7	463+75		LT.										9								
1-EC	7	462+19.6	462+33.7	LT & RT						90.9												
2-EC	7	463+03.6	463+15.6	LT & RT						95.5												
			SUB-TOTAL							186.4												
TOTALS CARRIED TO GENERAL SUMMARY							381			187				29		612.50	4	3		16		

CALCULATED SAH CHECKED NWQ

S.R. 148 - ESTIMATED QUANTITIES

BEL-148-3.12

8/30

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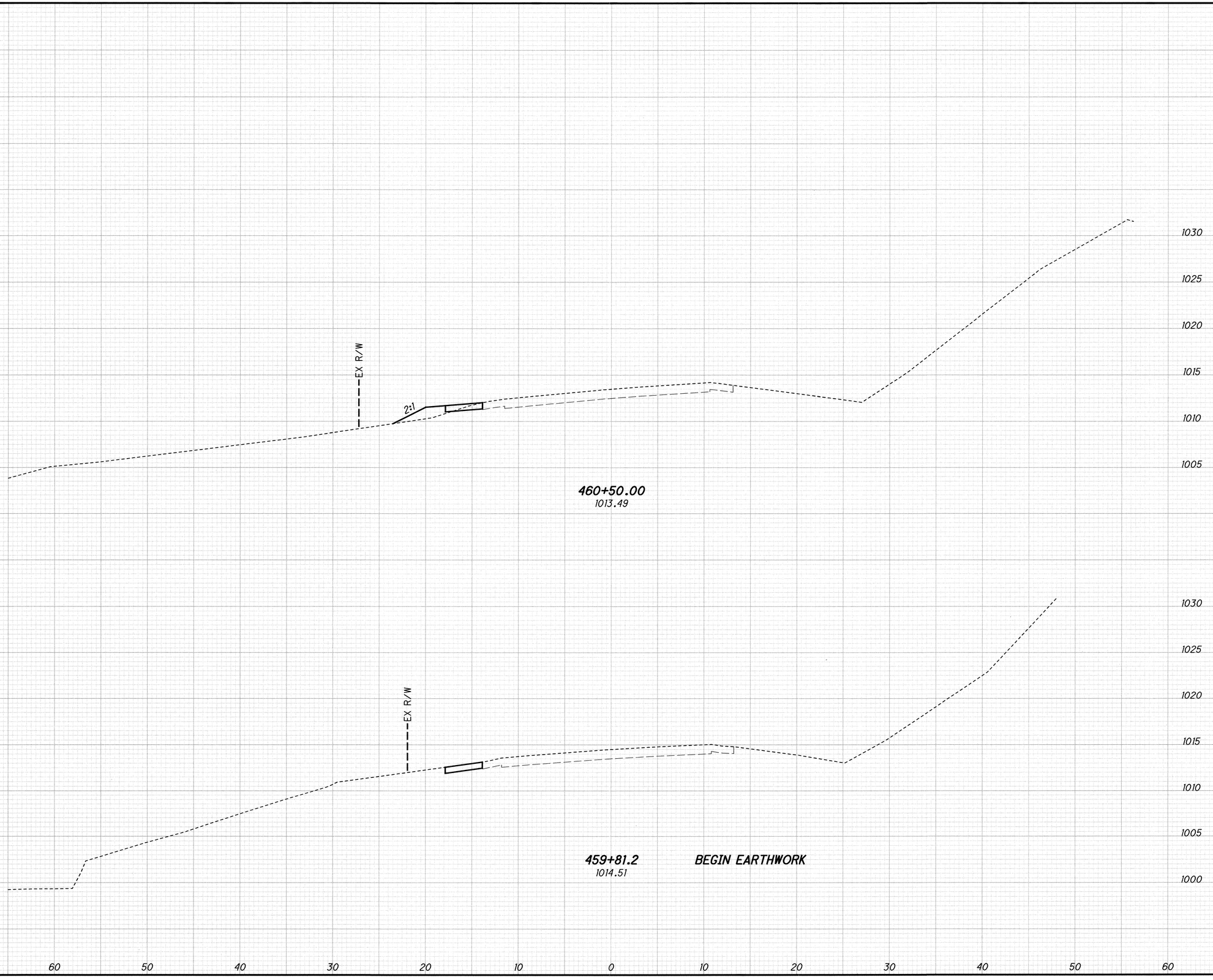
SEEDING	
END WIDTH	SQ. YDS.
	64
11	
	61
5	
	125



END AREA	
CUT	FILL
1	5
3	0

VOLUME	
CUT	FILL
2	8
5	6
7	14

CALCULATED SAH
CHECKED PDL

S.R. 148 - CROSS SECTIONS
STA. 459+81.2 TO 460+50

BEL-148-3.12

9
30

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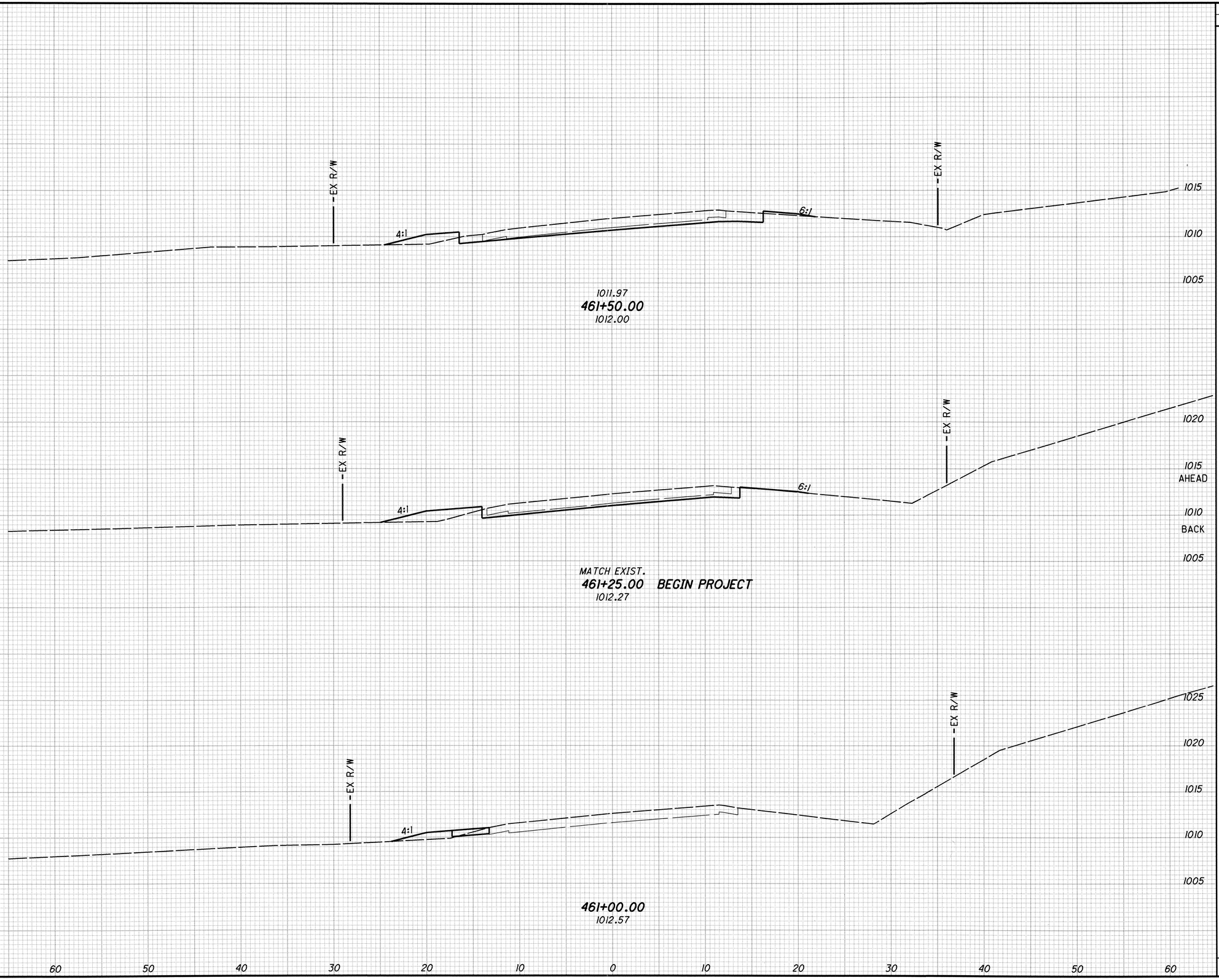
SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	120			47	10
26		38	6		
	78			33	6
30		34	8		
15		2	8		
	38			1	6
12		1	4		
	236			81	22



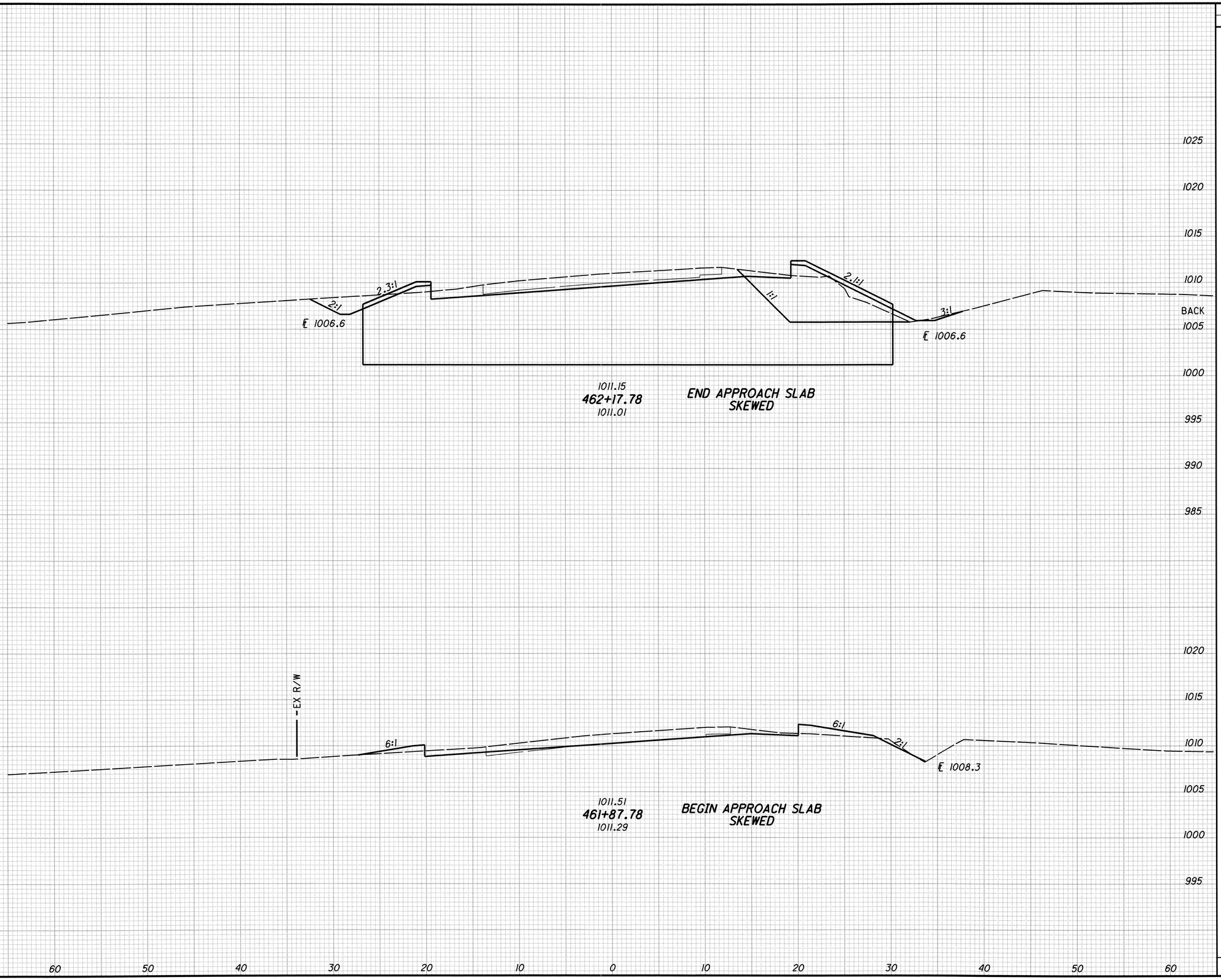
CALCULATED SAH
CHECKED PDL

CROSS SECTIONS
STA. 461+00 TO STA. 461+50

BEL-148-3.12

10/30

SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
44		98	58		
31	125	29	9	71	37
	125			71	37



CALCULATED SAH
CHECKED PDL

S.R. 148 - CROSS SECTIONS
STA. 461+87.78 TO STA. 462+17.78

BEL-148-3.12

11
30

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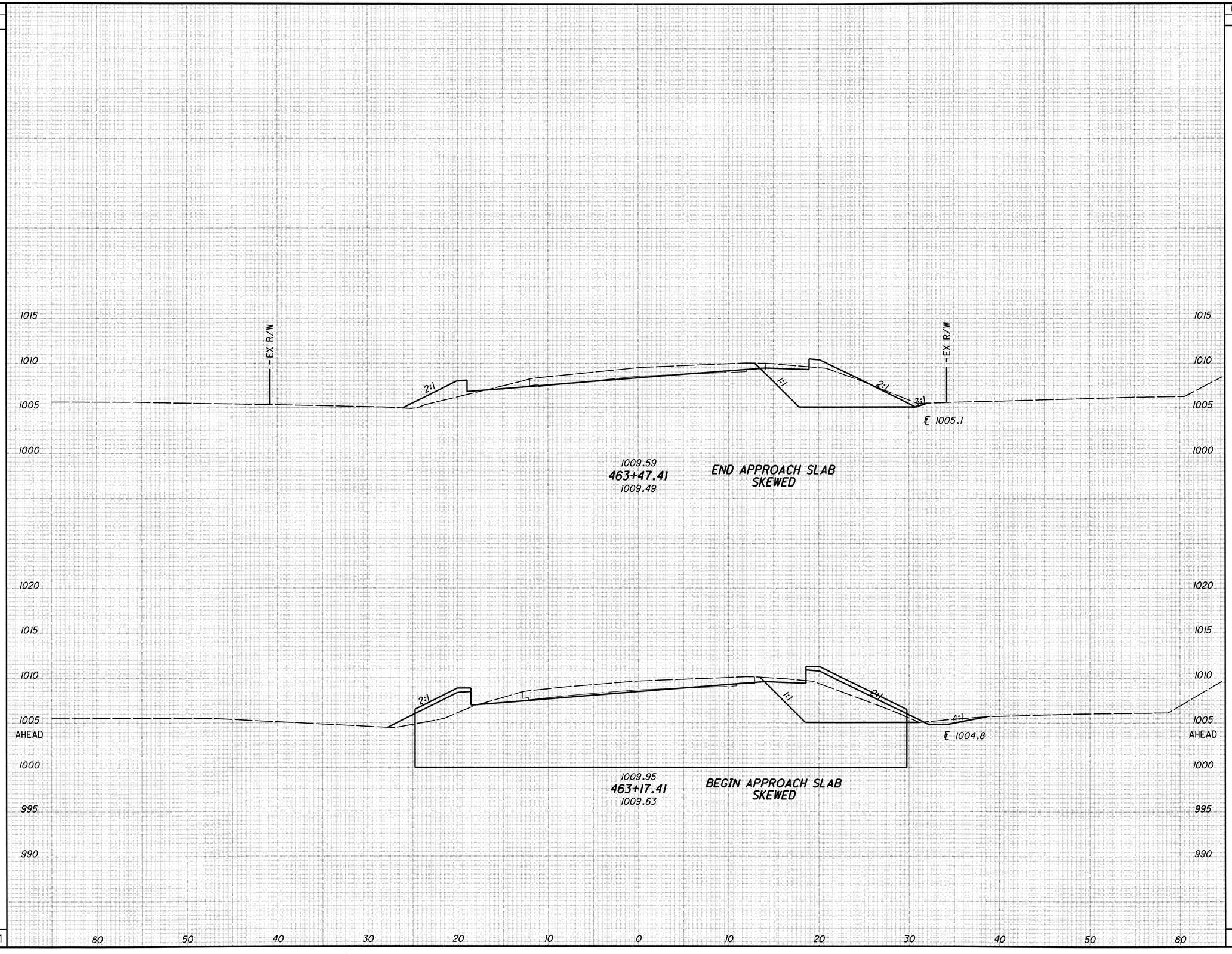
SEEDING	
END WIDTH	SQ. YDS.
	213
34	
	128
43	
	341



END AREA		VOLUME	
CUT	FILL	CUT	FILL
		126	99
74	57		
		83	69
76	67		
		209	168

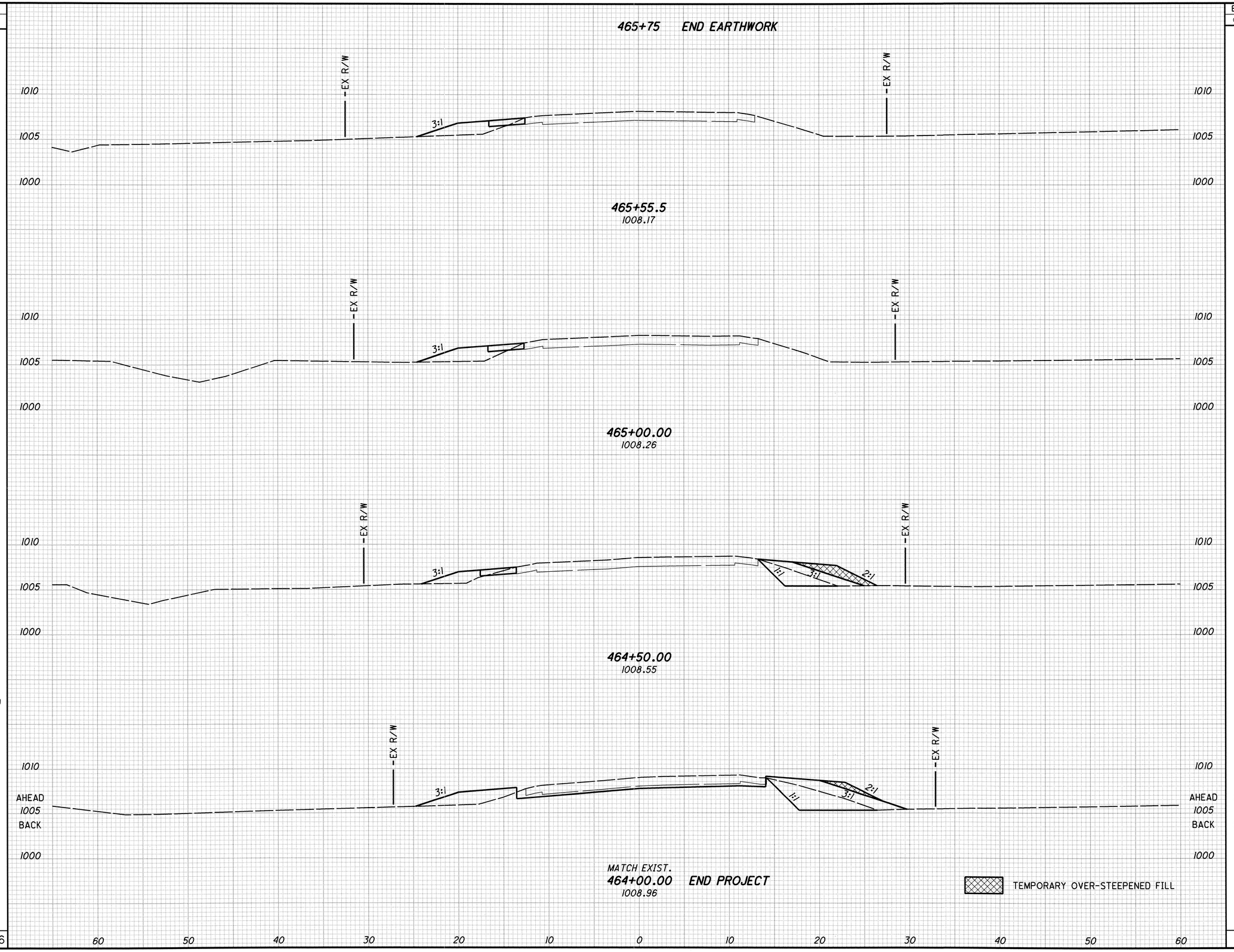
CALCULATED SAH
CHECKED PDL

S.R. 148 - CROSS SECTIONS
STA. 463+17.41 TO STA. 463+47.41

BEL-148-3.12

12
30

SEEDING END WIDTH	SEEDING SQ. YDS.
5	20
13	80
13	117
29	189
39	
39	
	406



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		1	3
1	8		
		2	17
1	9		
		17	36
17	30		
		36	69
22	45		
55	45		
		56	125

CALCULATED SAH
CHECKED PDL

S.R. 148 - CROSS SECTIONS
STA. 464+00 TO STA. 465+75

BEL-148-3.12

13
30

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SUPERELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	

SUPERELEVATION TABLE

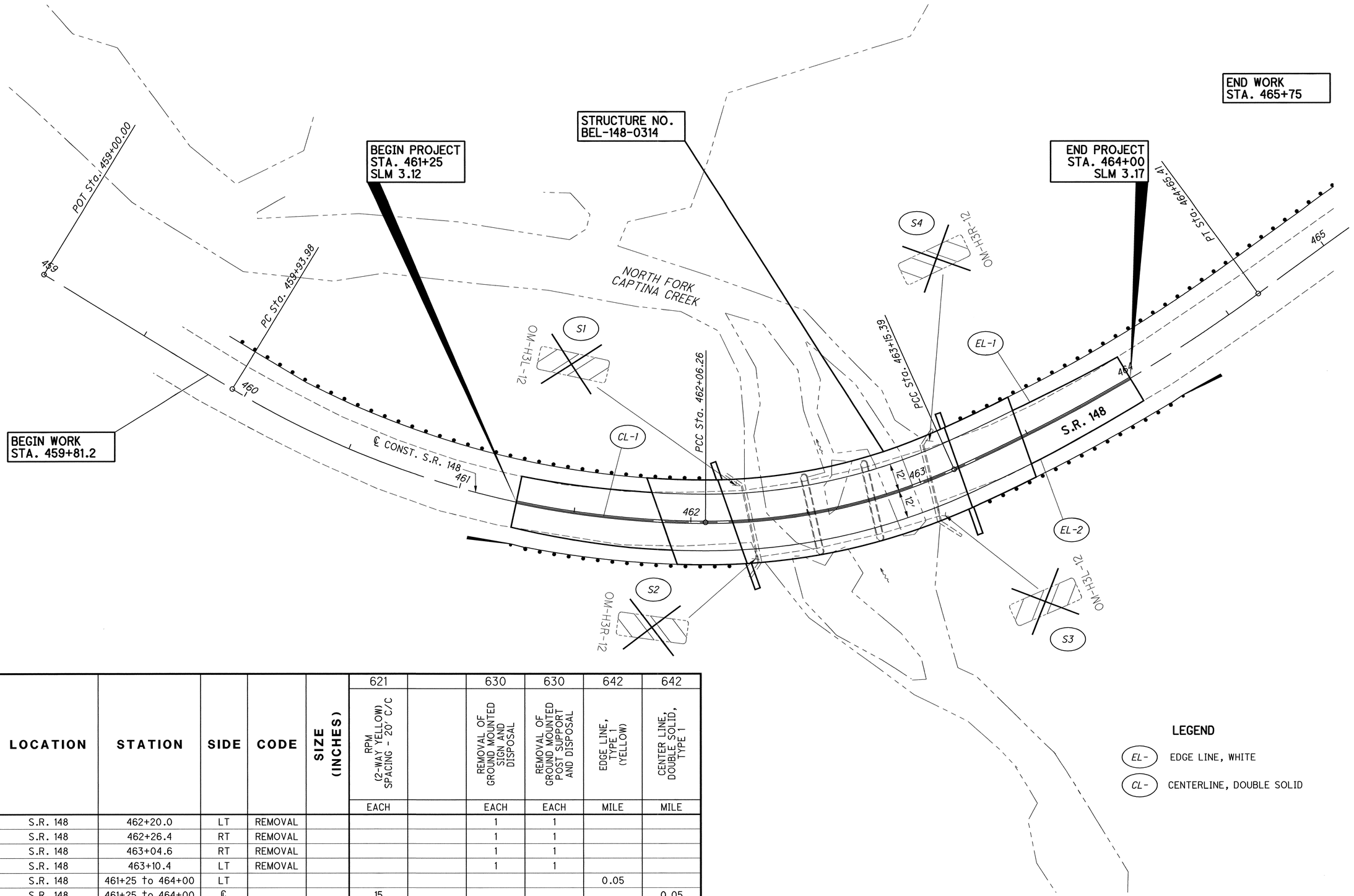
Curve 2 - P.I. Sta. 462+61.66 | Dc = 22° 12′ 20″

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
1011.17	240:1	-1.10	-0.098	11.17	461+25.00	1012.27	10.92	0.084	+0.92	1091:1	1013.19	M.E.
1010.94		-1.03	-0.089	11.59	461+50.00	1011.97	11.46	0.082	+0.94		1012.91	
1010.71		-0.96	-0.080	12.00	461+75.00	1011.67	12.00	0.080	+0.96		1012.63	F.S. L&R
					462+06.27							P.C.C.
				STRUCTURE NO. BEL-148-0314								
					463+15.39							P.C.C.
1008.72		-0.96	-0.080	12.00	463+40.00	1009.68	12.00	0.080	+0.96		1010.64	F.S. Rt.
1008.60	1099:1	-0.96	-0.080	12.00	463+50.00	1009.56	12.00	0.071	+0.85	99:1 (NDC=213:1)	1010.41	F.S. Lt.
1008.33		-0.93	-0.082	11.36	463+75.00	1009.26	11.60	0.050	+0.58		1009.84	
1008.06		-0.90	-0.084	10.73	464+00.00	1008.96	11.20	0.028	+0.31		1009.27	M.E.

CALCULATED SAH CHECKED PDL

SUPERELEVATION TABLE
S.R. 148

BEL-148-3.12



REF. NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	621 RPM (2-WAY YELLOW) SPACING - 20' C/C		630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	642 EDGE LINE, TYPE 1 (YELLOW)	642 CENTER LINE, DOUBLE SOLID, TYPE 1
						EACH		EACH	EACH	MILE	MILE
S1	S.R. 148	462+20.0	LT	REMOVAL				1	1		
S2	S.R. 148	462+26.4	RT	REMOVAL				1	1		
S3	S.R. 148	463+04.6	RT	REMOVAL				1	1		
S4	S.R. 148	463+10.4	LT	REMOVAL				1	1		
EL-1	S.R. 148	461+25 to 464+00	LT							0.05	
CL-1	S.R. 148	461+25 to 464+00	℄			15					0.05
EL-2	S.R. 148	461+25 to 464+00	RT							0.05	
TOTALS CARRIED TO GENERAL SUMMARY						**15**		**4**	**4**	**0.10**	**0.05**

LEGEND

EL- EDGE LINE, WHITE

CL- CENTERLINE, DOUBLE SOLID

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SAH
CHECKED PDL

S.R. 148
TRAFFIC CONTROL PLAN

BEL-148-3.12

15
30

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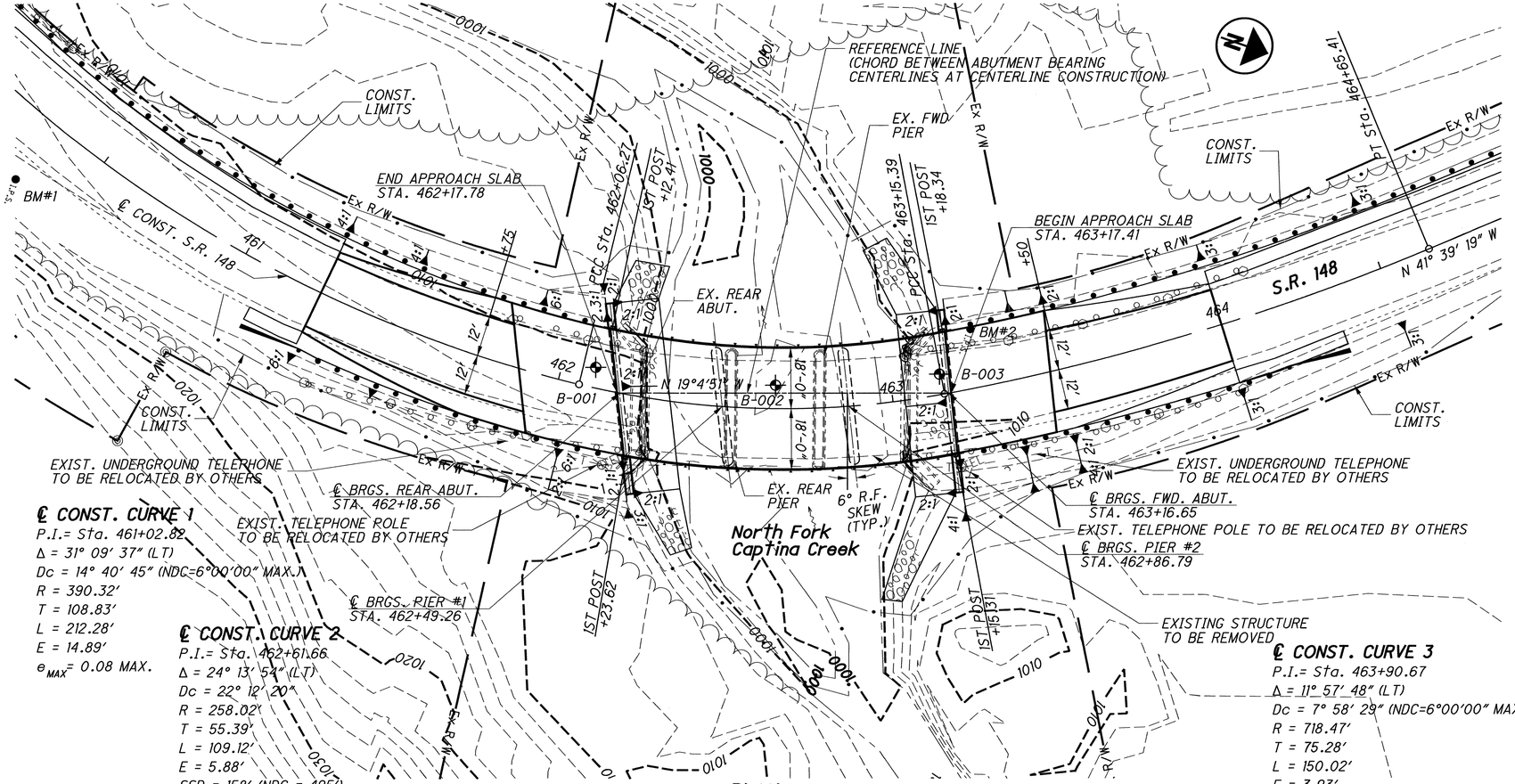
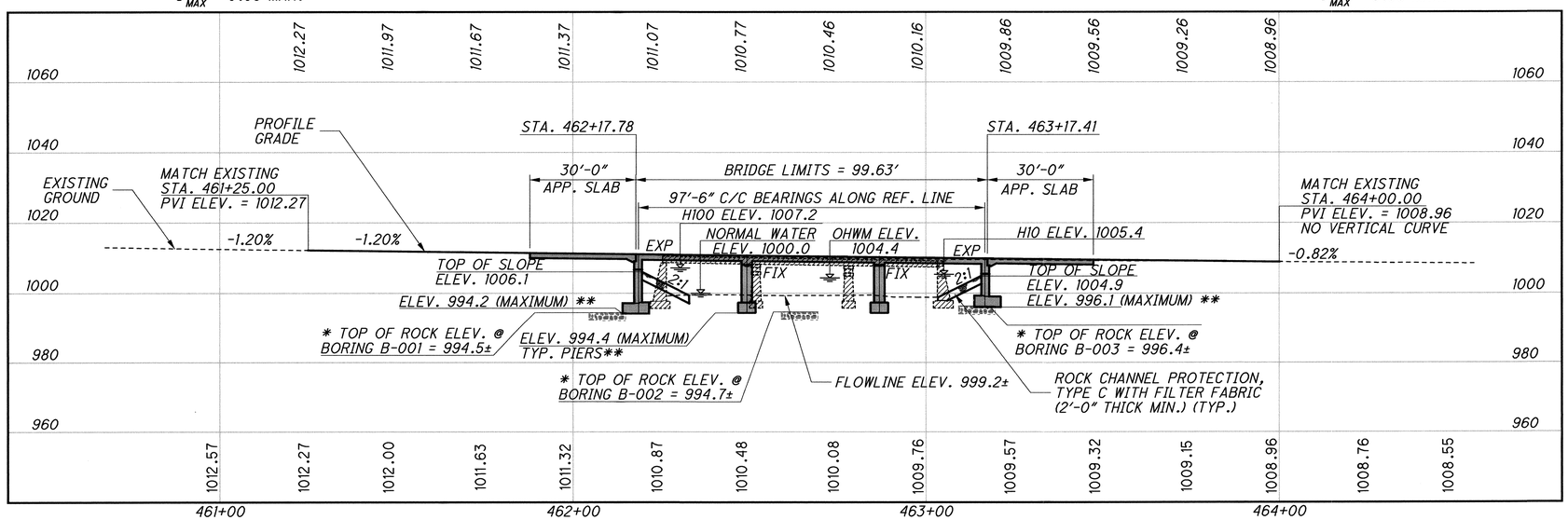


℄ CONST. CURVE 1
P.I.= Sta. 461+02.82
Δ = 31° 09′ 37″ (LT)
Dc = 14° 40′ 45″ (NDC=6°00′00″ MAX.)
R = 390.32′
T = 108.83′
L = 212.28′
E = 14.89′
e_{MAX} = 0.08 MAX.

℄ CONST. CURVE 2
P.I.= Sta. 462+61.66
Δ = 24° 13′ 54″ (LT)
Dc = 22° 12′ 20″
R = 258.02′
T = 55.39′
L = 109.12′
E = 5.88′
SSD = 158′ (NDC = 495′)
e_{MAX} = 0.08 MAX.

℄ CONST. CURVE 3
P.I.= Sta. 463+90.67
Δ = 11° 57′ 48″ (LT)
Dc = 7° 58′ 29″ (NDC=6°00′00″ MAX.)
R = 718.47′
T = 75.28′
L = 150.02′
E = 3.93′
e_{MAX} = 0.08 MAX.

PLAN



PROFILE ALONG ℄ CONSTRUCTION

BENCHMARK DATA

BM #1 STA. 460+32.70	ELEV. 1013.27	OFFSET 19.92′ RT.
BM #2 STA. 463+26.75	ELEV. 1007.40	OFFSET 17.24′ LT.

FOR ADDITIONAL BENCHMARK INFORMATION. SEE ROADWAY PLAN SHEET (3/30)

NOTES

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

* TOP OF ROCK SHOWN IS TOP OF GRAY, SLIGHTLY WEATHERED TO UNWEATHERED, LIMESTONE INTERBEDDED WITH DARK-GRAY SHALE AS NOTED ON BORING LOGS.

** ABUTMENT & PIER FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

LEGEND

BORING LOCATION

LIMITS OF EXISTING STRUCTURE REMOVAL

DESIGN DESIGNATION

2011 ADT = 630 2011 ADTT = 50
2031 ADT = 760 2031 ADTT = 61
DIRECTIONAL DISTRIBUTION = 0.55

STREAM DATA

DRAINAGE AREA = 7.14 SQ. MILES

Q10 = 1020 CFS V10 = 2.3 FT/S H10 ELEV = 1005.4
Q100 = 1780 CFS V100 = 3.0 FT/S H100 ELEV = 1007.2

STRUCTURE CLEARS THE DESIGN HW BY 1.53 FEET.

EXISTING STRUCTURE

TYPE: 3 SPAN CONTINUOUS REINFORCED CONCRETE SLAB WITH UNREINFORCED CONCRETE WALL TYPE SUBSTRUCTURE UNITS ON SPREAD FOOTINGS FOUNDED ON ROCK

SPANS: 25.17′± - 26.33′± - 25.17′± C/C BRGS
ROADWAY: 29′-0″± TOE/TOE CURB
LOADING: H-15
SKEW: NONE
WEARING SURFACE: 6″± ASPHALT CONCRETE
APPROACH SLABS: NONE
ALIGNMENT: 16°00′ CURVE LT.
SUPERELEVATION: 0.072±
STRUCTURE FILE NUMBER: 0703753
DATE BUILT: 1931
DISPOSITION: TO BE REMOVED

PROPOSED STRUCTURE

TYPE: THREE-SPAN CONTINUOUS REINFORCED CONCRETE SLAB ON REINFORCED CONCRETE SEMI-INTEGRAL ABUTMENTS AND WALL TYPE PIERS.
SPANS: 30′-0″ - 37′-6″ - 30′-0″ C/C BRGS ALONG REF. LINE
ROADWAY: 36′-0″ FACE/FACE GUARDRAIL
LOADING: HL-93 AND A FUTURE WEARING SURFACE OF 60 PSF
SKEW: 6°00′ R.F. TO REFERENCE LINE
WEARING SURFACE: 1″ MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (30′ LONG)
ALIGNMENT: 22°12′20″ CURVE LT.
SUPERELEVATION : 0.08
STRUCTURE FILE NUMBER: 0703761
COORDINATES: LATITUDE: N 39° 56′ 20″, LONGITUDE: W 81° 07′ 15″

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
59 WEST MAIN AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010

CHECKED	REVISED	STRUCTURE FILE NUMBER
HJS		0703761

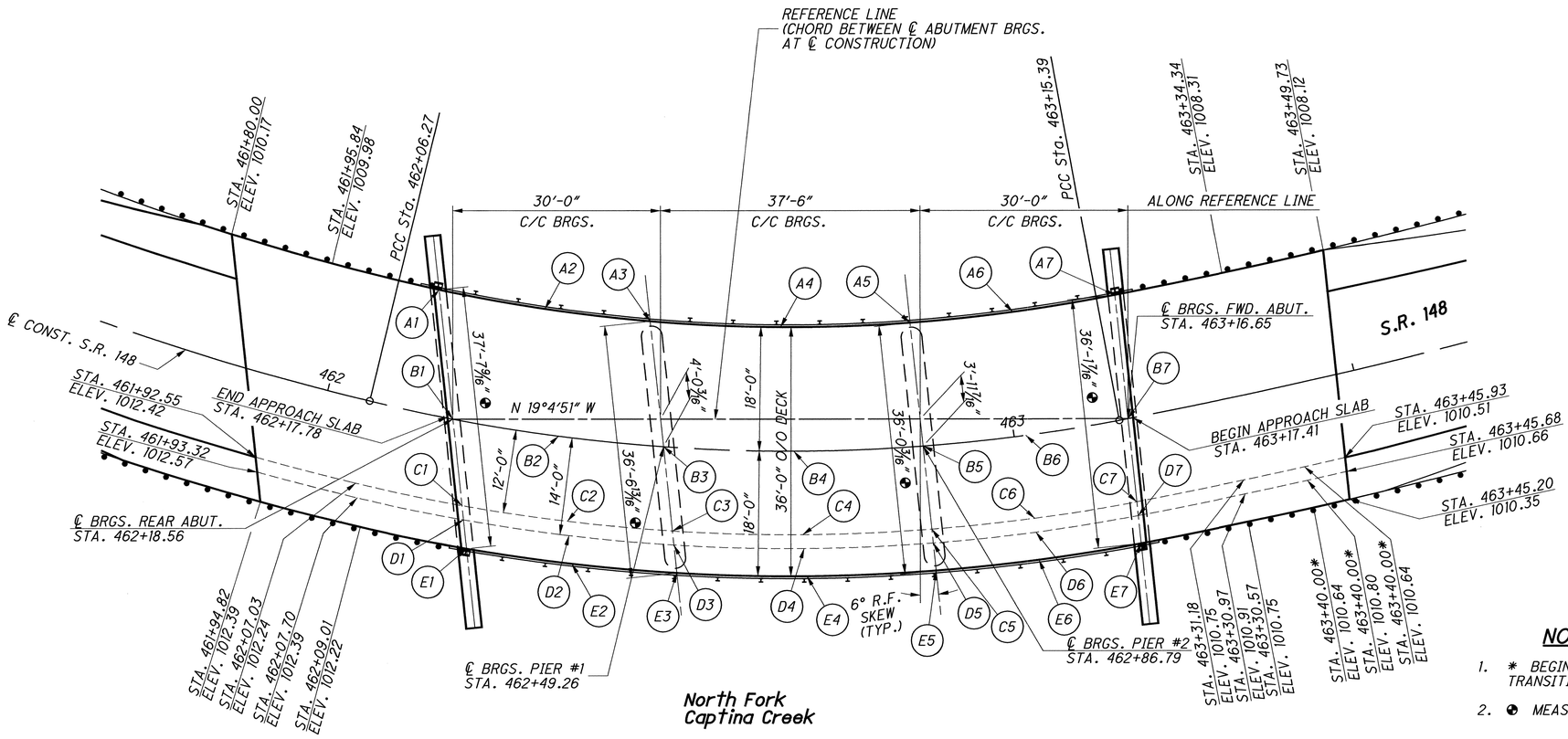
BELMONT COUNTY
STA. 462+17.78
STA. 463+17.41

SITE PLAN
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

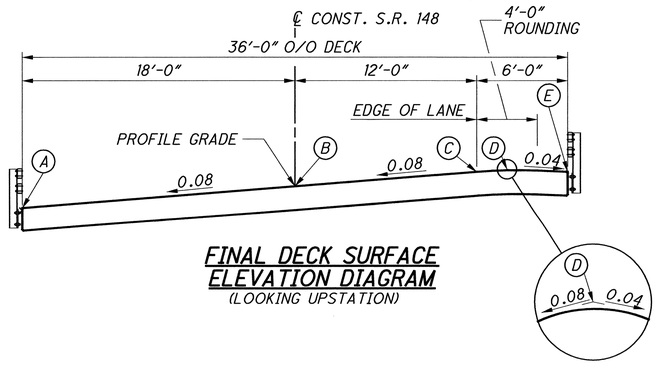
1 / 15

16 / 30



NOTES

1. * BEGIN SUPERELEVATION TRANSITION-RIGHT SIDE AHEAD
2. ◒ MEASURED ALONG ℄ BEARING



FINAL DECK SURFACE ELEVATION DIAGRAM
(LOOKING UPSTATION)

DETAIL 'A'

GENERAL PLAN

FINAL DECK SURFACE ELEVATIONS								
LOCATION		SPAN 1		SPAN 2		SPAN 3		
		℄ BRG.	0.50 SPAN	℄ BRG.	0.50 SPAN	℄ BRG.	0.50 SPAN	℄ BRG.
LINE POINT NUMBER		1	2	3	4	5	6	7
LINE A	STATION	462+12.67	462+29.38	462+45.82	462+66.10	462+86.20	463+02.24	463+18.18
	ELEVATION	1009.77	1009.57	1009.38	1009.13	1008.89	1008.70	1008.50
LINE B	STATION	462+18.56	462+34.02	462+49.26	462+68.10	462+86.79	463+01.71	463+16.65
	ELEVATION	1011.14	1010.96	1010.77	1010.55	1010.32	1010.14	1009.96
LINE C	STATION	462+22.04	462+36.76	462+51.30	462+69.28	462+87.14	463+01.39	463+15.68
	ELEVATION	1012.06	1011.88	1011.71	1011.49	1011.28	1011.11	1010.93
LINE D	STATION	462+22.59	462+37.20	462+51.62	462+69.47	462+87.19	463+01.34	463+15.52
	ELEVATION	1012.22	1012.04	1011.87	1011.65	1011.44	1011.27	1011.10
LINE E	STATION	462+23.66	462+38.04	462+52.25	462+69.83	462+87.30	463+01.25	463+15.21
	ELEVATION	1012.04	1011.87	1011.70	1011.49	1011.28	1011.11	1010.94

FINAL DECK SURFACE ELEVATIONS SHOWN REPRESENT THE DECK SURFACE LOCATION AFTER ALL ANTICIPATED DEAD LOAD DEFLCTIONS HAVE OCCURRED. FINAL DECK SURFACE ELEVATIONS SHOWN IN THE TABLE ABOVE ARE AT THE INTERSECTION OF THE CENTERLINE OF BEARINGS/MID-POINTS OF SPAN WITH THE EDGES OF THE DECK, PROFILE GRADE LINE, THE HIGH EDGE OF THE LANE ON THE RIGHT SIDE OF THE DECK, AND THE ROUNDING BREAK POINT SHOWN IN DETAIL 'A' (AS SEEN LOOKING UPSTATION). SPAN POINTS ARE MEASURED ALONG THE REFERENCE LINE. LINES THROUGH THE MID-POINTS ARE PARALLEL TO THE CENTERLINE OF BEARINGS OF THE SUBSTRUCTURE UNITS.

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
55 W. HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED DBC | DRAWN MVC | REVIEWED ZRD | DATE 10/2010
CHECKED HJS | REVISED | STRUCTURE FILE NUMBER 0703761

GENERAL PLAN & SUPERSTRUCTURE DETAILS

BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING STANDARD DRAWING(S):

AS-1-81	REVISED 07-19-02
CS-1-08	DATED 07-18-08
TST-1-99	REVISED 04-18-08

AND TO THE FOLLOWING SUPPLEMENTAL SPECIFICATION(S):

898 DATED 1-21-11

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "LRFD BRIDGE DESIGN SPECIFICATIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 5TH EDITION, 2010 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

OPERATIONAL PERFORMANCE

A LOAD MODIFIER OF 1.00 HAS BEEN ASSUMED FOR THE DESIGN OF THIS STRUCTURE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, ARTICLE 1.3.5 AND THE ODOT BRIDGE DESIGN MANUAL, 2007.

DESIGN LOADING

DESIGN LOADING: HL-93

FUTURE WEARING SURFACE (FWS) OF 0.060 KIPS/SQ.FT.

DESIGN DATA

CONCRETE CLASS QSC2:	COMPRESSIVE STRENGTH 4.5 KSI (SUPERSTRUCTURE) (APPROACH SLABS)
CONCRETE CLASS QSC1:	COMPRESSIVE STRENGTH 4.0 KSI (SUBSTRUCTURE)
REINFORCING STEEL:	MINIMUM YIELD STRENGTH 60 KSI

DECK PROTECTION METHOD

EPOXY COATED REINFORCING STEEL

2½" CONCRETE COVER

SEALING OF CONCRETE SURFACES

MONOLITHIC WEARING SURFACE

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1 INCH THICK.

UTILITY LINES

THE UTILITIES SHALL BEAR ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES. THE CONTRACTOR AND UTILITIES ARE TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

MAINTENANCE OF TRAFFIC

ALL TRAFFIC WILL BE DETOURED FOR THE DURATION OF THE PROJECT.

EXISTING STRUCTURE PLANS

THE ORIGINAL DESIGN PLANS (S.H. 105-SEC. E-2 & F) AND THE PRIOR REHABILITATION PLANS MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE DEPARTMENT OF TRANSPORTATION, DISTRICT 11 OFFICE, 2201 REISER AVENUE, NEW PHILADELPHIA, OHIO. PHONE: (330) 339-6633. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS.

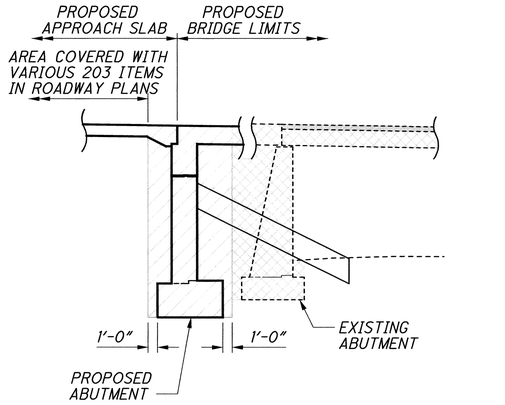
ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

REMOVE ENTIRE SUPERSTRUCTURE AND ALL OF THE EXISTING SUBSTRUCTURE UNITS DOWN TO THE BOTTOM OF THEIR FOOTINGS.

ITEM 503 - UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE, AS PER PLAN

AFTER THE ABUTMENT FOOTINGS AND BREASTWALLS HAVE BEEN CONSTRUCTED, FILL THE VOID BEHIND EACH ABUTMENT CREATED BY EXCAVATING FOR THE ABUTMENT FOOTINGS UP TO THE BRIDGE SEAT ELEVATION AND FROM THE BRIDGE SEAT UP ON A 1:1 SLOPE TO THE SUBGRADE ELEVATION PRIOR TO POURING THE SUPERSTRUCTURE SLAB AND THE SEMI-INTEGRAL BACKWALLS. ABOVE THE LEVEL OF THE WATER IN THE CREEK BACKFILL THE EXCAVATION WITH TYPE B GRANULAR MATERIAL, 703.16.C.

PLACE AND COMPACT ALL BACKFILL AND NEW EMBANKMENT MATERIAL ADJACENT TO THE STRUCTURE IN 6 INCH LIFTS. SEE ROADWAY GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.



AREA COVERED BY ITEM 503 - UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE, AS PER PLAN

AREA COVERED BY ITEM 202 - STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

AREA COVERED BY ITEM 202 - WEARING COURSE REMOVED

REMOVAL, EXCAVATION, AND EMBANKMENT DIAGRAM AT ABUTMENTS

FOUNDATION BEARING RESISTANCE

ABUTMENT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM SERVICE LOAD PRESSURE OF 11 KIPS PER SQUARE FOOT AND A MAXIMUM STRENGTH LOAD PRESSURE OF 14 KIPS PER SQUARE FOOT.

PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM SERVICE LOAD PRESSURE OF 15 KIPS PER SQUARE FOOT AND A MAXIMUM STRENGTH LOAD PRESSURE OF 20 KIPS PER SQUARE FOOT.

THE FACTORED STRENGTH LIMIT BEARING RESISTANCE IS 450 KIPS PER SQUARE FOOT FOR ALL FOOTINGS (ABUTMENTS AND PIERS). THE FACTORED SERVICE LIMIT BEARING RESISTANCE IS 40 KIPS PER SQUARE FOOT FOR ALL FOOTINGS (ABUTMENTS AND PIERS).

ITEM 516 - SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN

INSTALL A 3 FOOT WIDE NEOPRENE SHEET AT LOCATIONS SHOWN IN THE PLANS. SECURE THE NEOPRENE SHEETING TO THE CONCRETE WITH 1 1/4" X #10 GAGE (LENGTH X SHANK DIAMETER) GALVANIZED BUTTON HEAD SPIKES THROUGH A 1 INCH OUTSIDE DIAMETER, #10 GAGE GALVANIZED WASHER. MAXIMUM FASTENER SPACING IS 9 INCHES. USE OF OTHER SIMILAR GALVANIZED DEVICES, WHICH WILL NOT DAMAGE EITHER THE NEOPRENE OR THE CONCRETE, WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

CENTER THE NEOPRENE STRIPS ON ALL JOINTS. FOR HORIZONTAL JOINTS, SECURE THE HORIZONTAL NEOPRENE STRIP BY USING A SINGLE LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE TOP OF THE NEOPRENE STRIP. FOR THE VERTICAL JOINTS SECURE THE VERTICAL NEOPRENE STRIP BY USING A SINGLE VERTICAL LINE OF FASTENERS, STARTING AT 6 INCHES, +/-, FROM THE VERTICAL EDGE OF THE NEOPRENE STRIP NEAREST TO THE CENTERLINE OF ROADWAY. FOR VERTICAL JOINTS, INSTALL 2 ADDITIONAL FASTENERS AT 6 INCHES, CENTER TO CENTER, ACROSS THE TOP OF THE NEOPRENE STRIP ON THE SAME SIDE OF THE VERTICAL JOINT AS THE SINGLE VERTICAL ROW OF FASTENERS IS LOCATED.

THE VERTICAL NEOPRENE STRIPS SHALL COMPLETELY OVERLAP THE HORIZONTAL STRIPS. LAP LENGTHS OF THE HORIZONTAL STRIPS THAT ARE NOT VULCANIZED OR ADHESIVE BONDED, SHALL BE AT LEAST 1 FOOT IN LENGTH, OR 6 INCHES IN LENGTH IF THE LAP IS VULCANIZED OR ADHESIVE BONDED. NO LAPS ARE ACCEPTABLE IN VERTICALLY INSTALLED NEOPRENE STRIPS.

THE NEOPRENE SHEETING SHALL BE 3/32" THICK GENERAL PURPOSE, HEAVY-DUTY NEOPRENE SHEET WITH NYLON FABRIC REINFORCEMENT. THE SHEETING SHALL BE "FAIRPRENE NUMBER NN-0003", BY E. I. DUPONT DE NEMOURS AND COMPANY, INC., "WINGPRENE" BY THE GOODYEAR TIRE AND RUBBER COMPANY, OR AN APPROVED ALTERNATE. THE NEOPRENE SHEETING SHALL CONFORM TO THE FOLLOWING:

DESCRIPTION OF TEST	ASTM	REQUIREMENT
THICKNESS, INCHES	D751	0.094 +/-0.01
BREAKING STRENGTH, GRAB, LBS, MINIMUM	D751	700 X 700 (LONG. X TRANS.)
ADHESIVE STRIP, 1" WIDE X 2" LONG, LBS, MINIMUM	D751	9
BURST STRENGTH, PSI, MINIMUM	D751	1400
HEAT AGING, 70 HR, 212 OF, 1800 BEND WITHOUT CRACKING	D2136	NO CRACKING OF COATING
LOW TEMP. BRITTLENESS, 1 HR, -40 DEG. F, BEND AROUND 1/4" MANDREL	D2136	NO CRACKING OF COATING

METHOD OF MEASUREMENT: THE DEPARTMENT WILL MEASURE THE TOTAL LENGTH OF JOINT TO BE SEALED BY THE NUMBER OF FEET.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE FOR ITEM 516, SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN

THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ITEM 898 - QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN

FURNISH APPROACH SLABS CONFORMING TO CMS 526 EXCEPT CONCRETE SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 898, QC/QA CONCRETE, CLASS QSC2. THE ACCEPTED QUANTITIES SHALL INCLUDE: CONCRETE, CURBS, REINFORCING STEEL, JOINT FILLERS, JOINT SEALERS, JOINT SEALS, AND WATERPROOFING. THE DEPARTMENT WILL MEASURE APPROACH SLABS BY THE NUMBER OF SQUARE YARDS. THE DEPARTMENT WILL INITIALLY PAY THE FULL BID PRICE TO THE CONTRACTOR UPON COMPLETING THE WORK. THE DEPARTMENT WILL CALCULATE THE FINAL ADJUSTED PAYMENT ACCORDING TO 898.17 AND INCLUDE APPROACH SLAB CONCRETE AND DECK CONCRETE IN THE SAME LOT TO DETERMINE FINAL PAY FACTORS.

ABBREVIATIONS

N.S.	- NEAR SIDE	MAX.	- MAXIMUM
F.S.	- FAR SIDE	MIN.	- MINIMUM
E.S.	- EACH SIDE	SPA.	- SPACES
PRS.	- PAIRS	ST'D. DWG.	- STANDARD DRAWING
R.A.	- REAR ABUTMENT	℄	- CENTERLINE
F.A.	- FORWARD ABUTMENT	F/F	- FACE TO FACE
CLR.	- CLEAR	O/O	- OUT TO OUT
DIA.	- DIAMETER	C/C	- CENTER TO CENTER
TYP.	- TYPICAL	YR.	- YEAR
STA.	- STATION	O.R.	- OUTSIDE RADIUS
℄	- FLOW LINE	I.R.	- INSIDE RADIUS
EL.	- ELEVATION	C.R.	- COUNTY ROAD
ELEV.	- ELEVATION	T.R.	- TOWNSHIP ROAD
FWD.	- FORWARD	L.F.	- LEFT FORWARD
BRG.	- BEARING	R.F.	- RIGHT FORWARD
LB.	- POUND	H.S.	- HIGH STRENGTH
BNT.	- BENT	CVN	- CHARPY V-NOTCH
STR.	- STRAIGHT	CONST.	- CONSTRUCTION
LT.	- LEFT	C.I.P.	- CAST-IN-PLACE REINFORCED CONCRETE
RT.	- RIGHT		
PSI	- POUND/SQ. IN.	TSF	- TON/SQ.FT.

U.N.O. - UNLESS NOTED OTHERWISE
T & B - TOP & BOTTOM
P.E.J.F. - PREFORMED EXPANSION JOINT FILLER

ASBESTOS NOTIFICATION

AN ASBESTOS SURVEY OF THE SR-148 BRIDGE STRUCTURE SCHEDULED FOR REPLACEMENT WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE STRUCTURE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF DEMOLITION AND RENOVATION FORMS, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER, WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO THE ADDRESS BELOW AT LEAST TEN (10) WORKING DAYS PRIOR TO THE START OF ANY DEMOLITION AND/OR RENOVATION.

MR. STEVE LOWRY
OHIO EPA, SEDO
2195 FRONT STREET
LOGAN, OHIO 43138

THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER. INFORMATION REQUIRED ON THE FORM WILL INCLUDE: 1) THE CONTRACTORS NAME AND ADDRESS, 2) THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL AND 3) A DESCRIPTION OF THE PLANNED DEMOLITION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 11 OFFICE, 2201 REISER AVENUE, NEW PHILADELPHIA, OHIO 44663.

BASIS FOR PAYMENT - THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, AS PER PLAN.

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
55 W. HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
HJS		0703761	

STRUCTURE GENERAL NOTES
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

ESTIMATED QUANTITIES

ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L	SEE SHEET NO.
202	11003	LUMP		STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	3/15
202	23500	255	SQ YD	WEARING COURSE REMOVED			255		
503	11100	LUMP		COFFERDAMS AND EXCAVATION BRACING				LUMP	
503	21131	714	CU YD	UNCLASSIFIED EXCAVATION INCLUDING ROCK AND/OR SHALE, AS PER PLAN	619	95			3/15
509	10000	89,528	POUND	EPOXY COATED REINFORCING STEEL	13,117	21,313	55,098		
512	10100	262	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	29	144	89		
516	13200	147	SQ FT	½" PREFORMED EXPANSION JOINT FILLER	147				
516	13600	175	SQ FT	1" PREFORMED EXPANSION JOINT FILLER	39	136			
516	14021	107	FT	SEMI-INTEGRAL ABUTMENT EXPANSION JOINT SEAL, AS PER PLAN	107				3/15
516	41600	34	SQ FT	1" ELASTOMERIC BEARING PAD	34				
517	70000	206.58	FT	RAILING (TWIN STEEL TUBE)			206.58		
518	21200	68	CU YD	POROUS BACKFILL WITH FILTER FABRIC	68				
518	40000	115	FT	6" PERFORATED CORRUGATED PLASTIC PIPE	115				
518	40010	50	FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	50				
898	10221	229	CU YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (DECK), AS PER PLAN			229		3/15
898	10709	240	SQ YD	QC/QA CONCRETE, CLASS QSC2, SUPERSTRUCTURE (APPROACH SLAB), (T=17"), AS PER PLAN				240	3/15
898	20100	90	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (PIER ABOVE FOOTING)		90			
898	20150	81	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (ABUTMENT)	81				
898	20300	130	CU YD	QC/QA CONCRETE, CLASS QSC1, SUBSTRUCTURE (FOOTING)	96	34			

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554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
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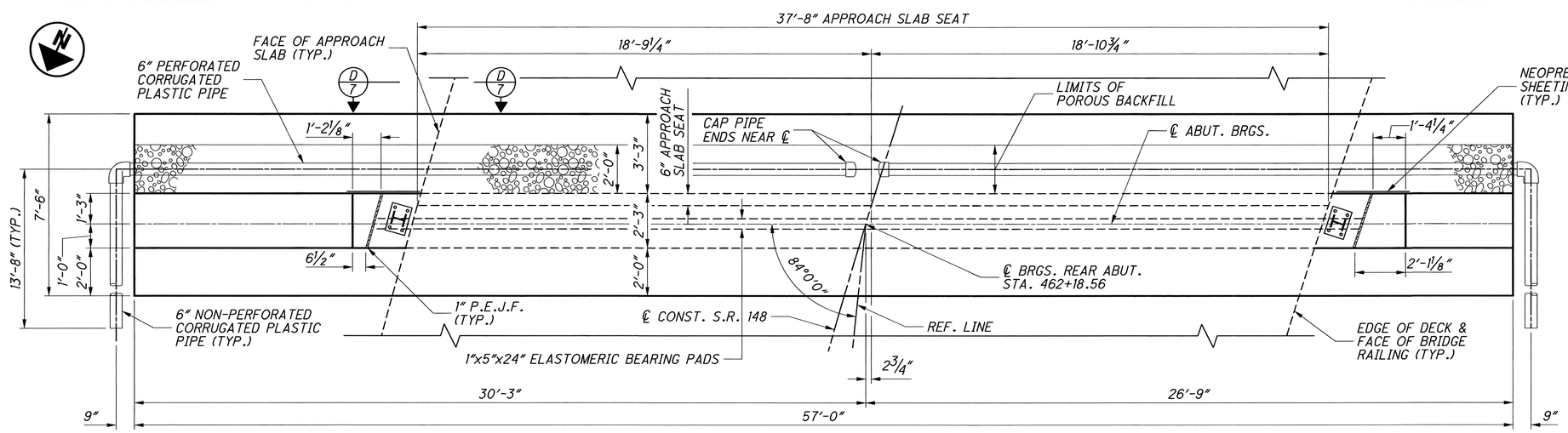
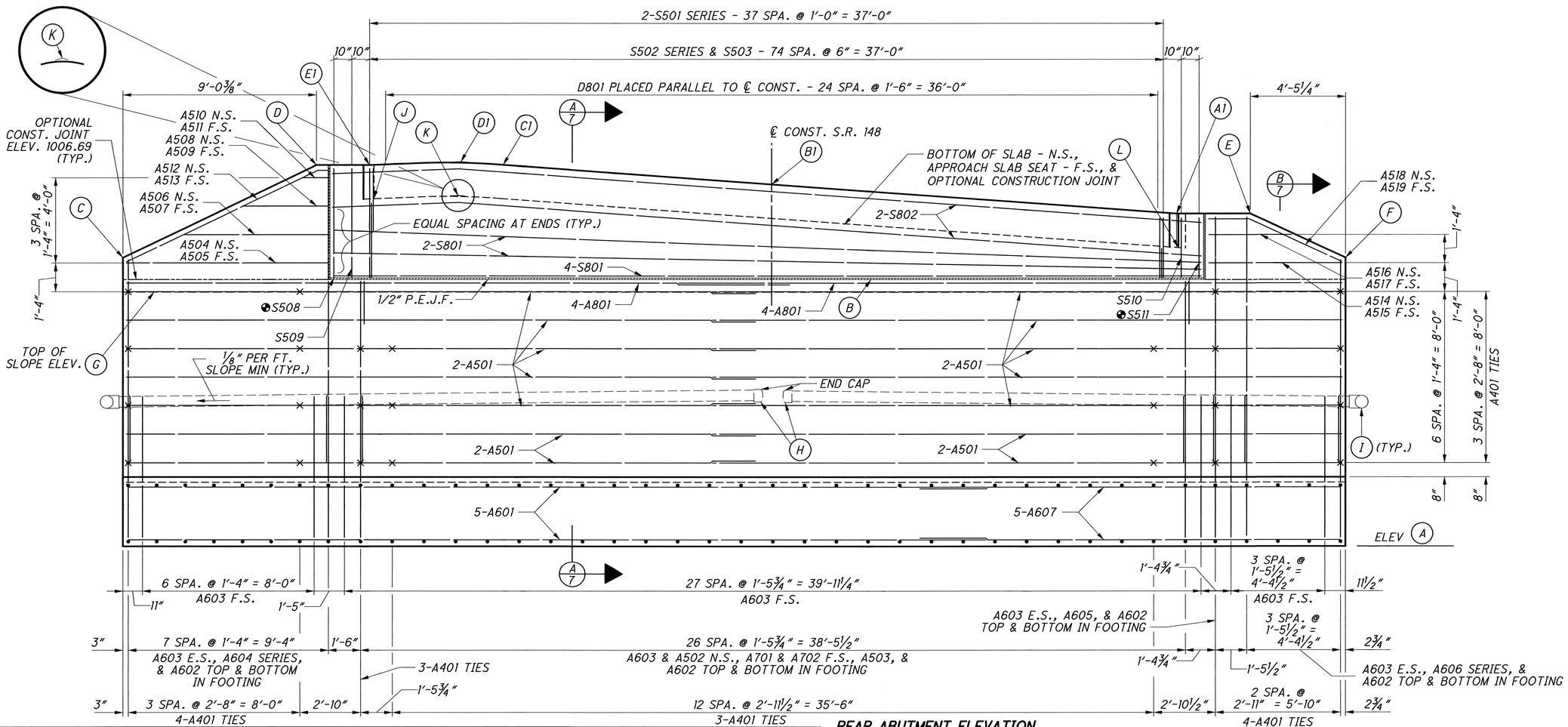


NOTES

1. FOR TRANSVERSE SECTION, SEE SHEET 11/15
2. UNLESS NOTED OTHERWISE, REINFORCING SPLICE LENGTHS SHALL BE:
   2'-0" FOR #5 BARS
   3'-1" FOR #6 BARS
   5'-2" FOR #8 BARS
3. ◕ PLACE PARALLEL TO ℄ CONST.
4. FOR ELEVATIONS A1, B1, C1, D1, & E1, SEE FINAL DECK SURFACE ELEVATIONS TABLE SHEET 2/15 .
5. ★ EXTEND ABUTMENT FOOTINGS A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

REAR ABUTMENT PLAN



REAR ABUTMENT ELEVATION

ELEVATIONS

LOCATION	A ★	B	C	D	E	F	G	H	I	J	K	L
REAR ABUT.	994.2	1006.69	1007.70	1012.04	1009.77	1007.70	1006.1	1000.97	1000.65	1010.46	1010.64	1008.19

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REAR ABUTMENT DETAILS
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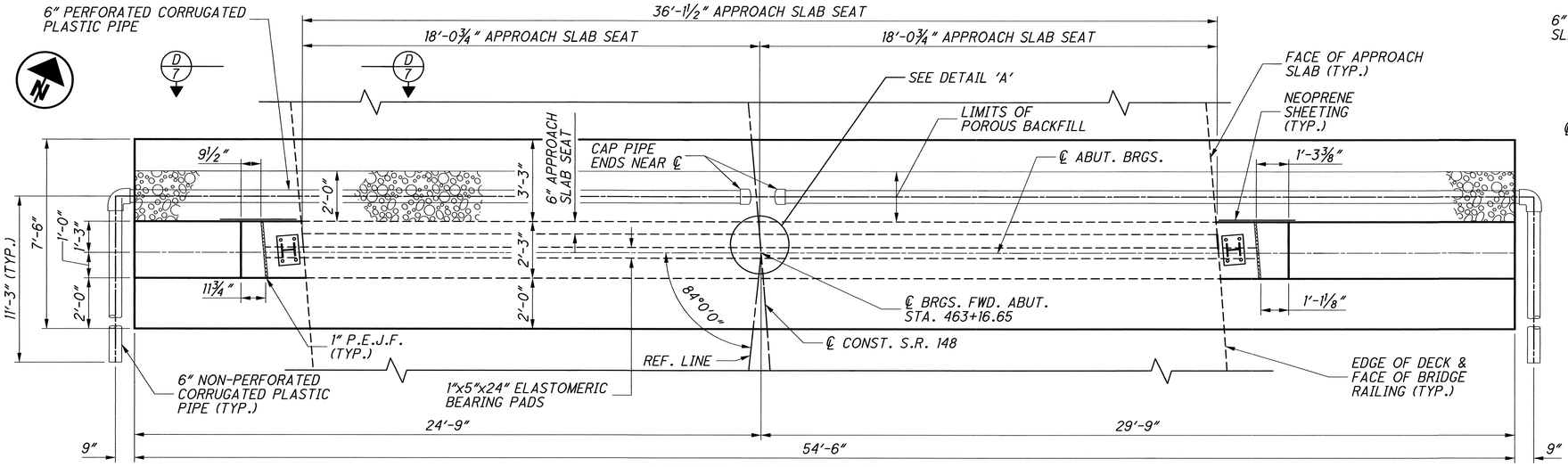
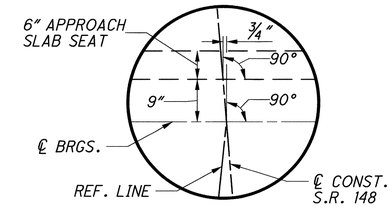
5 / 15

20 / 30



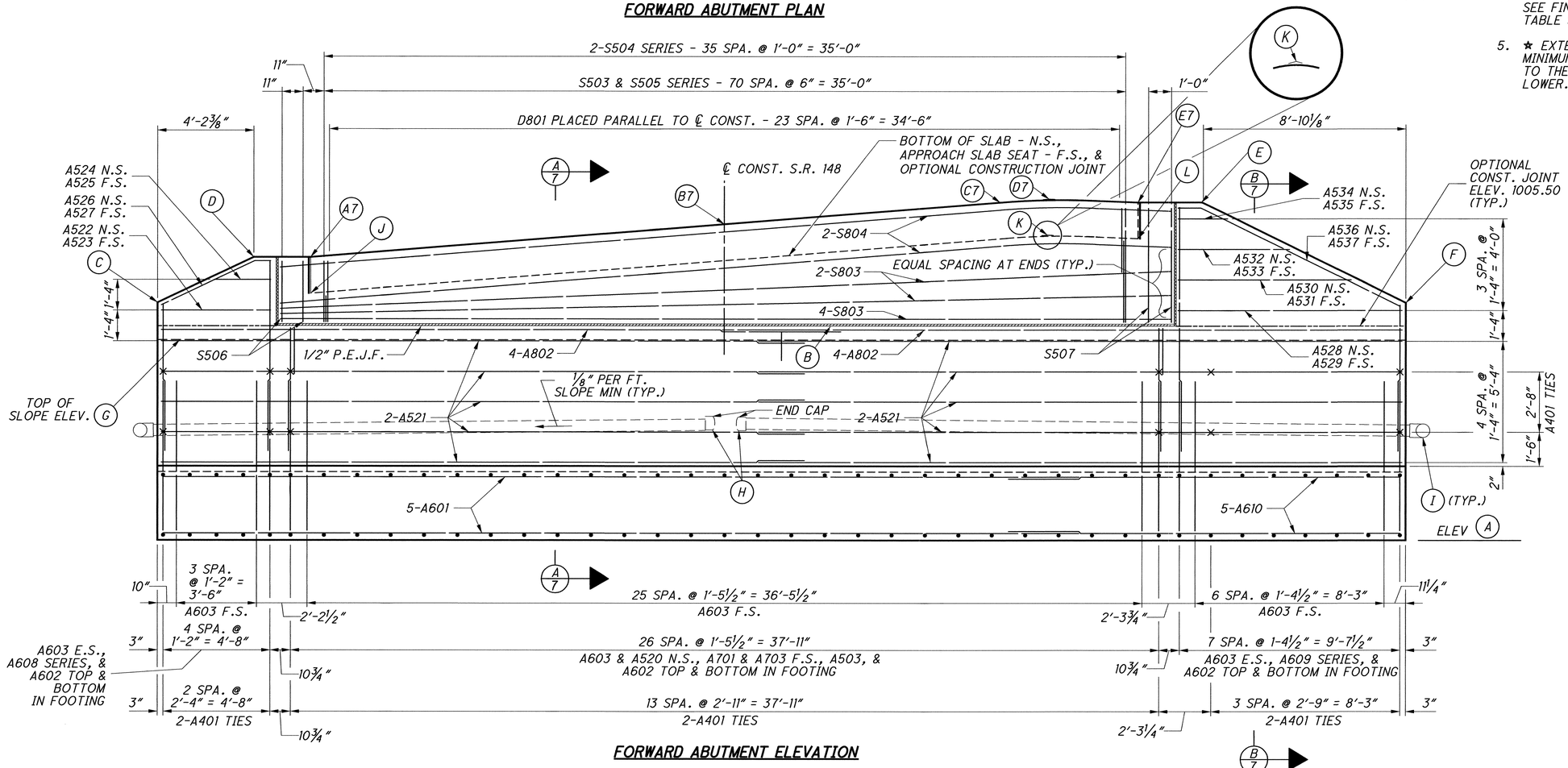
FORWARD ABUTMENT PLAN



DETAIL 'A'

NOTES

1. FOR TRANSVERSE SECTION, SEE SHEET 11/15
2. UNLESS NOTED OTHERWISE, REINFORCING SPLICE LENGTHS SHALL BE:
   2'-0" FOR #5 BARS
   3'-1" FOR #6 BARS
   5'-2" FOR #8 BARS
3. ◕ PLACE PARALLEL TO ℄ CONST.
4. FOR ELEVATIONS A7, B7, C7, D7, & E7, SEE FINAL DECK SURFACE ELEVATIONS TABLE SHEET 2/15 .
5. ★ EXTEND ABUTMENT FOOTINGS A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.



FORWARD ABUTMENT ELEVATION

ELEVATIONS

LOCATION	A★	B	C	D	E	F	G	H	I	J	K	L
FWD. ABUT.	996.1	1005.50	1006.52	1008.50	1010.94	1006.52	1004.9	1000.92	1000.62	1006.92	1009.52	1009.36

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PID No. 24864

6 / 15

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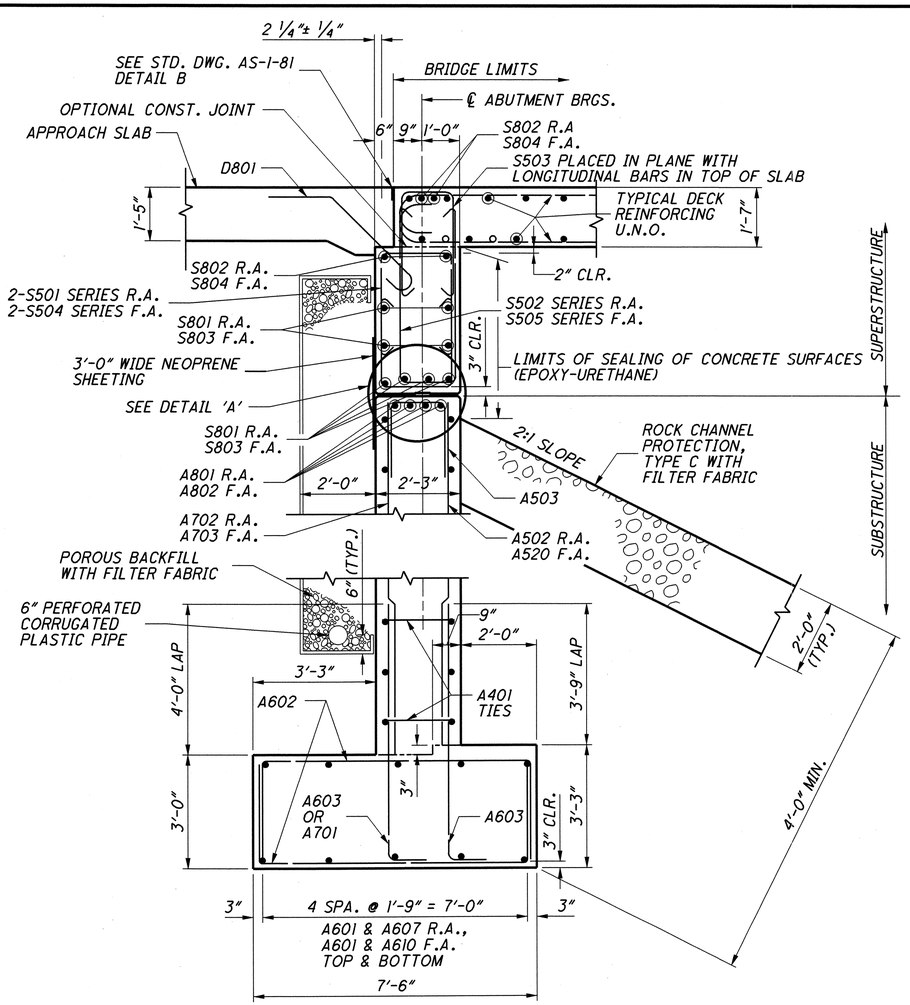
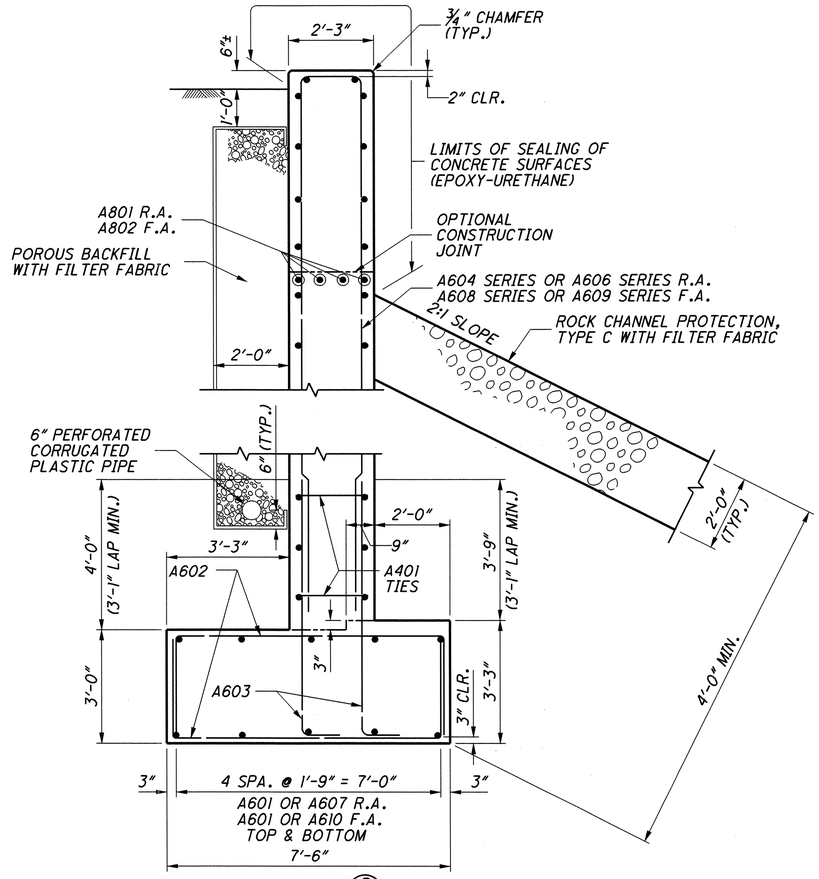


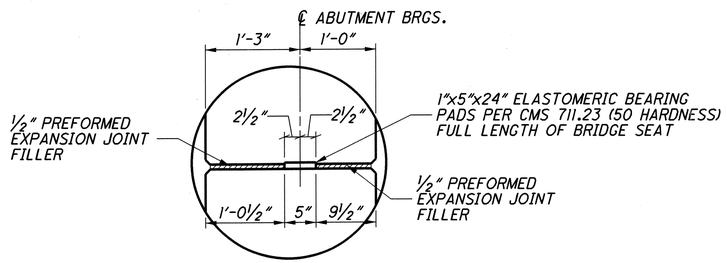
SECTION (A 5,6)



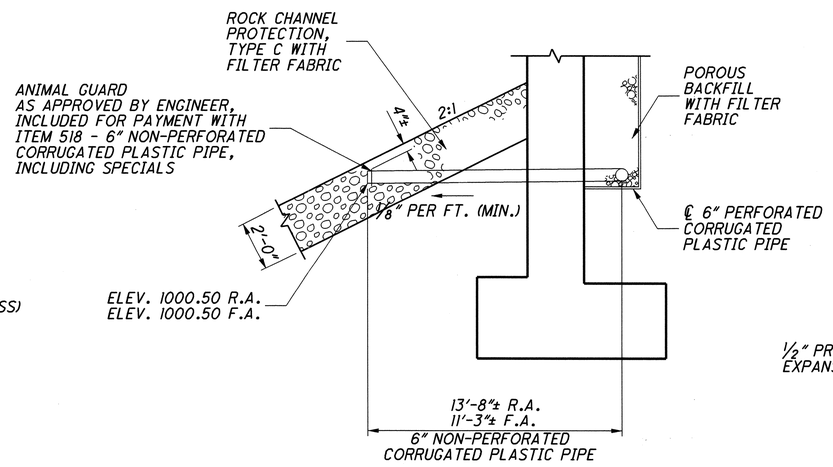
SECTION (B 5,6)

NOTES:

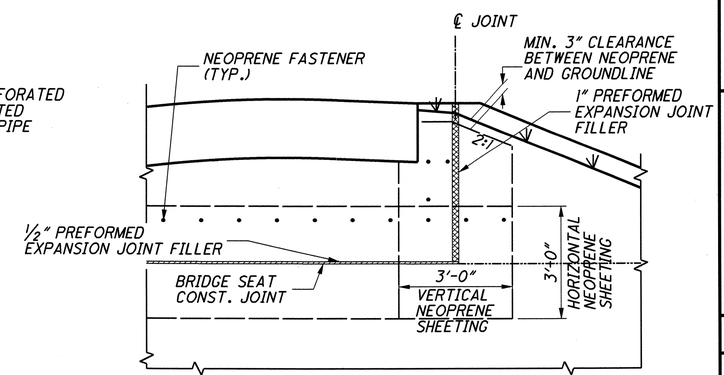
1. POROUS BACKFILL WITH FILTER FABRIC, 2'-0" THICK, UNLESS NOTED OTHERWISE, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.
2. ALL BARS NORMAL TO SECTIONS A & B ABOVE THE FOOTING ARE #5 BARS UNLESS NOTED OTHERWISE. SEE SHEETS 5/15 & 6/15 .
3. FOR APPROACH SLAB DETAILS, SEE STD. DWG. AS-1-81.



DETAIL 'A'



TERMINATION OF 6" C.P.P. ON FRONT SLOPE



VIEW (D 5,6)

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7 / 15

22 / 30

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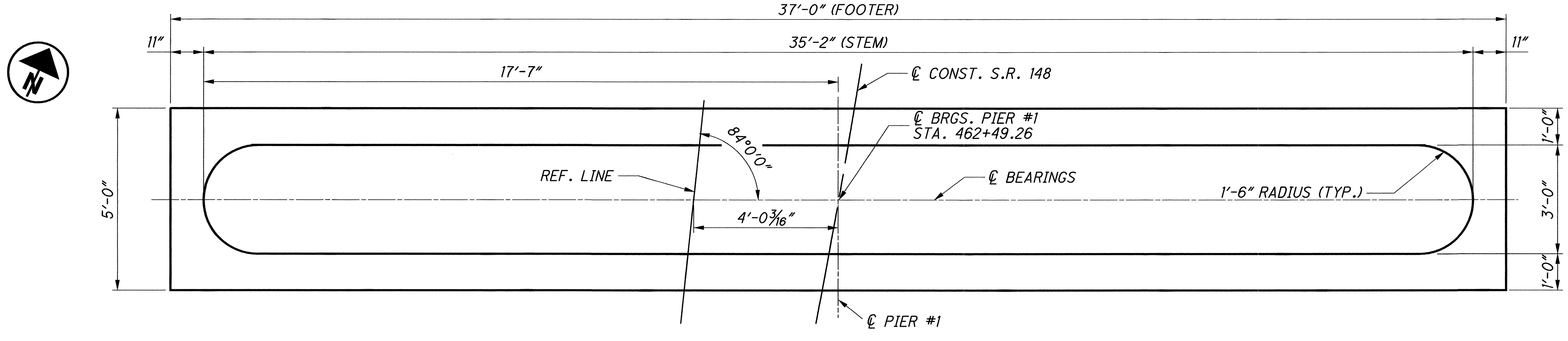
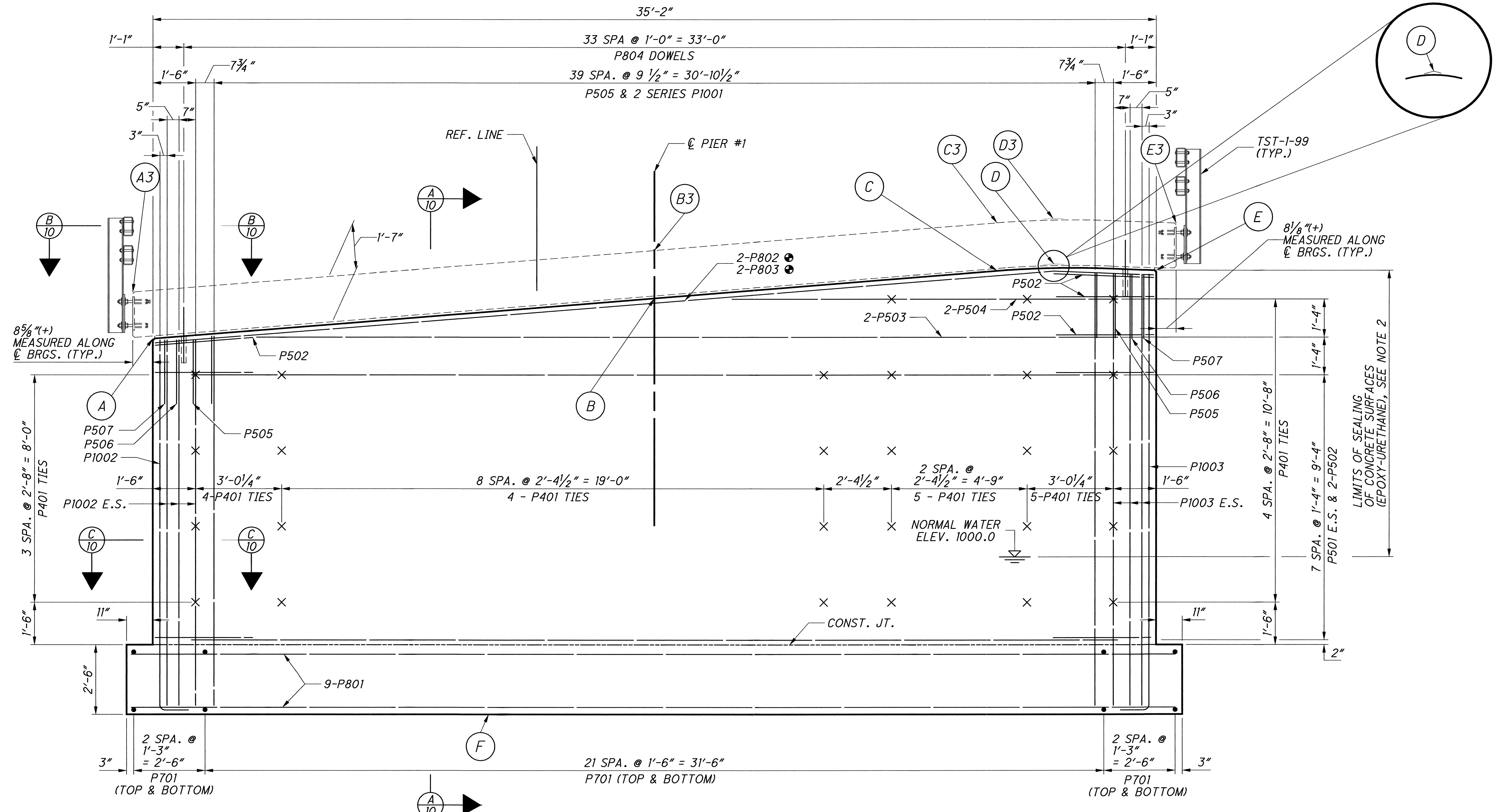


PLAN



ELEVATION

NOTES

1. ❷ FOR TOP LONGITUDINAL BAR PLACEMENT, SEE VIEW B ON SHEET 10/15
2. SEALING OF CONCRETE SURFACES SHALL BE APPLIED TO THE ENTIRE VERTICAL SURFACE AREA OF THE EXPOSED PIER STEM ABOVE ELEVATION 1000.0.
3. FOR TRANSVERSE SECTION, SEE SHEET 11/15
4. FOR ELEVATIONS A3, B3, C3, D3, & E3, SEE FINAL DECK SURFACE ELEVATIONS TABLE SHEET 2/15
5. ★ EXTEND PIER FOOTINGS A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.

ELEVATIONS

LOCATION	A	B	C	D	E	F★
PIER #1	1007.76	1009.10	1010.04	1010.20	1010.06	994.4

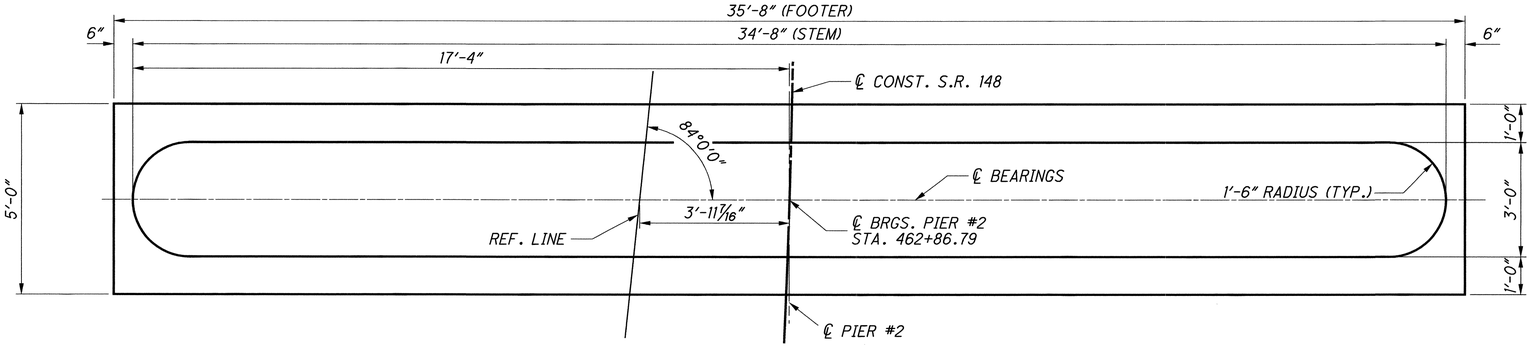
DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
HJS		0703761	

PIER #1 DETAILS

BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

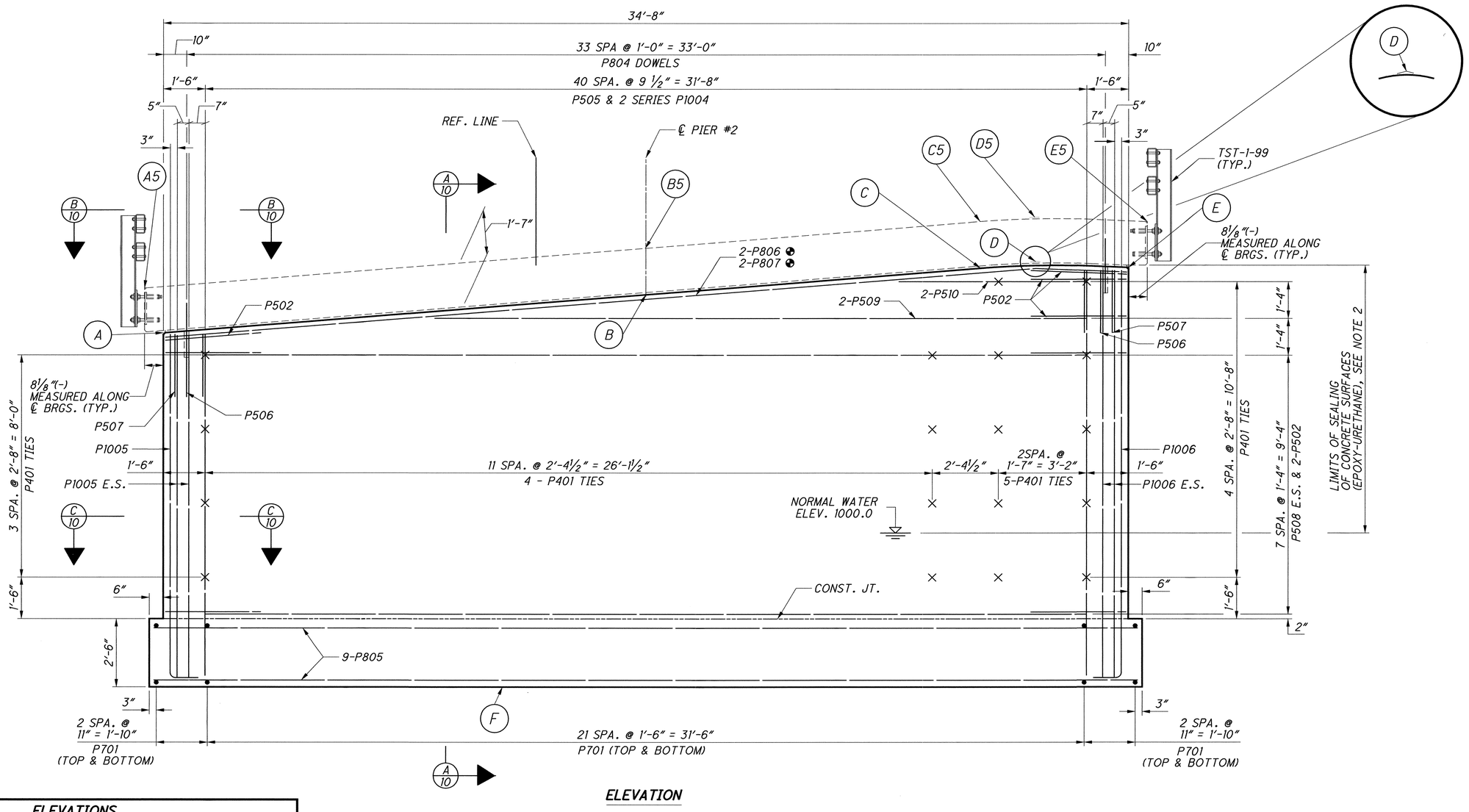
BEL-148-3.12
PID No. 24864



PLAN

NOTES

1. ◔ FOR TOP LONGITUDINAL BAR PLACEMENT, SEE VIEW B ON SHEET 10/15
2. SEALING OF CONCRETE SURFACES SHALL BE APPLIED TO THE ENTIRE VERTICAL SURFACE AREA OF THE EXPOSED PIER STEM ABOVE ELEVATION 1000.0.
3. FOR TRANSVERSE SECTION, SEE SHEET 11/15
4. FOR ELEVATIONS A5, B5, C5, D5, & E5, SEE FINAL DECK SURFACE ELEVATIONS TABLE SHEET 2/15
5. ★ EXTEND PIER FOOTINGS A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.



ELEVATION

ELEVATIONS						
LOCATION	A	B	C	D	E	F ★
PIER #2	1007.27	1008.65	1009.61	1009.77	1009.64	994.4

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
HJS	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
DBC		07033761	

PIER #2 DETAILS
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

9 / 15

24 / 30

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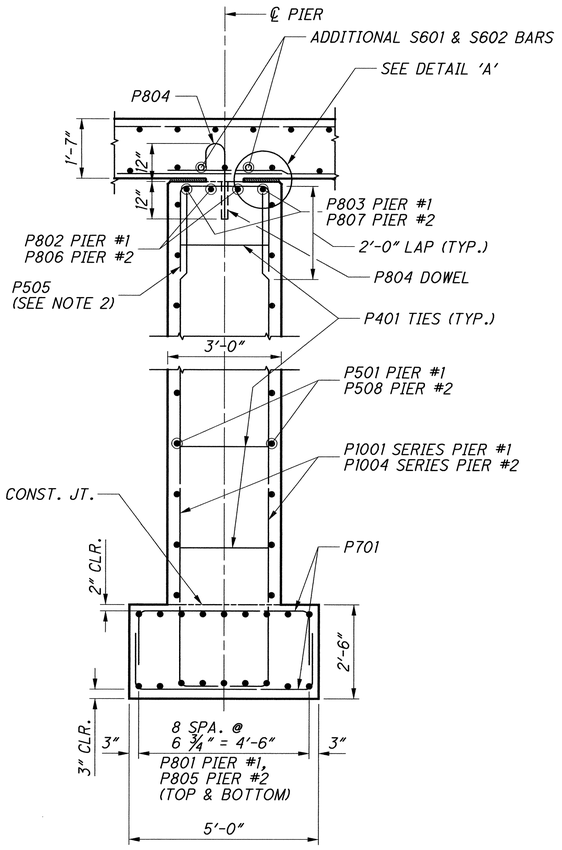
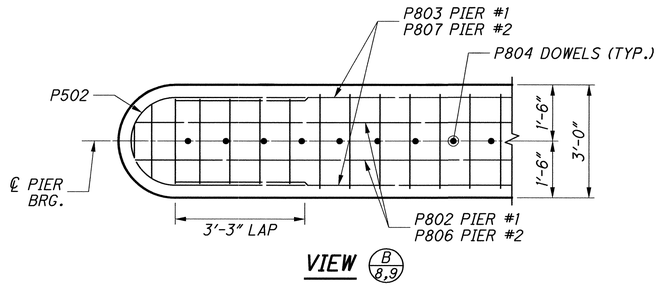
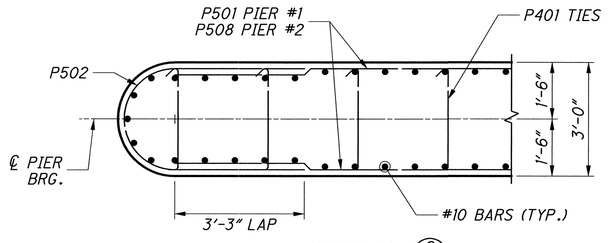


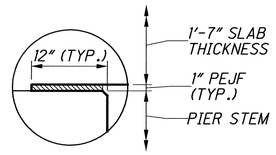
SECTION (A / 8,9)



VIEW (B / 8,9)



SECTION (C / 8,9)



DETAIL 'A'

NOTES

1. FOR ADDITIONAL PIER NOTES, SEE SHEETS 8/15 & 9/15
2. ADJUST LOCATION OF P505 AS REQUIRED TO CLEAR P804 ANCHOR BARS.

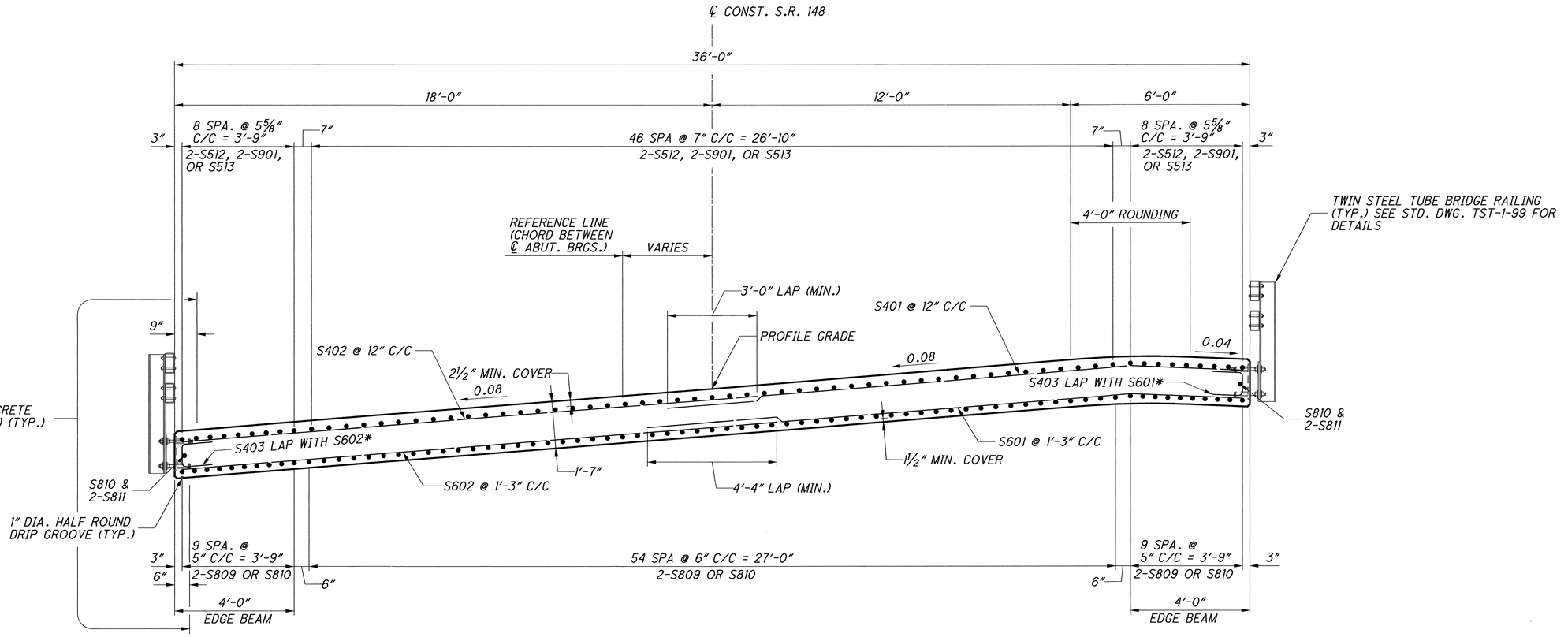
DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED DBC | DRAWN MVC | REVIEWED ZRD | DATE 10/2010
CHECKED HJS | REVISED | STRUCTURE FILE NUMBER 07037761

PIER DETAILS

BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864



TRANSVERSE SECTION

NOTES

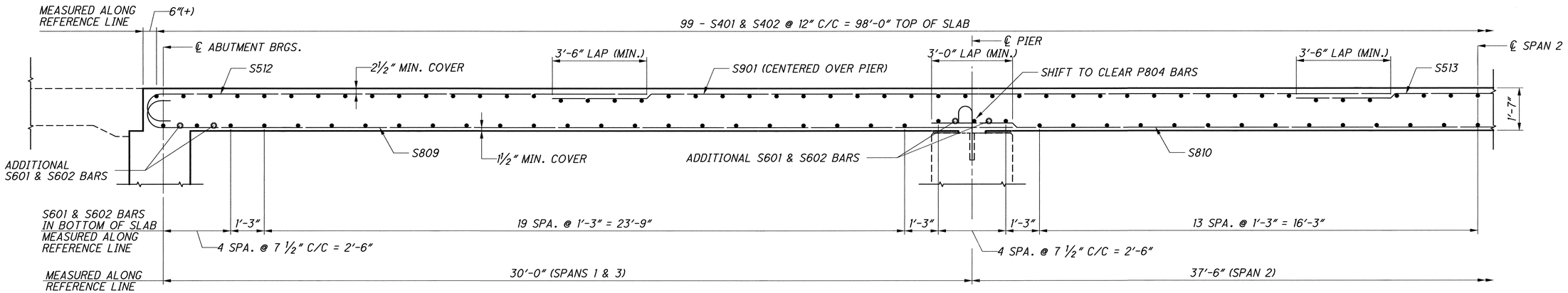
1. FOR PLAN OF SLAB REINFORCING STEEL, SEE SHEET 13/15.
2. FOR SLAB ELEVATION, SEE SHEET 12/15.
3. FOR RAILING POST SPACING, SEE SHEET 13/15.
4. ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS NOTED OTHERWISE.
5. * S403 BARS SHALL NOT BE LAPPED WITH THE ADDITIONAL S601 BARS PROVIDED AT THE ABUTMENTS AND PIERS, SEE SHEET 12/15.

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
5594 WEST HIGH AVE
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
HJS		0703761	

TRANSVERSE SECTION
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864



SLAB AND "EDGE BEAM" ELEVATION

NOTES

1. FOR PLAN OF SLAB REINFORCING STEEL, SEE SHEET 13/15 .
2. FOR TRANSVERSE SECTION, SEE SHEET 11/15 .
3. FOR SEMI-INTEGRAL ABUTMENT BACKWALL DETAILS, SEE SHEET 7/15 .
4. FOR PIER DETAILS, SEE SHEETS 8/15 , 9/15 , & 10/15 .

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DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

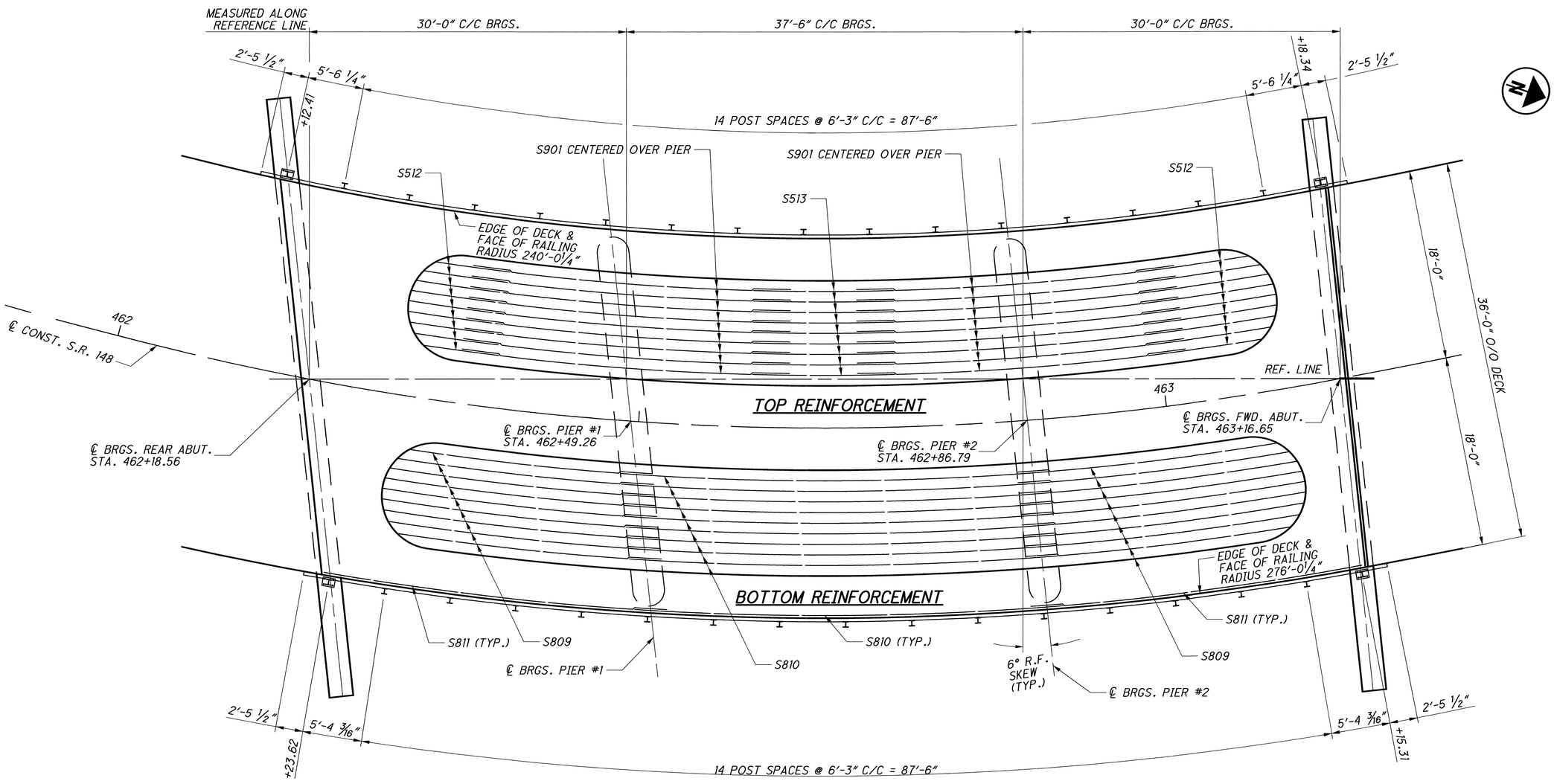
DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
HJS		0703761	

SLAB ELEVATION
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

12/15

27/30



SLAB REINFORCING PLAN

NOTES

1. FOR LONGITUDINAL BAR SPACING, SEE TRANSVERSE SECTION SHEET 11/15.
2. FOR TRANSVERSE BAR SPACING, SEE SLAB AND "EDGE BEAM" ELEVATION SHEET 12/15.
3. PLACE LONGITUDINAL BARS PARALLEL TO THE CENTERLINE OF THE ROADWAY AND TRANSVERSE BARS PARALLEL TO THE CENTERLINE OF BEARINGS OF THE ABUTMENTS AND PIERS.

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
DBC	MVC	ZRD	10/2010
CHECKED	REVISED	STRUCTURE FILE NUMBER	
HJS		0703761	

SLAB PLAN
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

13/15

28/30

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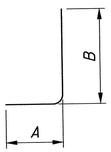
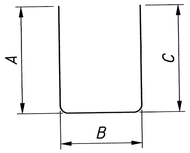
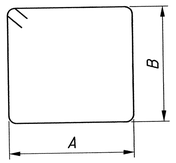


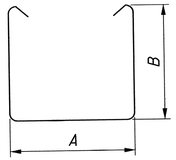
TYPE-1



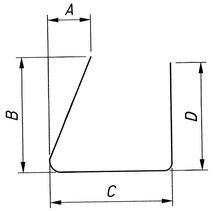
TYPE-2



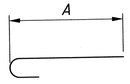
TYPE-3



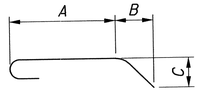
TYPE-4



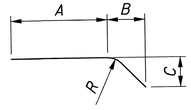
TYPE-9



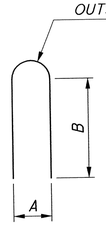
TYPE-16



TYPE-18



TYPE-19



TYPE-24

MARK	NUMBER					LENGTH	WEIGHT	TYPE	DIMENSIONS						
	DECK	REAR ABUT.	FWD. ABUT.		TOTAL				A	B	C	D	E	R	INC
SUPERSTRUCTURE															
S401	99				99	20′-0″	1323	19	16′-2″	3′-10″	0′-6″			33′-0″	
S402	99				99	20′-3″	1339	STR							
S403	158				158	3′-4″	352	2	1′-3″	1′-1″	1′-3″				
S501		2 SR OF 38			2 SR OF 38	4′-10″ TO 9′-9″	581	4	1′-11″	1′-1″ TO 3′-6″					0′-0 ¾″
S502		1 SR OF 75			1 SR OF 75	7′-6″ TO 12′-4″	776	4	1′-5″	2′-8″ TO 5′-1″					0′-0 ½″
S503		75	71		146	7′-4″	1117	4	1′-5″	2′-7″					
S504			2 SR OF 36		2 SR OF 36	4′-9″ TO 9′-10″	551	4	1′-11″	1′-0″ TO 3′-7″					0′-1″
S505			1 SR OF 71		1 SR OF 71	7′-4″ TO 12′-6″	734	4	1′-5″	2′-7″ TO 5′-2″					0′-0 ½″
S506			2		2	9′-8″	20	3	1′-11″	2′-7″					
S507			2		2	14′-6″	30	3	1′-11″	5′-0″					
S508		1			1	14′-6″	15	3	2′-0″	4′-11″					
S509		1			1	14′-4″	15	3	1′-11″	4′-11″					
S510		1			1	9′-10″	10	3	1′-11″	2′-8″					
S511		1			1	10′-0″	10	3	2′-0″	2′-8″					
S512	130				130	19′-0″	2576	16	18′-5″						
S513	65				65	13′-6″	915	STR							
S601	87				87	20′-8″	2701	19	16′-10″	3′-10″	0′-6″			33′-0″	
S602	87				87	20′-11″	2734	STR							
S801		8			8	40′-5″	863	STR							
S802		4			4	40′-7″	433	19	34′-9″	5′-10″	0′-8″			33′-0″	
S803			8		8	38′-10″	829	STR							
S804			4		4	39′-0″	417	19	33′-7″	5′-5″	0′-8″			33′-0″	
S805 THRU S808 NOT USED															
S809	150				150	33′-3″	13317	16	32′-5″						
S810	77				77	40′-11″	8413	STR							
S811	4				4	32′-5″	346	STR							
S901	130				130	31′-8″	13994	STR							
D801		25	24		49	5′-3″	687	18	3′-1″	1′-0″	1′-0″				
SUPERSTRUCTURE TOTAL							55,098								

NOTES

1. BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A701 IS A NO. 7 AND A1014 IS A NO. 10 SIZE. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. "R" INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD" WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR. "STR" DENOTES STRAIGHT BARS.

2. ALL REINFORCING STEEL TO BE EPOXY COATED.

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED DBC | DRAWN SAH | REVIEWED ZRD | DATE 10/2010
CHECKED HJS | REVISED | STRUCTURE FILE NUMBER 0703761

REINFORCING STEEL LIST
BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

14 / 15

29
30

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD.	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
A401	70	42	112	2′-11″	218	9	STD 135°		1′-11″	8″			
A501	28		28	29′-4″	857	STR							
A502	27		27	9′-0″	253	STR							
A503	27	27	54	5′-6″	310	2	2′-0″	1′-9 ½″	2′-0″				
A504	1		1	9′-3″	10	STR							
A505	1		1	9′-10″	10	STR							
A506	1		1	6′-6″	7	STR							
A507	1		1	7′-1″	7	STR							
A508	1		1	3′-9″	4	STR							
A509	1		1	4′-4″	5	STR							
A510	1		1	1′-0″	1	STR							
A511	1		1	1′-7″	2	STR							
A512	1		1	10′-5″	11	19	9′-11″	0′-5″	0′-3″			0′-2″	
A513	1		1	11′-0″	11	19	9′-11″	1′-0″	0′-6″			0′-2″	
A514	1		1	6′-2″	6	STR							
A515	1		1	5′-6″	6	STR							
A516	1		1	3′-10″	4	STR							
A517	1		1	3′-2″	3	STR							
A518	1		1	6′-8″	7	19	4′-9″	1′-9″	0′-10″			0′-2″	
A519	1		1	5′-11″	6	19	4′-9″	1′-1″	0′-6″			0′-2″	
A520		27	27	5′-11″	167	STR							
A521		20	20	28′-1″	586	STR							
A522		1	1	4′-9″	5	STR							
A523		1	1	4′-7″	5	STR							
A524		1	1	2′-5″	3	STR							
A525		1	1	2′-3″	2	STR							
A526		1	1	5′-3″	5	19	4′-6″	0′-8″	0′-4″			0′-2″	
A527		1	1	5′-1″	5	19	4′-6″	0′-6″	0′-3″			0′-2″	
A528		1	1	9′-9″	10	STR							
A529		1	1	9′-10″	10	STR							
A530		1	1	7′-7″	8	STR							
A531		1	1	7′-8″	8	STR							
A532		1	1	4′-10″	5	STR							
A533		1	1	4′-11″	5	STR							
A534		1	1	2′-1″	2	STR							
A535		1	1	2′-2″	2	STR							
A536		1	1	10′-7″	11	19	9′-8″	0′-10″	0′-5″			0′-2″	
A537		1	1	10′-9″	11	19	9′-8″	1′-0″	0′-6″			0′-2″	
A601	10	10	20	40′-0″	1202	STR							
A602	80	80	160	11′-10″	2844	2	2′-6″	7′-2″	2′-6″				
A603	92	90	182	7′-7″	2073	1	1′-0″	6′-9″					
A604	1 SR OF 8		1 SR OF 8	21′-6″ TO 30′-0″	309	2	10′-0″ TO 14′-3″	1′-9 ½″	10′-0″ TO 14′-3″				0′-7 ¼″
A605	1		1	25′-8″	39	2	12′-1″	1′-9 ½″	12′-1″				
A606	1 SR OF 4		1 SR OF 4	21′-6″ TO 25′-6″	141	2	10′-0″ TO 12′-0″	1′-9 ½″	10′-0″ TO 12′-0″				0′-8″
A607	10		10	19′-9″	297	STR							
A608		1 SR OF 5	1 SR OF 5	15′-4″ TO 19′-4″	130	2	6′-11″ TO 8′-11″	1′-9 ½″	6′-11″ TO 8′-11″				0′-6″

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD.	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS (CONTINUED)													
A609		1 SR OF 8	1 SR OF 8	15′-4″ TO 24′-2″	237	2	6′-11″ TO 11′-4″	1′-9 ½″	6′-11″ TO 11′-4″				0′-7 ½″
A610		10	10	17′-3″	259	STR							
A701	27	27	54	7′-9″	855	1	1′-2″	6′-9″					
A702	27		27	9′-3″	510	STR							
A703		27	27	6′-2″	340	STR							
A801	8		8	30′-11″	660	STR							
A802		8	8	29′-8″	633	STR							
ABUTMENT TOTAL					13,117								

MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	PIER #1	PIER #2	TOTAL				A	B	C	D	E	R	INC
PIERS													
P401	60	63	123	3′-8″	301	9	STD 135°		2′-8″	8″			
P501	16		16	32′-2″	537	STR							
P502	20	20	40	11′-0″	459	24	2′-8″	3′-5″				1′-4″	
P503	2		2	30′-2″	63	STR							
P504	2		2	13′-6″	28	STR							
P505	42	41	83	6′-9″	584	2	2′-3″	2′-6 ½″	2′-3″				
P506	2	2	4	6′-5″	27	2	2′-3″	2′-2 ½″	2′-3″				
P507	2	2	4	5′-6″	23	2	2′-3″	1′-3 ½″	2′-3″				
P508		16	16	31′-8″	529	STR							
P509		2	2	23′-5″	49	STR							
P510		2	2	6′-9″	14	STR							
P701	52	52	104	8′-4″	1771	2	2′-0″	4′-8″	2′-0″				
P801	18		18	36′-8″	1762	STR							
P802	2		2	34′-10″	186	19	31′-7″	3′-3″	0′-5″			33′-0″	
P803	2		2	32′-4″	173	19	30′-4″	2′-0″	0′-3″			33′-0″	
P804	34	34	68	2′-10″	514	16	2′-0″						
P805		18	18	35′-4″	1698	STR							
P806		2	2	34′-4″	183	19	31′-1″	3′-3″	0′-5″			33′-0″	
P807		2	2	31′-10″	170	19	29′-10″	2′-0″	0′-3″			33′-0″	
P1001	2 SR OF 40		2 SR OF 40	14′-6″ TO 16′-8″	5364	1	1′-10″	13′-0″ TO 15′-2″					0′-0 ¾″
P1002	7		7	14′-5″	434	1	1′-10″	12′-11″					
P1003	7		7	16′-9″	505	1	1′-10″	15′-3″					
P1004		2 SR OF 41	2 SR OF 41	13′-11″ TO 16′-1″	5293	1	1′-10″	12′-5″ TO 14′-7″					0′-0 ¾″
P1005		5	5	13′-10″	298	1	1′-10″	12′-4″					
P1006		5	5	16′-2″	348	1	1′-10″	14′-8″					
PIER TOTAL					21,313								

FOR BENDING DIAGRAMS AND REINFORCING NOTES, SEE SHEET 14/15

DESIGN AGENCY
W.E. QUICKSALL & ASSOCIATES, INC.
554 WEST HIGH AVE.
NEW PHILADELPHIA, OHIO
CIVIL ENGINEERS

DESIGNED DBC | DRAWN SAH | REVIEWED ZRD | DATE 10/2010 | CHECKED HJS | REVISED | STRUCTURE FILE NUMBER 0703761

REINFORCING STEEL LIST

BRIDGE NO. BEL-148-0314
S.R. 148 OVER NORTH FORK CAPTINA CREEK

BEL-148-3.12
PID No. 24864

15 / 15

30 / 30

PROJECT DESCRIPTION

IT IS PROPOSED TO REPLACE THE EXISTING BEL-148-3.12 THREE-SPAN BRIDGE CARRYING STATE ROUTE 148 OVER THE NORTH FORK OF CAPTINA CREEK IN BELMONT COUNTY, OHIO. THE REPLACEMENT BRIDGE STRUCTURE IS PROPOSED TO BE A THREE-SPAN CONTINUOUS CONCRETE SLAB ON REINFORCED CONCRETE SUBSTRUCTURE UNITS. ABUTMENTS FOR THE NEW STRUCTURE WILL CONSIST OF SEMI-INTEGRAL ABUTMENTS SUPPORTED ON SHALLOW SPREAD FOUNDATIONS BEARING ON BEDROCK. THE PIERS ARE TO BE WALL TYPE AND WILL ALSO BE SUPPORTED ON SHALLOW SPREAD FOUNDATIONS BEARING ON BEDROCK. THE HORIZONTAL AND VERTICAL ALIGNMENT OF SR 148 WILL REMAIN RELATIVELY UNCHANGED, HOWEVER, PLACEMENT OF SOME NEW FILL WILL BE REQUIRED TO WIDEN THE EXISTING EMBANKMENT.

SPECIFICATIONS

THE CURRENT SUBSURFACE INVESTIGATION WAS GENERALLY PERFORMED IN ACCORDANCE WITH THE 2007 ODOT "SPECIFICATIONS FOR GEOTECHNICAL EXPLORATIONS" ("SGE"), INCLUDING REVISIONS THROUGH OCTOBER 2009.

HISTORIC RECORDS

NO HISTORICAL INFORMATION RELATING TO THE SUBSURFACE CONDITIONS WAS LOCATED DURING A RECORDS SEARCH THROUGH ODOT'S ONLINE DOCUMENT MANAGEMENT SYSTEM, HOWEVER, INFORMATION SHOWN ON A PRELIMINARY SITE PLAN INDICATED THAT BEDROCK MAY BE ENCOUNTERED NEAR ELEVATION 995.84.

GEOLOGY

THE PROJECT SITE IS LOCATED IN THE DISSECTED ALLEGHENY PLATEAU, NEAR THE TRANSITION FROM THE MARIETTA PLATEAU AND THE LITTLE SWITZERLAND PLATEAU. SOIL OVERBURDEN CONSISTS PRIMARILY OF A THIN LAYER OF RECENT ALLUVIUM, COLLUVIUM AND GLACIAL OUTWASH. BEDROCK SOURCES INDICATE THAT MONONGAHELA GROUP SHALE, LIMESTONE, SANDSTONE AND SILTSTONE OF PENNSYLVANIAN AGE IS GENERALLY LOCATED WITHIN 20 FEET OF THE GROUND SURFACE IN THE PROJECT VICINITY. INTERBEDDED LIMESTONE AND SHALE BEDROCK WAS ENCOUNTERED IN ALL BORINGS PERFORMED FOR THE CURRENT INVESTIGATION.

RECONNAISSANCE

A SITE RECONNAISSANCE WAS PERFORMED BY PERSONNEL FROM BBCM ON NOVEMBER 9, 2009. DURING THE SITE VISIT, VISIBLE DETERIORATION (SPALLED CONCRETE IN MANY LOCATIONS WITH EXPOSED REBAR IN SOME AREAS) OF THE SIDES AND UNDERSIDE OF THE BRIDGE DECK WAS OBSERVED. THE EMBANKMENT SLOPES AT EACH ABUTMENT APPEARED TO BE IN GENERALLY GOOD CONDITION, WITH A FEW AREAS OF MINOR EROSION CAUSED BY THE NORTH FORK OF CAPTINA CREEK BEING NOTED.

SUBSURFACE EXPLORATION

ON DECEMBER 2 AND 3, 2009, BORINGS B-001-0-09 THROUGH B-003-0-09 (REFERRED TO HEREAFTER AS B-001 THROUGH B-003, RESPECTIVELY) WERE PERFORMED FOR THE PROPOSED REPLACEMENT STRUCTURE. BORINGS B-001 AND B-003 WERE DRILLED THROUGH THE EXISTING APPROACH PAVEMENT, WHEREAS BORING B-002 WAS ADVANCED THROUGH A HOLE CORED IN THE EXISTING BRIDGE DECK.

THE BORINGS WERE ADVANCED THROUGH THE SOIL OVERBURDEN BY AN ATV-MOUNTED DRILL RIG USING A 3-1/4-INCH I.D. HOLLOW-STEM AUGER. DISTURBED, BUT REPRESENTATIVE, SOIL SAMPLES WERE OBTAINED BY LOWERING A 2-INCH O.D. SPLIT-BARREL SAMPLER TO THE BOTTOM OF THE BORING AND DRIVING IT INTO THE SOIL BY BLOWS FROM A 140-POUND HAMMER FREELY FALLING 30 INCHES (ASTM D1586 - STANDARD PENETRATION TEST). SPLIT-BARREL SAMPLES WERE EXAMINED IMMEDIATELY AFTER RECOVERY AND REPRESENTATIVE PORTIONS WERE PRESERVED IN AIRTIGHT GLASS JARS. IN ACCORDANCE WITH THE ODOT "SGE", THE HAMMER SYSTEM ON THE DRILL RIG HAD BEEN CALIBRATED IN ACCORDANCE WITH ASTM D4633 TO DETERMINE THE DRILL ROD ENERGY RATIO.

AFTER ENCOUNTERING AUGER REFUSAL ON THE UNDERLYING BEDROCK SURFACE, A CHANGEOVER TO ROTARY DRILLING WAS MADE AND 10.0 TO 15.0 FEET OF BEDROCK WERE CORED USING AN NQ CORE BARREL.

UPON COMPLETION OF THE DRILLING, ALL BORINGS WERE SEALED IN ACCORDANCE WITH APPENDIX F OF THE 2007 ODOT "SGE" AND THE EXISTING PAVEMENT SECTION WAS REPAIRED WITH COLD-PATCH ASPHALT. THE BRIDGE DECK CORE LOCATION PERFORMED AT BORING B-002 WAS REPAIRED IN GENERAL ACCORDANCE WITH SECTION 408 OF THE ODOT "SGE".

EXPLORATION FINDINGS

SIX (6) TO SEVEN (7) INCHES OF ASPHALT WERE ENCOUNTERED IN ALL THREE BORINGS, WITH 23 INCHES OF GRANULAR BASE ENCOUNTERED BELOW THE ASPHALT IN BORING B-003. BENEATH THE ASPHALT IN BORING B-002, THE EXISTING CONCRETE BRIDGE DECK WAS 24 INCHES THICK.

BENEATH THE PAVEMENT MATERIALS IN BORINGS B-001 AND B-003, 4.5 TO 5.5 FEET OF EXISTING FILL CONSISTING OF STIFF SILT AND CLAY AND/OR SILTY CLAY (A-6a, A-6b) AND MEDIUM-DENSE GRAVEL WITH SAND (A-1-b) WAS ENCOUNTERED. WITHIN THE FILL, COAL AND CONCRETE FRAGMENTS WERE OBSERVED IN BORING B-001.

BENEATH THE EXISTING FILL IN BORING B-001, A 6.5-FOOT-THICK LAYER OF MEDIUM-STIFF SANDY SILT (A-4a) WAS ENCOUNTERED BELOW THE EXISTING FILL. A LOSS-ON-IGNITION (LOI) TEST WAS PERFORMED ON A SOIL SAMPLE FROM THIS SANDY SILT LAYER (A-4a) YIELDED AN LOI VALUE OF 3.7%. BELOW THE EXISTING FILL OR SANDY SILT LAYER, ALL THREE (3) BORINGS ENCOUNTERED 4.2 TO 6.7 FEET OF NATURAL VERY-LOOSE TO MEDIUM-DENSE GRAVEL (A-1-a) AND GRAVEL WITH SAND (A-1-b).

LEGEND

DESCRIPTION	ODOT CLASS	CLASSIFIED MECH.	CLASSIFIED VISUAL
GRAVEL AND/OR STONE FRAGMENTS	*A-1-a*	*1*	*0*
GRAVEL AND/OR STONE FRAGMENTS WITH SAND	*A-1-b*	*4*	*2*
SANDY SILT	*A-4a*	*0*	*1*
SILT AND CLAY	*A-6a*	*1*	*0*
SILTY CLAY	*A-6b*	*0*	*1*
	TOTAL	*6*	*4*
LIMESTONE	*VISUAL*		
INTERBEDDED LIMESTONE AND SHALE	*VISUAL*		
PAVEMENT OR BASE = X = APPROXIMATE THICKNESS	*VISUAL*		
CONCRETE = X = APPROXIMATE THICKNESS	*VISUAL*		

BORING LOCATION - PLAN VIEW

DRIVE SAMPLE AND/OR ROCK CORE BORING PLOTTED TO VERTICAL SCALE ONLY. HORIZONTAL BAR INDICATES A CHANGE IN STRATIGRAPHY.

WC INDICATES WATER CONTENT IN PERCENT.

N_{60} INDICATES STANDARD PENETRATION RESISTANCE NORMALIZED TO 60% DRILL ROD ENERGY RATIO.

W— INDICATES FREE WATER ELEVATION.

⊖ INDICATES A NON-PLASTIC MATERIAL WITH A MOISTURE CONTENT GREATER THAN 25 % OR GREATER THAN 19 % WITH A WET APPEARANCE.

R REFUSAL OF SPLIT-SPOON SAMPLER IN HARD OR VERY-DENSE SOIL.

TR— INDICATES TOP OF BEDROCK

BEDROCK CONSISTING OF INTERBEDDED LIMESTONE AND SHALE WAS ENCOUNTERED AT ELEVATIONS 994.5, 996.7, AND 996.4 IN BORINGS B-001 THROUGH B-003, RESPECTIVELY. IN BORING B-002, THE UPPERMOST 2.1 FEET OF THE BEDROCK CONSISTED OF HIGHLY FRACTURED LIMESTONE, WITH INTACT BEDROCK THAT COULD BE CORED BEING ENCOUNTERED AT ELEVATION 994.7. THE BEDROCK CONSISTED OF ROUGHLY 60% TO 75% LIMESTONE, WHICH WAS DESCRIBED AS GRAY, SLIGHTLY WEATHERED TO UNWEATHERED, AND STRONG TO VERY STRONG. THE LIMESTONE WAS ALSO NOTED TO BE PARTLY CONGLOMERITIC. THE SHALE PORTION OF THE BEDROCK WAS GENERALLY DESCRIBED AS DARK-GRAY, SLIGHTLY TO MODERATELY WEATHERED, AND SLIGHTLY STRONG TO MODERATELY STRONG, CALCAREOUS, PARTLY CARBONACEOUS, AND CONTAINED A FEW PYRITE FLECKS IN BORINGS B-001 AND B-002.

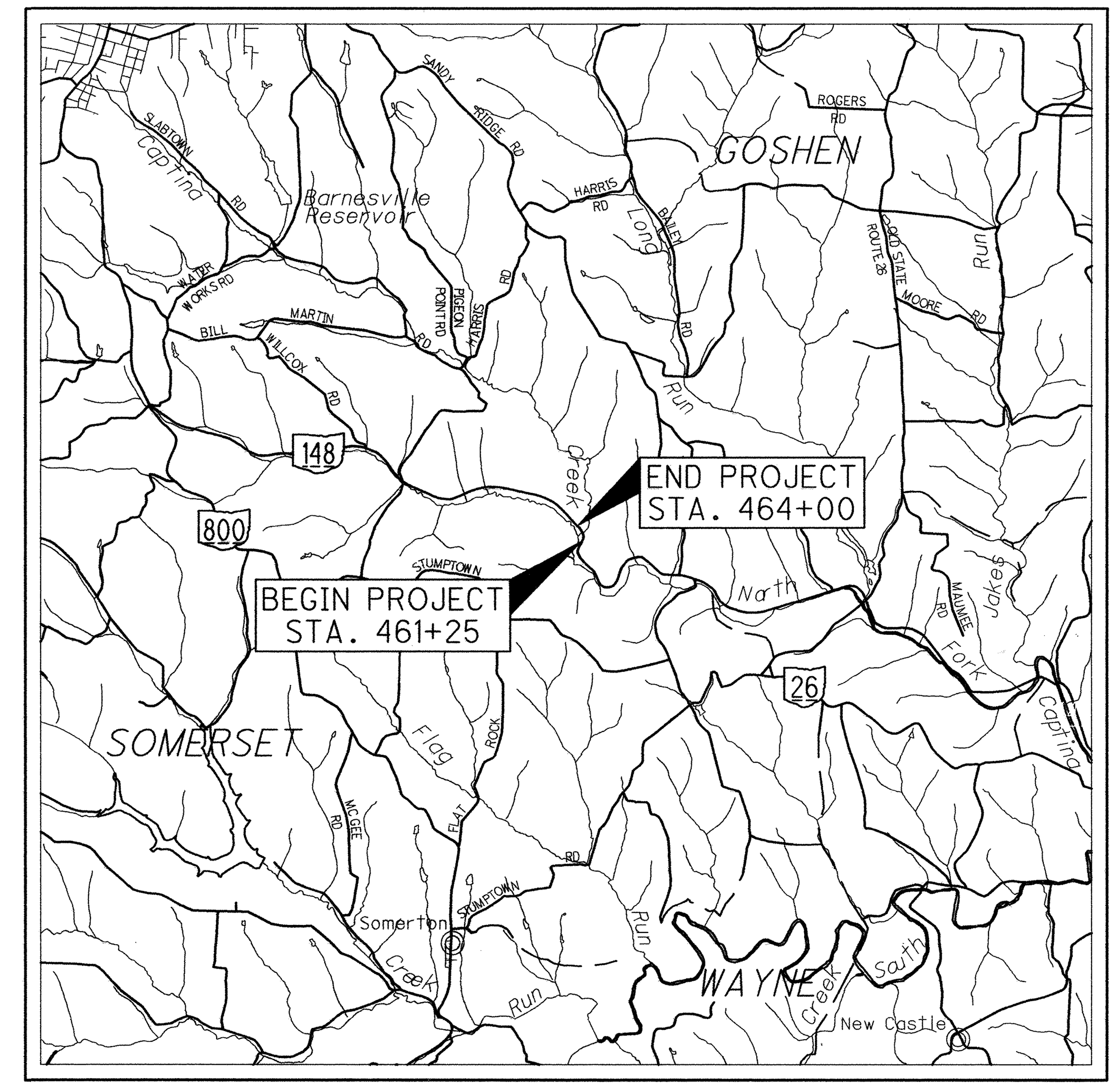
WATER WAS ENCOUNTERED IN THE BORINGS BETWEEN 11.0 AND 15.2 FEET BELOW THE EXISTING ROADWAY SURFACE.

AVAILABLE INFORMATION

ALL AVAILABLE SOIL INFORMATION THAT CAN BE CONVENIENTLY SHOWN ON THE SOIL PROFILE SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE EXPLORATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE OFFICE OF GEOTECHNICAL ENGINEERING AT 1600 WEST BROAD STREET OR THE OFFICE OF STRUCTURAL ENGINEERING AT 1980 WEST BROAD STREET.

SUMMARY OF LOSS-ON-IGNITION (LOI) TESTING DATA

BORING NO.	SAMPLE NO.	SAMPLE DEPTH	SAMPLE ELEVATION (MSL)	LOI (%)	LOI DESCRIPTION
B-001-0-09	SS-2	8.5' - 10.0'	1001.8 - 1000.3	3.7	SLIGHTLY ORGANIC



LOCATION MAP

SCALE IN MILES

0 1 2 3 4

N

PARTICLE SIZE DEFINITIONS

12"	3"	2.0 mm	0.42 mm	0.074 mm	0.005 mm	
BOULDERS	COBBLES	GRAVEL	COARSE SAND	FINE SAND	SILT	CLAY
		No. 10 SIEVE	No. 40 SIEVE	No. 200 SIEVE		

SUMMARY OF UNCONFINED COMPRESSION STRENGTH (UCS) TESTING DATA - BEDROCK

BORING NO.	SAMPLE NO.	SAMPLE DEPTH	SAMPLE ELEVATION (MSL)	ROCK TYPE	UNCONFINED COMPRESSIVE STRENGTH (psi)
B-001-0-09	NQ2-4	16.1' - 16.6'	994.2 - 993.7	LIMESTONE	11,998
B-002-0-09	NQ2-4	15.5' - 16.0'	994.4 - 993.9	LIMESTONE	17,188
B-003-0-09	NQ2-5	24.1' - 24.6'	985.8 - 985.3	LIMESTONE	16,553
B-003-0-09	NQ2-6	13.7' - 14.2'	996.4 - 995.9	LIMESTONE	16,781

SUMMARY OF D_{50} SOIL PARTICLE SIZES

BORING NO.	SAMPLE NO.	SAMPLE DEPTH	SAMPLE ELEVATION	D_{50} (mm)
B-002-0-09	SS-1	9.5' - 11.0'	1000.4 - 998.9	0.77
B-002-0-09	SS-2	11.0' - 12.5'	998.9 - 997.4	1.03
B-002-0-09	SS-3	12.5' - 13.3'	997.4 - 996.6	0.84

RECON. - NDA (11/9/09)
DRILLING - BBCM (12/2-3/09)
DRAWN - TJM (10/21-29/10)
REVIEWED - RSW (10/25/10)

STATE OF OHIO REGISTERED PROFESSIONAL ENGINEER
10-25-10

BBCM

PID NO. 24864

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. BEL-148-0314 OVER
NORTH FORK OF CAPTINA CREEK

BEL-148-3.12

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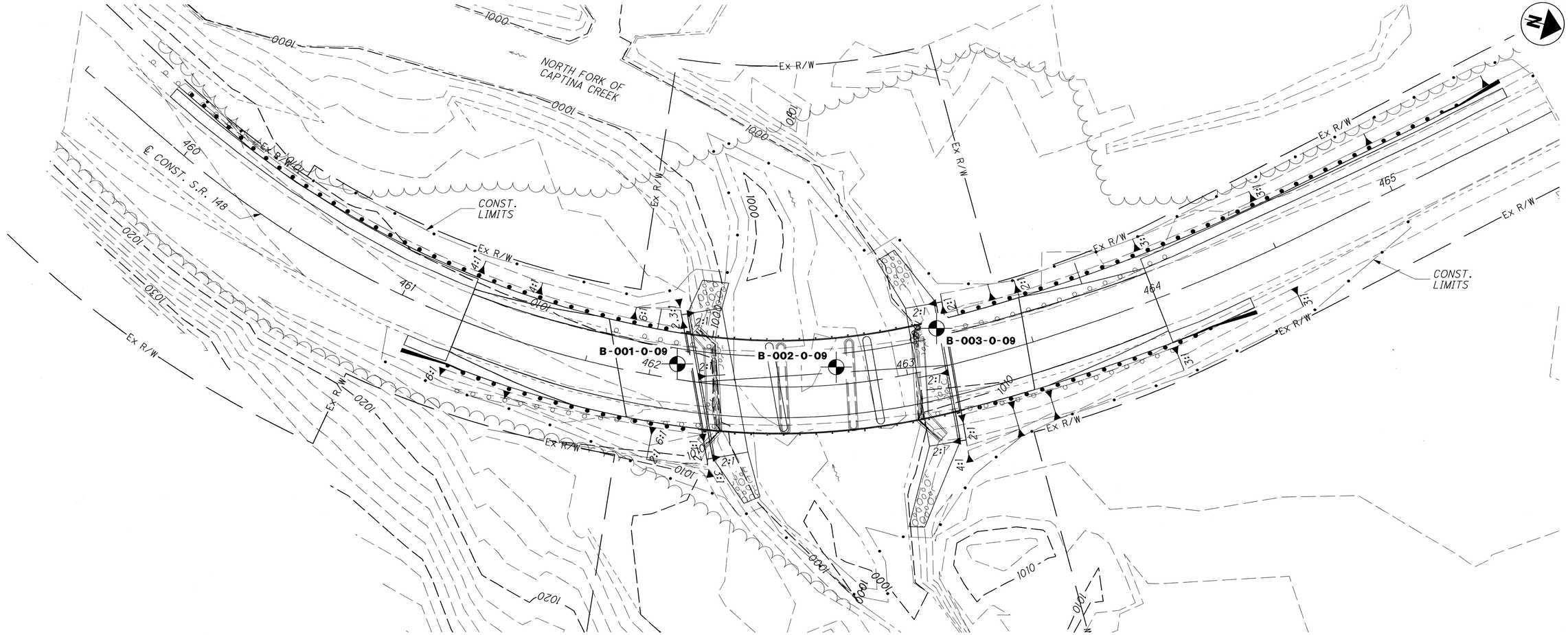

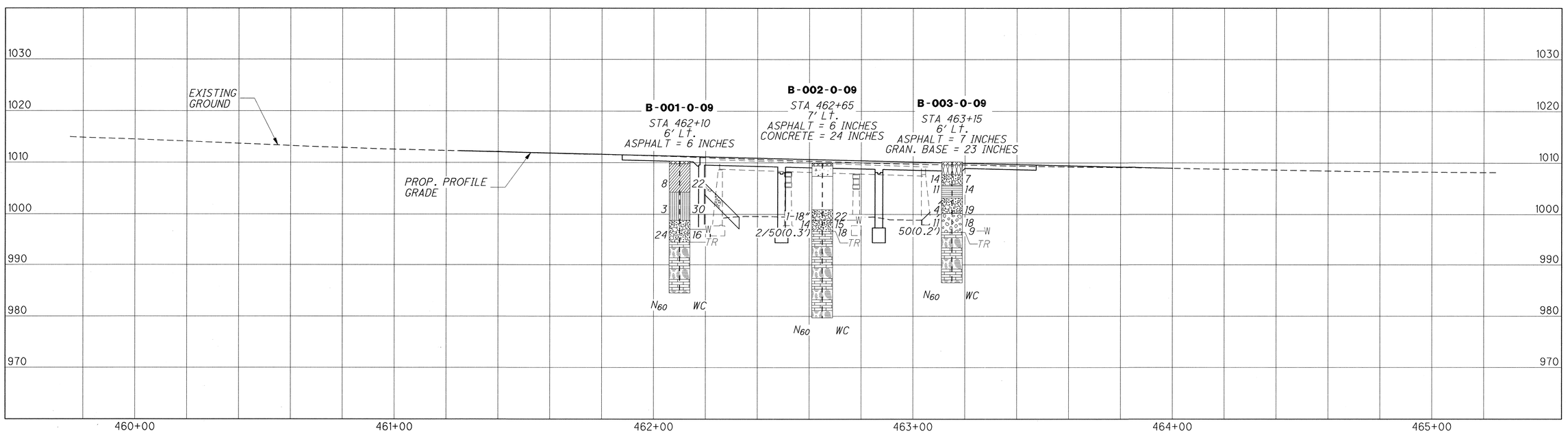

HORIZONTAL SCALE IN FEET
0 20 40

BBCM

STRUCTURE FOUNDATION EXPLORATION
BRIDGE NO. BEL-148-0314 OVER
NORTH FORK OF CAPTINA CREEK

BEL-148-3.12

2 / 4

BBCM

PROJECT: BEL-148-03.14	DRILLING FIRM / OPERATOR: BBCM / M. WOLF	DRILL RIG: ATV 550X	STATION / OFFSET: 462+10, 6.0 LT	EXPLORATION ID B-001-0-09
TYPE:	SAMPLING FIRM / LOGGER: BBCM / T. MARSILLO	HAMMER: CME AUTOMATIC	ALIGNMENT: CENTERLINE	
PID: 24864 BR ID:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 2/17/09	ELEVATION: 1010.3 (MSL) EOB: 25.8 ft.	PAGE 1 OF 1
START: 12/2/09 END: 12/2/09	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 85	COORD: 709256 N, 2355355 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1010.3	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT - 6 INCHES	1009.8																	
Fill: Stiff brown mottled with gray and dark-gray **SILT AND CLAY,** "and" fine to coarse sand, trace fine gravel, contains few coal and concrete fragments, damp.	1004.3		2 3 3	8	33	SS-1	1.0-1.3	7	11	30	26	26	36	21	15	22	A-6a (5)	
Medium-stiff gray mottled with dark-gray **SANDY SILT,** some clay, trace fine gravel, slightly organic, damp. Loss-on-Ignition (LOI) Test on Sample 2 = 3.7%.	998.8		1 1 1	3	100	SS-2	0.5-0.7	1	1	28	45	25	-	-	-	30	A-4a (V)	
Medium-dense brown and black **GRAVEL WITH SAND,** little silt, trace clay, wet.	994.5	AD	10 9 8	24	67	SS-3		-	-	-	-	-	-	-	-	16	A-1-b (V)	
INTERBEDDED LIMESTONE (75%) **AND SHALE** (25%), RQD 78%, LOSS 16%; Limestone: Gray, slightly weathered to unweathered, strong, laminated to medium bedded, slightly fractured, conglomeritic. Shale: Dark-gray, highly to slightly weathered, slightly to moderately strong, laminated to thin bedded, highly fractured to fractured, calcareous, fissile, carbonaceous, pyritic (flecks). - From 16.1' to 16.6': Q_u = 11,998 psi.	984.5	TR	72		78	NQ2-4											CORE	
			83		90	NQ2-5											CORE	
		EOB																

- Encountered water at 13.2'.
- Encountered auger refusal at 15.8'.

NOTES: SEE ABOVE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE GROUT/SOIL/CEMENT MIX

ODOT LOG (8.5X11) - CURRENT WITH PLATES - OH DOT.GDT - 10/8/10 09:05 - M:\DATA\GINT\WPROJECTS\1124937100.GPJ

BBCM

PROJECT: BEL-148-03.14	DRILLING FIRM / OPERATOR: BBCM / M. WOLF	DRILL RIG: ATV 550X	STATION / OFFSET: 463+15, 6.0 LT	EXPLORATION ID B-003-0-09
TYPE:	SAMPLING FIRM / LOGGER: BBCM / T. MARSILLO	HAMMER: CME AUTOMATIC	ALIGNMENT: CENTERLINE	
PID: 24864 BR ID:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 2/17/09	ELEVATION: 1010.1 (MSL) EOB: 23.7 ft.	PAGE 1 OF 1
START: 12/3/09 END: 12/3/09	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 85	COORD: 709353 N, 2355324 E	

MATERIAL DESCRIPTION AND NOTES	ELEV. 1010.1	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT - 7 INCHES	1009.5																	
GRANULAR BASE - 23 INCHES	1007.6																	
Fill: Medium-dense gray and brown **GRAVEL WITH SAND,** trace silt, trace clay, moist.	1005.6		8 4 6	14	33	SS-1		53	9	21	9	8	-	-	-	7	A-1-b (V)	
Fill: Stiff (est.) brown **SILTY CLAY,** some fine to coarse sand, little fine to coarse gravel, damp.	1003.1		3 5 3	11	67	SS-2		-	-	-	-	-	-	-	-	14	A-6b (V)	
Very-loose brown **GRAVEL WITH SAND,** little silt, little clay, moist.	1000.1		2 2 1	4	50	SS-3		-	-	-	-	-	-	-	-	19	A-1-b (V)	
Medium-dense brown **GRAVEL,** some fine to coarse sand, little silt, trace clay, wet.	996.4		5 3 5	11	67	SS-4		55	16	15	14	-	-	-	-	18	A-1-a (V)	
INTERBEDDED LIMESTONE (65%) **AND SHALE** (35%), RQD 70%, LOSS 18%; Limestone: Gray, slightly weathered to unweathered, strong to very strong, laminated to medium bedded, slightly fractured to intact, conglomeritic. Shale: Dark-gray, moderately weathered to slightly weathered, slightly to moderately strong, laminated to thin bedded, fractured to slightly fractured, carbonaceous, calcareous, slightly fissile. - From 13.7' to 14.2': Q_u = 16,781 psi.	986.4	TR	60-0.2/ -		100/	SS-5		-	-	-	-	-	-	-	-	9	Rock (V)	
			65		78	NQ2-6											CORE	
			76		86	NQ2-7											CORE	
		EOB																

- Encountered water at 13.4'.

NOTES: SEE ABOVE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE GROUT/SOIL/CEMENT MIX

ODOT LOG (8.5X11) - CURRENT WITH PLATES - OH DOT.GDT - 10/8/10 09:08 - M:\DATA\GINT\WPROJECTS\1124937100.GPJ

PROJECT: BEL-148-03.14	DRILLING FIRM / OPERATOR: BBCM / M. WOLF	DRILL RIG: ATV 550X	STATION / OFFSET: 462+65, 7.0 LT	EXPLORATION ID B-002-0-09
TYPE:	SAMPLING FIRM / LOGGER: BBCM / T. MARSILLO	HAMMER: CME AUTOMATIC	ALIGNMENT: CENTERLINE	
PID: 24864 BR ID:	DRILLING METHOD: 3.25" HSA / NQ2	CALIBRATION DATE: 2/17/09	ELEVATION: 1009.9 (MSL) EOB: 30.2 ft.	PAGE 1 OF 1
START: 12/3/09 END: 12/3/09	SAMPLING METHOD: SPT / NQ2	ENERGY RATIO (%): 85	COORD: 709308 N, 2355343 E	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTHS	SPT/ RQD	N_{60}	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%) GR	CS	FS	SI	CL	ATTERBERG LL	PL	PI	WC	ODOT CLASS (GI)	HOLE SEALED
ASPHALT - 6 INCHES	1009.9																	
CONCRETE (BRIDGE DECK) - 24 INCHES	1009.4																	
	1007.4																	
AIR																		
	1000.9																	
Very-loose gray and brown **GRAVEL WITH SAND,** little silt, little clay, wet.	998.9	W	1		33	SS-1		32	29	14	13	12	-	-	-	22	A-1-b (V)	
Medium-dense brown and gray **GRAVEL WITH SAND,** trace to little silt, trace to little clay, wet.	996.7	TR	1 4 6	14	67	SS-2		43	17	22	10	8	-	-	-	15	A-1-b (V)	
			2 50-0.3'	-	70	SS-3		38	22	17	12	11	-	-	-	18	A-1-b (V)	
LIMESTONE, gray, highly fractured.	994.7																	
INTERBEDDED LIMESTONE (60%) **AND SHALE** (40%), RQD 78%, LOSS 14%; Limestone: Gray, slightly weathered to unweathered, strong to very strong, thin to medium bedded, slightly fractured to intact, conglomeritic. Shale: Dark-gray slightly weathered, slightly to moderately strong, thin bedded, fractured to moderately fractured, calcareous, pyritic (flecks), carbonaceous. - From 15.5' to 16.0': Q_u = 17,188 psi.			61		78	NQ2-4											CORE	
- From 24.1' to 24.6': Q_u = 16,553 psi.	979.7	EOB	87		89	NQ2-5											CORE	

- Encountered water at 11.0'.
- Encountered auger refusal at 15.2'.

NOTES: SEE ABOVE

ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE GROUT

SPECIAL PROVISIONS

WATERWAY PERMITS CONDITIONS

C-R-S: BEL-148-3.12

PID: 24864

Date: 3/2/2011

1. Waterway Permit Time Restrictions:

Complete all work in streams and wetlands depicted in the plans, Special Provisions, and/or working drawings for temporary fill by October 23, 2014.

For work on streams and wetlands, the Department will consider the Contractor's submission of an extension to the waterway permit end date based on project constraints. In order to be considered, the Contractor must submit a justification to the Engineer at least two months prior to the waterway permit end date.

The Engineer will submit the request for a time extension to ODOT- Office of Environmental Services- Waterway Permits Unit (614-466-7100) for consideration and coordination with the USACE and/or Ohio EPA.

2. Deviations from Permitted Construction Activities

No deviation from the requirements for work in streams and wetlands depicted in the plans, Special Provisions, and/or working drawings may be made unless a modification has been submitted to ODOT and approved by the appropriate agencies (i.e., USACE, Ohio EPA, USCG, ODNR, and USFWS).

For emergency situations resulting in unanticipated impacts to streams or wetlands, provide notification (verbal or written) to the Engineer as soon as possible following discovery of the situation. Written notification to the Engineer and notification to the ODOT- Office of Environmental Services- Waterway Permits Unit must be made within 24 hours.

For non-emergency situations, notify the Engineer in writing for submission to the ODOT- Office of Environmental Services- Waterway Permits Unit (614-466-7100) for consideration and coordination with the appropriate agencies. Notification must be made at least two months prior to planned non-permitted activities. Consideration of the requested deviation is at the discretion of the Director and must be coordinated with the appropriate regulatory agencies.

3. In-Stream Work Restrictions

Work in the following sensitive streams is further restricted as follows

Steam Name /Description	Location	Work restriction dates (No in-stream work permitted)
North Fork Captina Creek	BEL-148-3.12	None

Examples of "fill materials" include (but are not limited to) bridge piers, abutments, bridge demolition debris, culverts, rock channel protection, scour protection, and temporary work pads. Temporary work pads can be constructed of rock or include any structures (e.g., scaffolds, ladders, barges that touch the bottom of the stream, etc).

Fills (such as temporary work pads) placed within a stream identified in the above table outside of the

work restriction dates can continue to be worked from during the work restriction dates, but cannot be expanded, removed, or otherwise modified (below ordinary high water) until once again outside of the work restriction dates.

The Engineer will submit the request for a time extension to ODOT- Office of Environmental Services-Waterway Permits Unit (614-466-7100) for consideration and coordination with the USACE and/or Ohio EPA.

4. Materials:

Materials utilized in or adjacent to streams and wetlands on this project for temporary or permanent fill or bank protection shall consist of suitable material free from toxic contaminants in other than trace quantities. Broken asphalt is specifically excluded.

Cadmium, chromium, arsenate (CCA), creosote, and other pressure treated lumber shall not be used in structures that are placed in wetlands and streams.

5. Cultural Resources

If archeological sites or human remains are discovered, cease all work in the immediate area and notify the Engineer who will immediately contact the Office of Environmental Services – Cultural Resource Section
(614-466-7100) and the Ohio Historic Preservation Office.

In the event of human remains are discovered the Engineer shall also contact the Belmont County Sherriff's Office (740-695-7933).

6. Water Resource Demarcation:

All streams, wetlands, lakes, and ponds indicated on the plans shall be demarcated in the field as per SS 832 prior to site disturbance. The fence shall remain in place and be maintained throughout the construction process. Following the completion of the project, the fence and posts shall be removed.

7. Spill containment:

Provide and Maintain an Oil Spill Kit with a minimum capacity of 65 gallons. The Spill Kit shall contain:

- 6 - 3 in. X 8 ft. Oil only socks
- 4 - 18 in. X18 in. Oil only pillows
- 2 - 5 in. X 10ft. Booms
- 50 - 16in. X 20 in. Oil only pads
- 10- Disposable Bags
- 1- 65 Gallon drum with lid
- 25 pounds of Granular Oil Absorbent

The Oil Spill Kit shall be located within 150 feet of any equipment working in a stream or wetland. The oil Spill Kit shall be maintained for the life of the contract. Any materials utilized during the project will be replaced within 48 hours.

All costs associated with furnishing and maintaining the above referenced spill containment kit is incidental to work.

Special Provisions for BEL-148-3.12 PID 24864

8. Blasting:

State law requires notification to the Ohio Department of Natural Resources should blasting be required within or near stream channels (See ORC 1533.58 & CMS 107.09).

Notify Engineer, in writing, for submission to ODOT Office of Environmental Services – Waterway Permits Unit (614-466-7100) for coordination with the Ohio Department of Natural Resources.

9. Waterway Permits:

A copy of the waterway permits: RGP Section B (Maintenance) and Section C (Temporary Construction, Access, and Dewatering) shall be kept at the work site at all times and made available to all contractors and subcontractors. The Permit is effective starting: March 2, 2011. The Permit expires: October 23, 2014.

10. Bridge Inspection:

Prior to the removal of bridge structures, the underside must be carefully examined for the presence of birds and bats. Should any birds or bats be found roosting on the underside of the bridge, the Contractor is required to notify the Engineer for coordination with ODOT- Office of Environmental Services (614-466-7100).

11. Project Inspection:

Inspection of Work may include inspection by representatives of other government agencies or railroad corporations that pay a portion of the cost of the Work or regulate the Work through State and Federal law. Comments from the representatives of these agencies shall be directed to the Engineer. Please forward a copy to ODOT Office of Environmental Services. Waterway Permits Unit (614-466-7100).

12. Temporary Access Fills (Stream and River Crossings and Fills)

Special Provisions Notes:
Regional General Permit (RGP) for the State of Ohio Department of Transportation

Definitions:

Hydraulic Opening
The cross sectional area allowing an unimpeded discharge equal to twice the highest monthly flow without producing a rise in the backwater above the Ordinary High Water Mark (OHWM)*.

Standard Temporary Discharge
The hydraulic opening providing a capacity for a discharge equal to twice the *highest monthly flow* without producing a rise in the backwater above the OHWM shall be known as the Standard Temporary Discharge. The U.S. Geologic Service publication "Techniques for estimating Selected Streamflow Characteristics of Rural Unregulated Streams in Ohio" provides equations that estimate monthly flow for Ohio Waterways These flows are also available in a web application by USGS StreamStats, (http//water.usgs.gov/osw/streamstat/ohi.html).

Average Monthly Flow
The average monthly flow represents the estimated "normal" flow.

Temporary Access Fills (TAFs)

In Streams and Rivers may include, but are not limited to, causeways, cofferdams (as described by other items of work), access pads, temporary bridges, etc. The Contractor will make every attempt minimize disturbance to water bodies, stream banks, stream beds, and approach sections during the construction, maintenance, and removal of the TAFs. Fording of streams and rivers is prohibited.
Construct TAFs in such a manner that will maintain flows, minimize upstream flooding, and avoid overtopping the TAF on a regular basis. ***TAFs shall be designed and constructed so that the hydraulic opening provides capacity for a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the Ordinary High Water Mark (OHWM)*.***

Do not exceed an overall length of 250 feet measured linearly upstream to downstream.

Requirements

21 calendar days prior to the initiation of any in-stream work, provide the Engineer with working drawings that include:

- Plan view drawing (200 scale or less) showing the location of all jurisdictional temporary fill proposed for use on the project
- Scaled Cross section and profile drawing showing the OHWM and the proposed compliant hydraulic opening.
- A description of the installation and staging of all temporary jurisdictional fill over the life of the contract.
- A description of the removal of all jurisdictional temporary fill and restoration of the channel and all areas impacted by the jurisdictional temporary fill.
- A schedule outlining the timing of the placement and removal of all TAF.

- Have an Ohio Registered Engineer prepare, sign, seal and date the working drawings. Have a second Ohio Registered Engineer check, sign, seal and date the working drawings. The preparer and checker are two different Engineers. Include the following statement on the working drawings:
  "These working drawings were prepared in compliance with the terms of the Regional General Permit and all contract documents."
- Include supporting hydraulic calculations developed by the engineer(s) who sealed the working drawings.
- Do not begin instream work until the Engineer has accepted the working drawings.

If the OHWM is not shown on the plans, the Department will establish the OHWM based on the definition of OHWM (as defined in SS 832) or the peak discharge from the 2 year event, using the method described in the most current version of the Department's Location and Design Manual Volume II.

If the Contractor proposes a TAF which does not provide for the Standard Temporary Discharge (discharge equal to twice the highest monthly flow without producing a rise in the backwater), the Contractor is required to coordinate the request for the contractor's proposed TAF with the Engineer and the ODOT Office of Environmental Services (OES). The Department makes no guarantee to grant the request. The contractor's proposed TAF request will be coordinated by OES with the U.S. Army Corps of Engineers and the Ohio Environmental Protection Agency, as appropriate.

In addition to the requirements described in SS 832, supply the Engineer/OES with the following:
1. A plan and Profile showing the temporary access fill(s) with the OHWM.

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2. Cross section showing the hydraulic opening and the anticipated discharge flow.
3. A restoration plan for the area affected by the temporary access fill(s).
4. A schedule outlining the timing of the placement and removal of the temporary access fill(s)

The time frame allowed for the coordination of the contractor's proposed TAF will be a minimum of 60 days. Installation of any jurisdictional fill without a 404 Permit authorized by the USACE is strictly prohibited. All direct coordination with the USACE and/or OEPA will be performed through OES.

Temporary Access Fills Construction and Payment

Begin planning and installing causeways and access fills as early in construction as possible to avoid conflicts with 404/401 permits or other environmental commitments that have been included in the construction plans.

Temporary Access Fills (TAFs) in Streams and Rivers may include, but are not limited to, causeways, cofferdams, access pads, temporary bridges, etc. Make every attempt minimize disturbance to water bodies, stream banks, stream beds, and approach sections during the construction, maintenance, and removal of the TAFs. Make every attempt to minimize disturbance to water bodies during construction, maintenance and removal of the causeway and access fills. Construct the causeway and access fills as narrow as practical. Install instream conduits parallel to the stream banks. Make the causeway and access fills in shallow areas rather than deep pools where possible. Minimize clearing, grubbing, and excavation of stream banks, bed, and approach sections. Construct the causeway and access fills as to not erode stream banks or allow sediment deposits in the channel.

Prior to the initiation of any in-stream work, establish a monument upstream of proposed temporary crossing or temporary construction access fill to visually monitor the water elevation in the waterway where the fill is permitted. Maintain the monument throughout the project. Provide a visual mark on the monument that identifies the elevation 1 foot above the OHWM. If the OHWM is not shown on the plans, the Department will establish the OHWM based on the definition of OHWM (SS 832.02) or the peak discharge from the 2 year event, using the method described in the most current version of the Department's Location and Design Manual Volume II.

Ensure that the monument can be read from the bank of the waterway. Have this elevation set and certified by an Ohio Registered Surveyor.

Temporary access fills placed by the contractor above the OHWM are not subject to the 404/401 permit constraints.

Should the water elevation of the waterway, exceed the elevation 1 foot above OHWM, the Department will compensate the Contractor for repair of any resulting damage to the permitted temporary access fill up to the elevation of 1 foot above the OHWM. The Department will not pay for repair and maintenance of temporary access structures that are related to the construction access fill.

Should the water elevation of the waterway exceed the elevation shown on the monument, the Department will recognize this event as an excusable, non-compensable delay in accordance with Section 108.06 of the Construction & Materials Specifications.

All costs associated with furnishing and maintaining the above referenced monument is incidental to the work.

Construct the causeway and access fills to a water elevation at least 1 foot (0.3 m) above the OHWM. If the causeway fills more than one-third the width of the stream, then use culvert pipes to allow the movement of aquatic life. Ensure that any ponding of water behind the causeway and access fills will not damage property or threaten human health and safety.

The following minimum requirements apply to TAFs where culverts are used.

A. Furnish culverts on the existing stream bottom.

B. Avoid a drop in water elevation at the downstream end of the culvert.
C. Furnish a sufficient number of culverts in addition to stream openings to providing a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the OHWM.
D. Furnish culverts with a minimum diameter of 18 inches (0.5 m)...

For all fill and surface material placed in the channel, around the culverts, or on the surface of the causeway and access fills furnish clean, non-erodible, nontoxic dumped rock fill, Type B, C, or D, as specified in C&MS 703.19.B. Extend rock fill up the slope from original stream bank for 50 feet (10 m) to catch and remove erodible material from equipment.

When the work requiring the TAFs is complete all portions of the TAF (including all rock and culverts) will be removed in its entirety. The material will not be disposed in other waters of the US or isolated wetland. The stream bottom affected by the causeway and access fills will be restored to its pre-construction elevations. The TAF will not be paid as a separate item but will be included by the Contractor as part of the total project cost.

All environmental protection and control associated with the 404/401 permit activities are incidental to the work within the boundaries of the 404/401 permit or as otherwise identified in the 404/401 permit application.