

SECTION I - BARRIER

SHEET NO.	NAME
B-L (2001)	- BARRIER LEGEND
B-1	- GUARDRAIL APPLICATIONS
	(2004) - 1 PLANS - (TYPE 1, TYPE 2, AND TYPE 3)
	(2004) - 2 ELEVATIONS AND SPLICE DETAIL
	(2002) - 3 SECTION VIEWS
	(2002) - 4 GRADING FOR GUARDRAIL END TREATMENT, TYPE 1
	(2002) - 5 GRADING FOR GUARDRAIL END TREATMENT, TYPE 2
	(2002) - 6 GRADING FOR GUARDRAIL END TREATMENT, TYPE 3
B-2 (2004)	- GUARDRAIL OVER CULVERTS, TYPE 1
B-3 (2004)	- GUARDRAIL OVER CULVERTS, TYPE 2
B-4 (2004)	- CURVED GUARDRAIL SECTION
B-5 (2002)	- END ANCHORAGE
B-6	- BURIED END SECTION
	(2002) - 1 BURIED END SECTION
	(2002) - 2 BURIED END SECTION
	(2002) - 3 POST, CONCRETE BLOCK, & RUBRAIL ANCHOR DETAILS
B-7	- GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1
	(2005) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 WOOD BLOCKOUT, RUB RAIL WOOD BLOCKS, BEARING PLATE, RUB RAIL TO BARRIER CONNECTION DETAILS
	(2001) - 3 BENT PLATE RUB RAIL DETAILS
B-8	- GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 2
	(2005) - 1 PLAN, ELEVATION, AND SECTIONS
	(2001) - 2 NOTES, BENT RAIL DETAILS, BLOCK SCHEDULE
B-9 (2002)	- GUARDRAIL TO BARRIER CONNECTION, EXIT TYPE
B-10 (2004)	- BRIDGE RAIL RETROFIT, TYPE 1
B-11	- BRIDGE RAIL RETROFIT, TYPE 2
	(2004) - 1 PLAN, SECTION A-A, BASE PLATE DETAIL
	(2001) - 2 BASE PLATE DETAIL AND STEEL GUARDRAIL POST
B-12 (2001)	- BRIDGE RAIL RETROFIT, TYPE 3
B-13	- HARDWARE
	(2004) - 1 W-BEAM DETAILS
	(2004) - 2 W-BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 3 W-BEAM TERMINAL CONNECTOR
	(2004) - 4 THRIE BEAM DETAILS
	(2004) - 5 THRIE BEAM STEEL POST AND OFFSET BLOCK
	(2004) - 6 W-THRIE BEAM TRANSITION SECTION
	(2004) - 7 WOOD BLOCK, SOIL PLATE, SHORT WOOD BREAKAWAY POST, STEEL TUBE, LONG WOOD BREAKAWAY POST
	(2004) - 8 SWAGED CABLE AND RELATED HARDWARE ASSEMBLY
	(2004) - 9 REFLECTORIZED WASHER AND BEARING PLATE DETAIL
	(2004) - 10 GUARDRAIL BOLT & RECESSED NUT
	(2004) - 11 5/8" (16) HEX BOLT, HEX NUT, & STEEL WASHER, HIGH-STRENGTH STRUCTURAL HEX BOLT & HEX NUT
	(2004) - 12 15/16" (24) HEX NUT & STEEL WASHER, 5/8" (16) CARRIAGE BOLT, HEX NUT, & STEEL WASHER
	(2005) - 13 GUARDRAIL MOUNTED RAIL •DETAIL ON HOLD•
B-14	- CONCRETE SAFETY BARRIER (F SHAPE)
	(2001) - 1 TYPICAL CAST IN PLACE OR SLIP FORM CONSTRUCTION
	(2001) - 2 TYPICAL PRE-CAST CONSTRUCTION
	(2001) - 3 SLOTTED PLATE CONNECTION DETAILS

SECTION I - BARRIER (CONT'D)

SHEET NO.	NAME
B-15	— PORTABLE CONCRETE SAFETY BARRIER (F SHAPE)
(2001) - 1	PLAN, ELEVATION, AND SECTION VIEW •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 2	CURVE SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 3	TAPERED END SECTION •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 4	TYPICAL REINFORCEMENT DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•
(2001) - 4	JOINT CONNECTION DETAILS •DETAIL DELETED - SEE SPECIFICATIONS•

SECTION II - CURB & GUTTER

SHEET NO.	NAME
C-1 (2005)	— P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB
C-2	— CURB RAMPS
(2004) - 1	TYPE 1
(2004) - 2	TYPES 2, 3, & 4
(2004) - 3	SECTIONS FOR TYPES 2, 3, & 4
(2004) - 4	TYPE 5
C-3 (2005)	— ENTRANCES
C-4	— CURB OPENINGS
(2001) - 1	TYPES A, B, & C
(2001) - 2	TYPES D & E
(2001) - 3	TYPES F & G

SECTION III - DRAINAGE

SHEET NO.	NAME
D-1	— 6:1 SAFETY END STRUCTURE
(2001) - 1	DETAIL VIEWS
(2001) - 2	SCHEDULES
D-2	— 10:1 SAFETY END STRUCTURE
(2001) - 1	DETAIL VIEWS
(2001) - 2	SCHEDULES
D-3	— SAFETY GRATES
(2005) - 1	SAFETY END STRUCTURE GRATE & ASSEMBLY DETAIL
(2005) - 2	PERSONNEL SAFETY GRATE FOR PIPE INLET DETAIL
D-4 (2002)	— INLET BOX DETAILS
D-5	— DRAINAGE INLET DETAILS
(2002) - 1	DRAINAGE INLET ASSEMBLY
(2002) - 2	DRAINAGE INLET FRAME AND GRATES
(2004) - 3	DRAINAGE INLET TOP UNITS
(2002) - 4	DRAINAGE INLET COVER SLAB DETAILS
(2002) - 5	DOUBLE INLET COVER SLAB DETAILS
(2004) - 6	DRAINAGE INLET 34" (865) x 24" (610) DETAILS
(2002) - 7	DRAINAGE INLET 34" (865) x 18" (455) DETAILS
(2002) - 8	LAWN INLET DETAIL

SECTION III - DRAINAGE (CONT'D)

SHEET NO.	NAME
D-6	— MANHOLE DETAILS
	(2001) - 1 BOX MANHOLE ASSEMBLY
	(2001) - 2 ROUND MANHOLE ASSEMBLY
	(2001) - 3 MANHOLE FRAME AND COVER
	(2002) - 4 BOX MANHOLE COVER SLAB
D-7	— JUNCTION BOX DETAILS
	(2002) - 1 JUNCTION BOX ASSEMBLY
	(2002) - 2 JUNCTION BOX COVER SLAB
D-8 (2001)	— PIPE BEDDING
D-9 (2004)	— PERFORATED PIPE UNDERDRAIN

SECTION IV - EROSION

SHEET NO.	NAME
E-1 (2001)	— INCREMENTAL STABILIZATION
E-2 (2001)	— SILT FENCE
E-3 (2005)	— DRAINAGE INLET SEDIMENT CONTROL
E-4 (2001)	— CURB INLET SEDIMENT CONTROL
E-5 (2001)	— STONE CHECK DAM
E-6 (2005)	— SEDIMENT TRAP
E-7 (2005)	— SEDIMENT TRAP, USING DRAINAGE INLET AS OUTLET
E-8	— RISER PIPE ASSEMBLY FOR SEDIMENT TRAP
	(2001) - 1 ELEVATION
	(2001) - 2 TRASH HOOD DETAILS
E-9 (2005)	— EROSION CONTROL BLANKET APPLICATIONS
E-10 (2005)	— RIPRAP DITCH
E-11 (2005)	— TEMPORARY SWALE
E-12 (2005)	— PERIMETER DIKE/SWALE
E-13 (2005)	— EARTH DIKE
E-14 (2005)	— TEMPORARY SLOPE DRAIN
E-15 (2005)	— STILLING WELL
E-16 (2005)	— SUMP PIT, TYPE 1 & 2
E-17 (2005)	— DEWATERING BASIN
E-18 (2005)	— GEOTEXTILE-LINED CHANNEL DIVERSION
E-19 (2005)	— SANDBAG DIVERSION
E-20 (2005)	— SANDBAG DIKE
E-21 (2005)	— STABILIZED CONSTRUCTION ENTRANCE
E-22 (2001)	— SKIMMER DEWATERING DEVICE
E-23	— TURBIDITY CURTAIN
	(2005) - 1 FLOATING TURBIDITY CURTAIN
	(2005) - 2 STAKED TURBIDITY CURTAIN
E-24 (2005)	— PORTABLE SEDIMENT TANK
E-25 (2005)	— TURF REINFORCEMENT MAT APPLICATIONS



SECTION V - MISCELLANEOUS

SHEET NO.	NAME
M-1 (2001)	— RIGHT-OF-WAY FENCE
M-2 (2001)	— CONCRETE MONUMENT
M-3 (2005)	— REMOVABLE BOLLARD
M-4 (2004)	— BIKE RACK
M-5 (2004)	— WOOD RAIL FENCE
M-6 (2004)	— PATTERNED HOT-MIX OR CONCRETE & BRICK PAVER

SECTION VI - PAVEMENT

SHEET NO.	NAME
P-1	— P.C.C. PAVEMENT
	(2001) - 1 SLAB PLAN (WITH DOWEL AND TIE LOCATIONS)
	(2004) - 2 JOINT AND SEALANT DETAILS
	(2001) - 3 W BOLT, HOOK BOLT, DOWEL & TIE BAR
	(2001) - 4 DOWEL SUPPORT BASKET
	(2001) - 5 DOWEL & TIE BAR PLACEMENT TOLERANCES
P-2	— P.C.C. PAVEMENT PATCHING
	(2001) - 1 FULL DEPTH PATCH, PLAN VIEW
	(2004) - 2 FULL DEPTH PATCH, SECTION VIEWS
	(2004) - 3 FULL DEPTH PATCH, SEALANT DETAILS, GROUT RETENTION DISK, AND DOWEL BAR
	(2001) - 4 FULL DEPTH PATCH, DOWEL BAR PLACEMENT TOLERANCES
	(2001) - 5 PARTIAL DEPTH PATCH, PLAN AND SECTION VIEWS

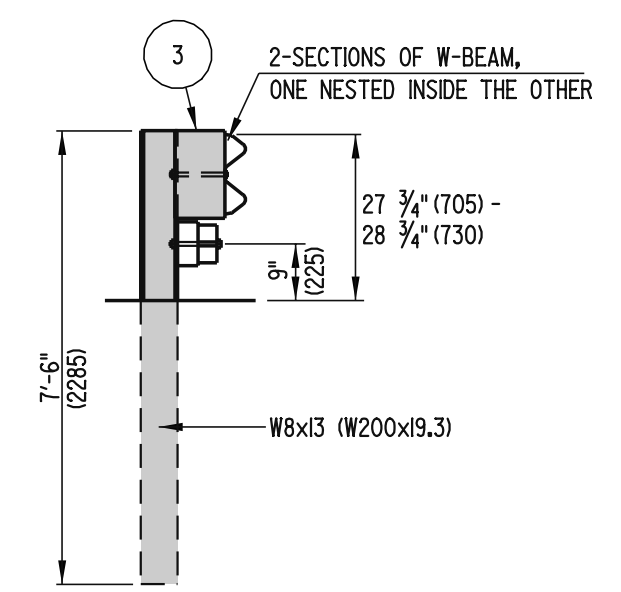
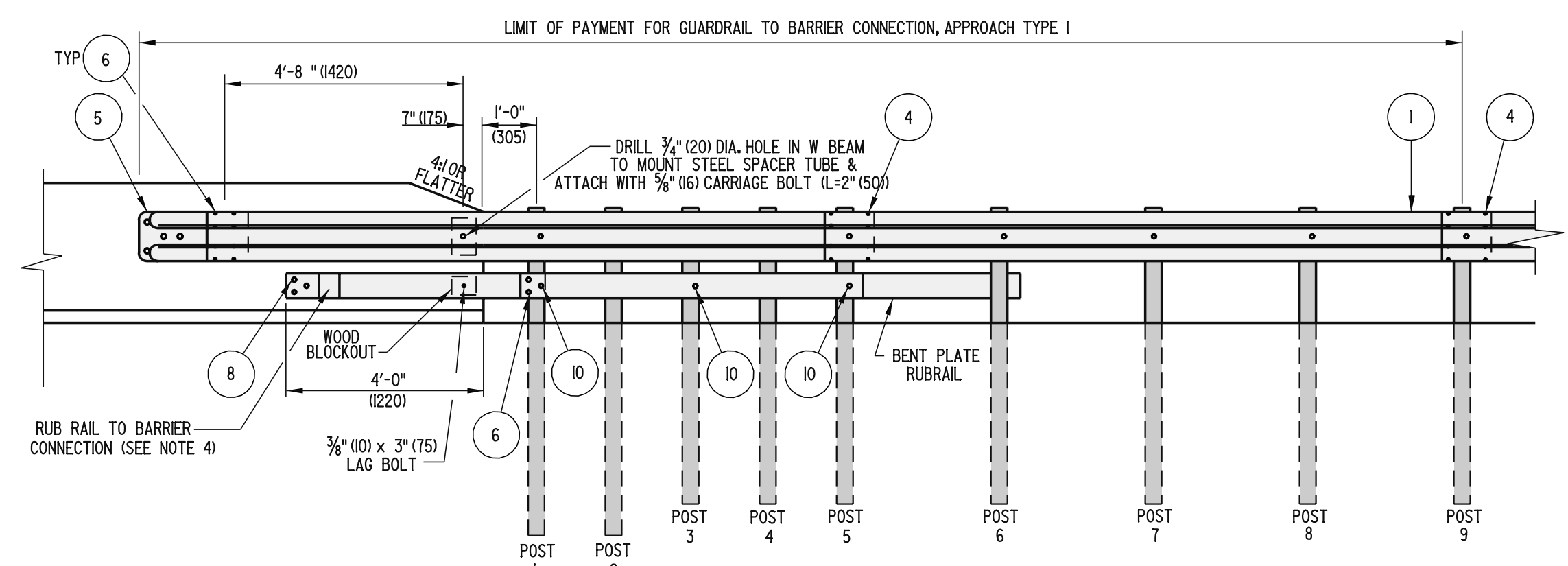
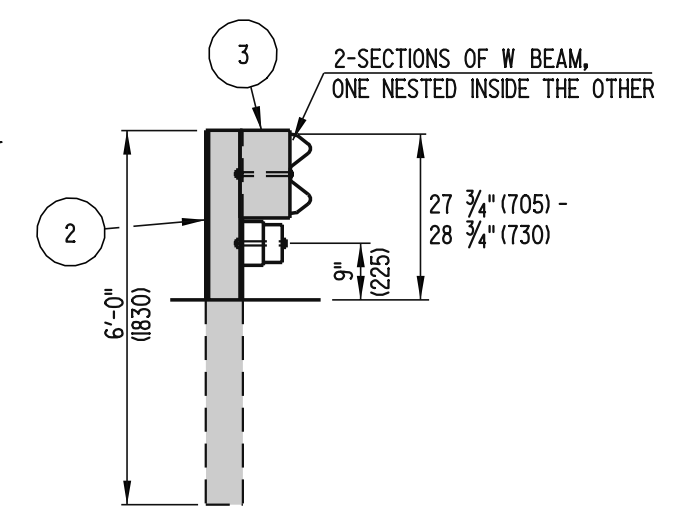
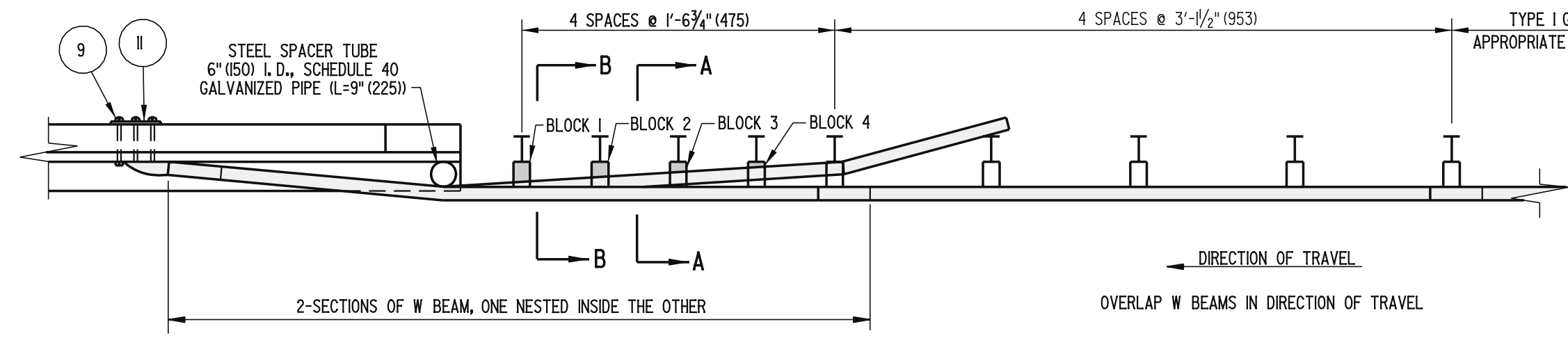
SECTION VII - TRAFFIC

SHEET NO.	NAME
T-1 (2005)	— CONDUIT JUNCTION WELL, TYPES 1,2, AND 3
T-2 (2005)	— CONDUIT JUNCTION WELL, TYPE 4
T-3 (2005)	— CONDUIT JUNCTION WELL, TYPE 5
T-4 (2005)	— CABINET BASES (TYPES "M" AND "P")
T-5	— POLE BASES
	(2005) - 1 ROUND BASE, SQUARE BASE
	(2005) - 2 TYPICAL SECTION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, AND 7), TYPICAL SECTION (BASE 4), TYPICAL INSTALLATION (BASES 1, 2, 2A, 2B, 3, 3A, 3B, 4, AND 7)
	(2005) - 3 TYPICAL SECTION (BASES 5 AND 6), ANCHOR BOLT DATA CHART AND DETAILS
T-6 (2005)	— SPECIAL POLE BASE
T-7 (2005)	— SIGN FOUNDATION
T-8 (2005)	— LOOP DETECTOR TO CONDUIT JUNCTION WELL CONNECTION
T-9 (2005)	— TYPE #1 LOOP DETECTOR
T-10 (2005)	— TYPE #2 LOOP DETECTOR


SECTION VII - TRAFFIC (CONT'D)

SHEET NO.	NAME
T-11	— MESSENGER WIRE ATTACHMENT (2005) - 1 INTERMEDIATE MESSENGER WIRE ATTACHMENT ON WOOD POLES (2005) - 2 ANGULAR INTERMEDIATE MESSENGER WIRE ATTACHMENT
T-12	— MESSENGER WIRE ATTACHMENT (2005) - 1 SPAN WIRE ATTACHMENT BETWEEN POLES (2005) - 2 DEAD END MESSENGER WIRE ATTACHMENT
T-13	— CONDUIT JUNCTION WELLS (2005) - 1 TYPE 6 (2004) - 2 TYPE 7 (2004) - 3 TYPES 8 & 10
T-14	— EMERGENCY PREEMPTION RECEIVER (2004) - 1 UPRIGHT MOUNT (2005) - 2 INVERTED MOUNT

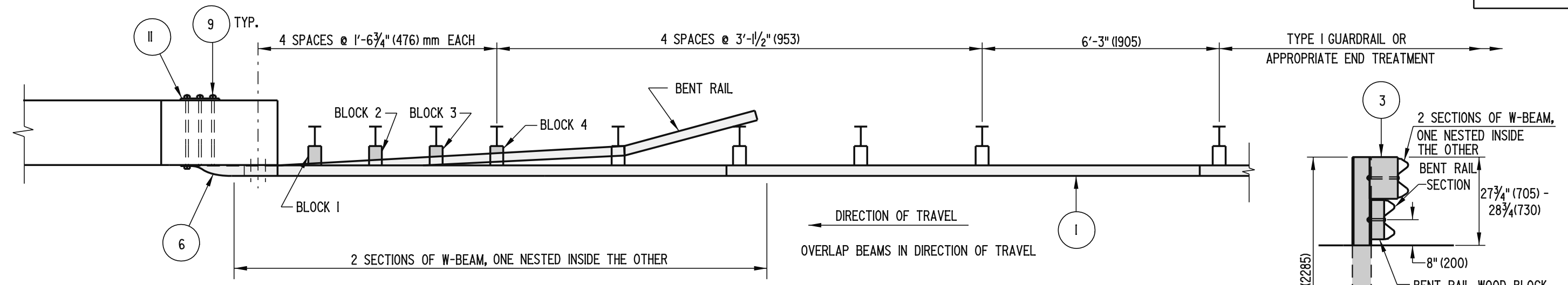




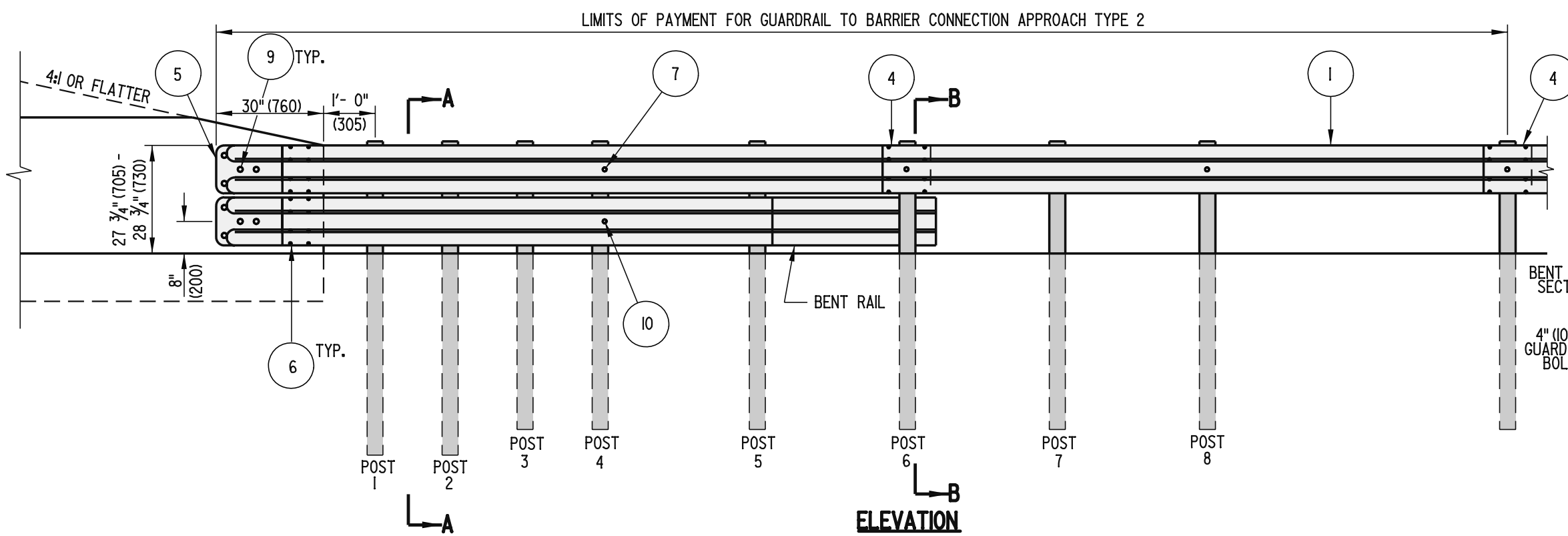
- NOTES: 1). W BEAM IS NOT BOLTED TO POSTS AT POSTS 2 THROUGH 4.
2). RUB RAIL IS NOT BOLTED AT POSTS 2 AND 4.
3). POSTS 1 THROUGH 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER WOOD BLOCKS AND/OR RUBRAIL AND WOOD BLOCK.
4). USE APPROPRIATE EPOXY BOLT ANCHORS TO REDUCE THE CHANCE OF SPLITTING THE CONCRETE. PLACE STEEL WASHERS (FOR 5/8" (16) BOLT) BETWEEN BOLT HEADS AND RUB RAIL.
5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
6). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTOR TO PARAPET.
8). POSTS 1 & 2 ARE W8x13 (W200x19.3). ALL OTHER POSTS IN TRANSITION ARE W6x9 (W150x13.5).

 DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL TO BARRIER CONNECTION, APPROACH TYPE 1			APPROVED <i>Carolyn Wick</i> 12/15/05 CHIEF ENGINEER DATE
	STANDARD NO. B-7 (2004)	SHT. 1	OF 3	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE

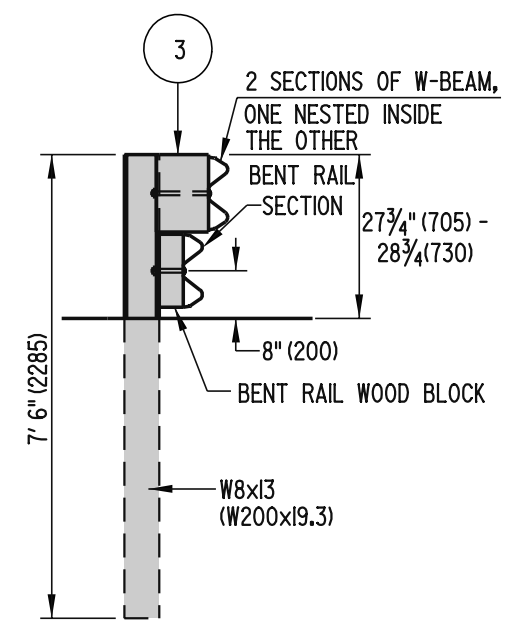
SCALE : N.T.S.



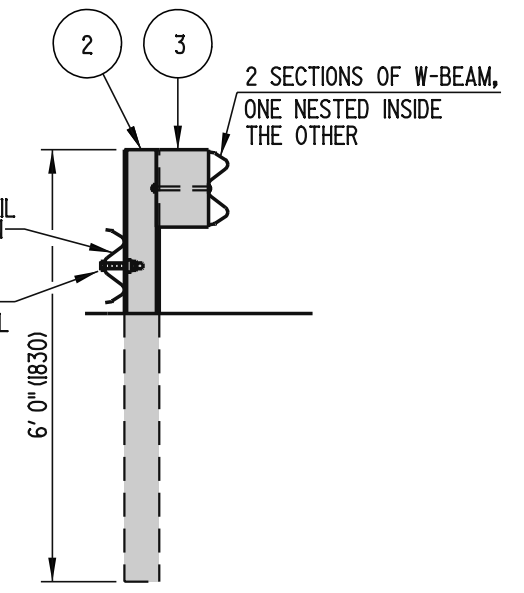
PLAN



ELEVATION




SECTION A-A

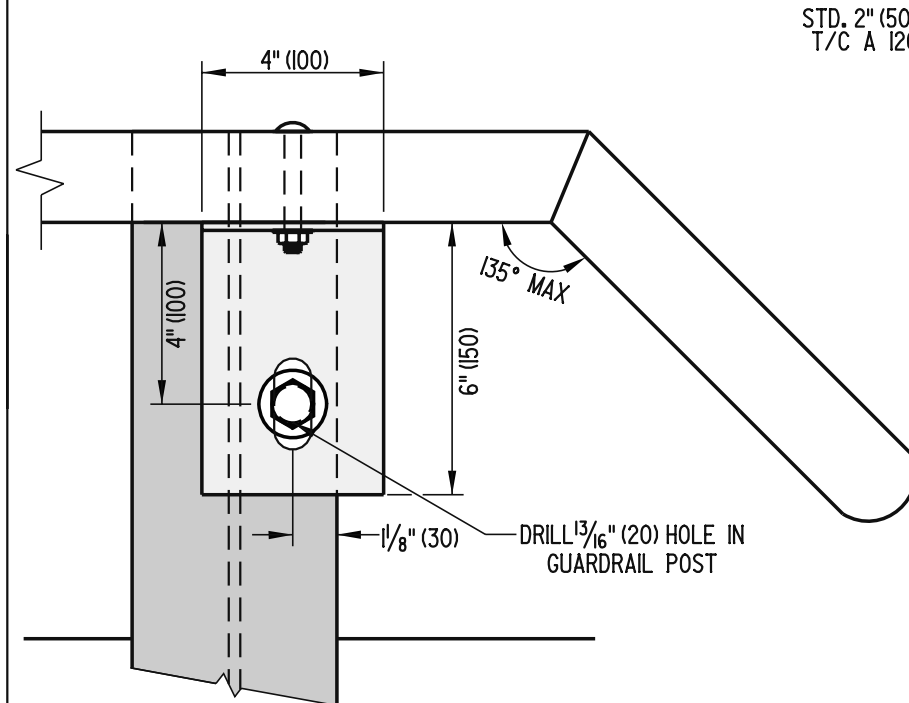


SECTION B-B

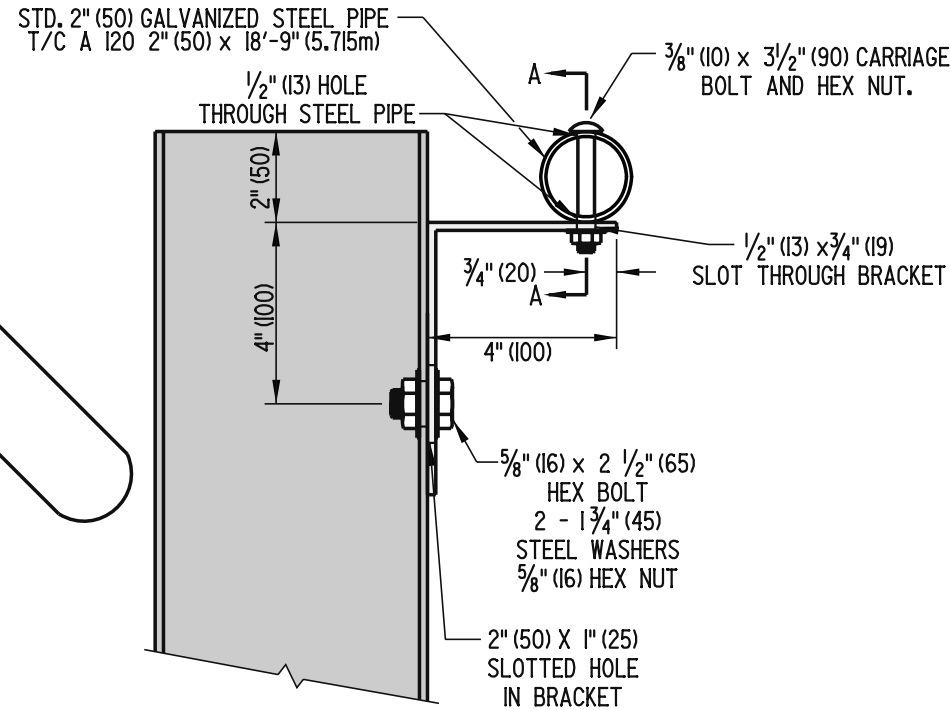
NOTES :

- 1). CURB SHALL NOT BE USED AT THE FACE OF RAIL WITHIN THE LIMITS OF THIS INSTALLATION.
- 2). POSTS 1, 2, 3, 4, AND 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH WOOD BLOCKS AND/OR BENT RAIL.
- 3). DO NOT ATTACH RAILS TO POSTS 1, 2, 3, 5, OR 7.
- 4). POSTS 1 AND 2 ARE W8x13 (W200x19.3). ALL OTHER POSTS IN TRANSITION ARE W6x9 (W150x13.5).
- 5). ALL HOLES SHALL BE DRILLED PRIOR TO GALVANIZING.
- 6). BENT RAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION OR MAY BE FIELD BENT USING HEAT.
- 7). APPROVED CONCRETE INSERTS MAY BE USED IN NEW CONSTRUCTION TO ATTACH TERMINAL CONNECTORS TO PARAPET.
- 8). PLACE GUARDRAIL REFLECTOR EVERY FIFTH POST.
- 9). FOR INSTALLATIONS WHERE CURB EXISTS, IF THE EXISTING CURB IS 8" (200) OR HIGHER AND CANNOT BE REMOVED, THE BOTTOM RAIL CAN BE ELIMINATED.

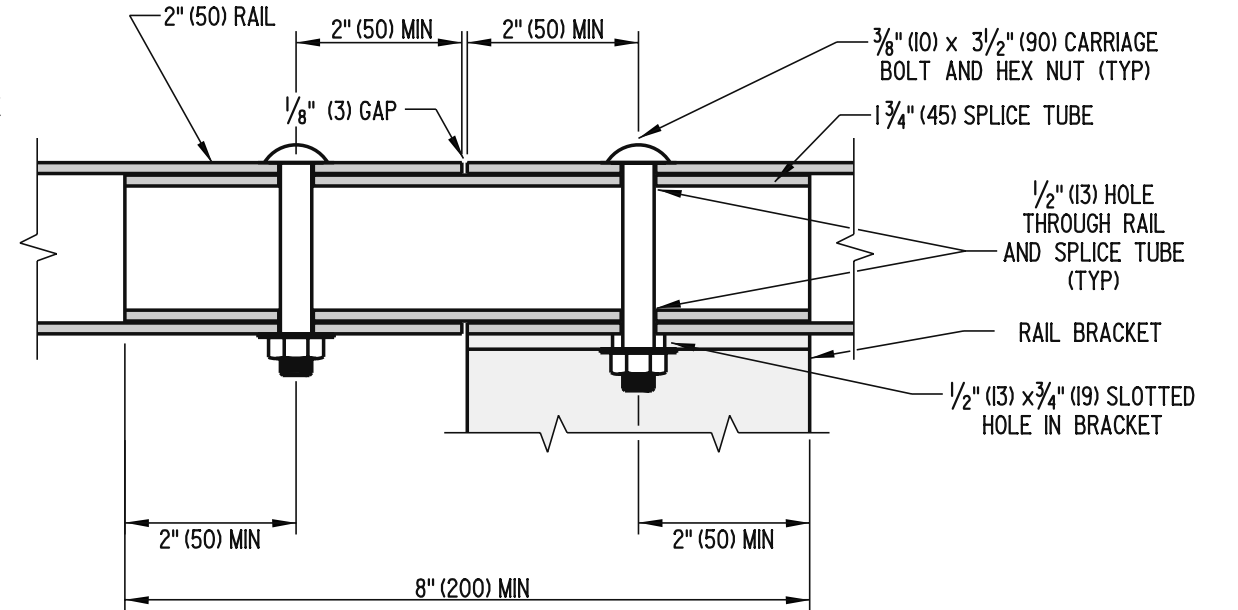
 DELAWARE DEPARTMENT OF TRANSPORTATION	GUARDRAIL TO BARRER CONNECTION, APPROACH TYPE 2			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. B-8 (2005)	SHT. 1	OF 2	
				RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



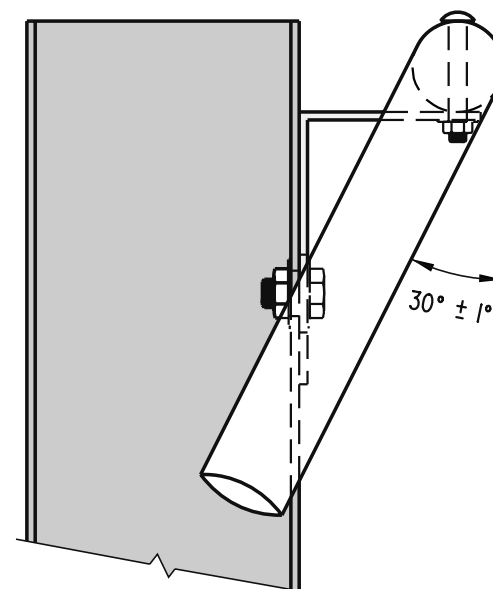
REAR VIEW WITH START & END SECTION



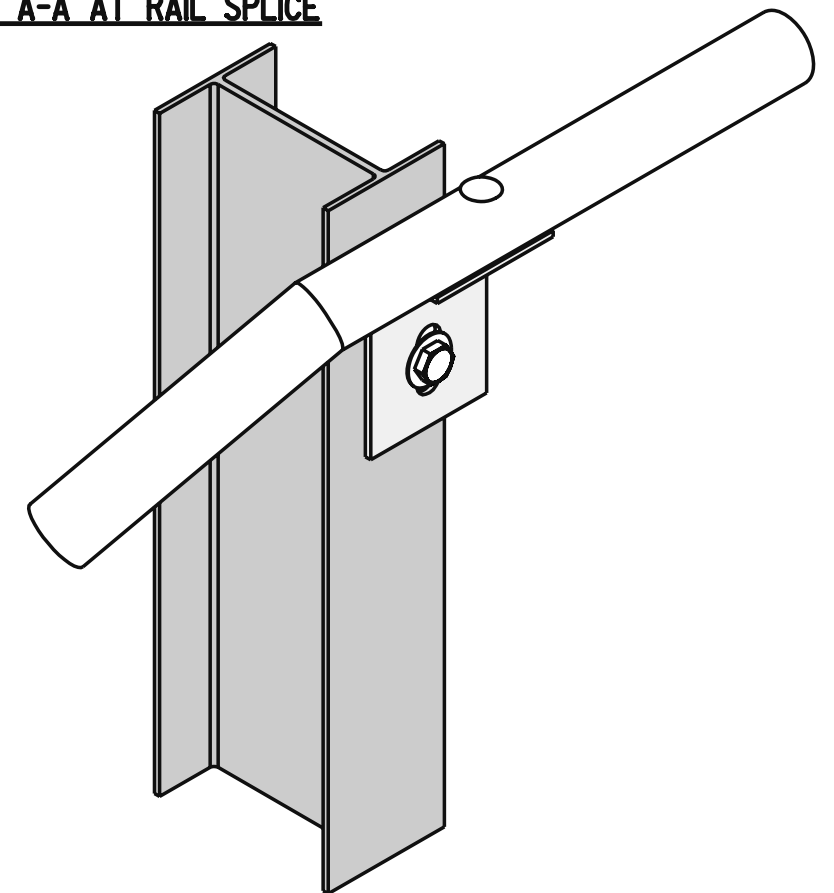
SIDE VIEW



SECTION A-A AT RAIL SPLICE



SIDE VIEW WITH START & END SECTION



ISOMETRIC VIEW WITH START & END SECTION

NOTES:

1. RAIL SHALL BE MOUNTED ON GUARDRAIL ADJACENT TO A BIKEWAY OR SIDEWALK.
2. ALL COMPONENTS OF THE RAIL SHALL BE SHOP FABRICATED. ALL CUTTING AND DRILLING SHALL BE DONE IN THE SHOP.
3. ALL EXPOSED THREADED HARDWARE SHALL BE BURRED.
4. GUARDRAIL POSTS UPON WHICH RAIL IS TO BE INSTALLED SHALL BE SHOP DRILLED FOR THE RAIL BRACKETS DURING FABRICATION.
5. ALL RAIL SPLICES WILL BE AT RAIL SUPPORT BRACKETS, THE SAME BOLT USED TO ATTACH THE RAIL TO THE BRACKET WILL BE USED TO SECURE THE SPLICE TUBE.
6. RAILS SHALL BE INSTALLED ONLY ON STANDARD W-BEAM SECTIONS AND AT LEAST ONE POST AWAY FROM THE PAYMENT LIMITS OF THE END TREATMENT.



**DELAWARE
DEPARTMENT OF TRANSPORTATION**

GUARDRAIL MOUNTED RAIL

STANDARD NO.

B-13 (2005)

SHT. 13

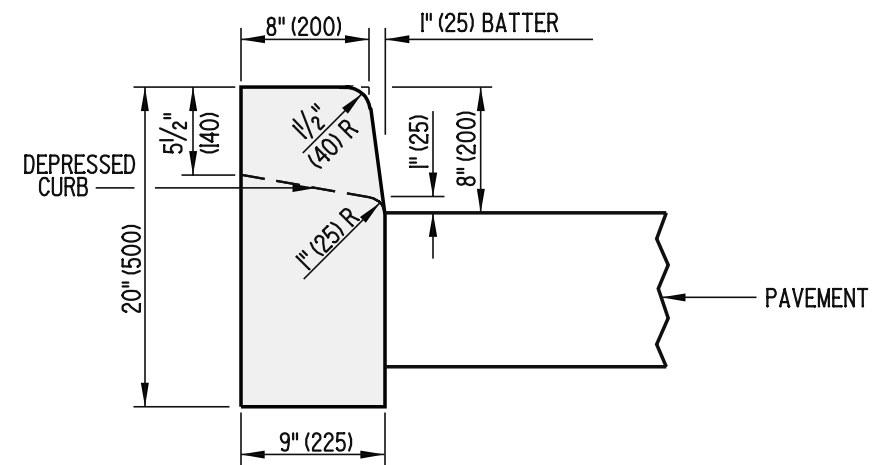
OF 13

APPROVED *Carolann Wick*
CHIEF ENGINEER

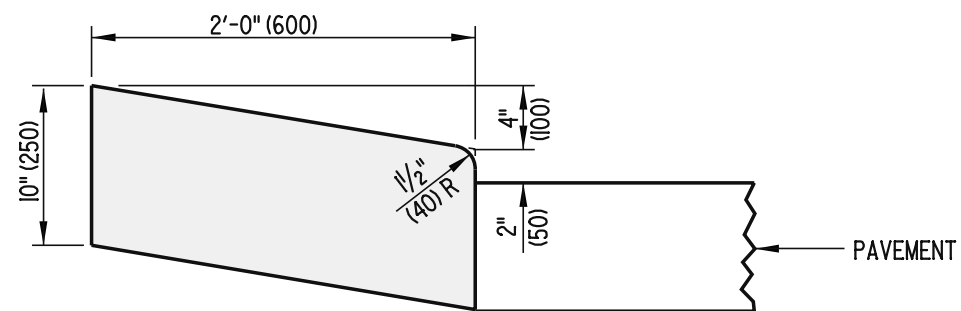
12/5/05
DATE

RECOMMENDED *James M. O'Brien*
DESIGN ENGINEER

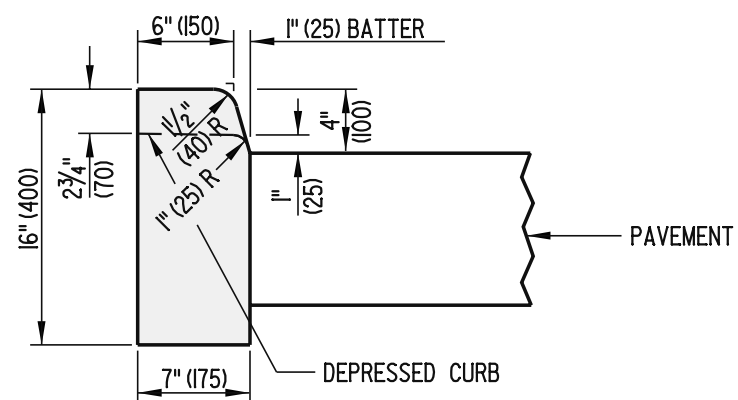
11/29/05
DATE



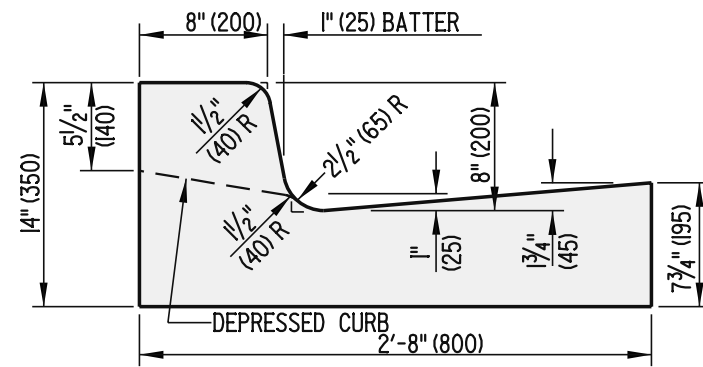
P.C.C. CURB
TYPE 1



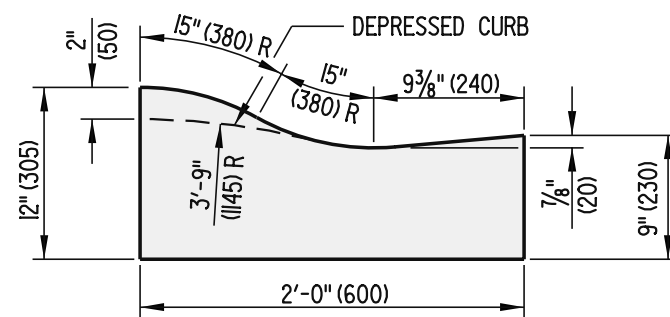
P.C.C. CURB
TYPE 2



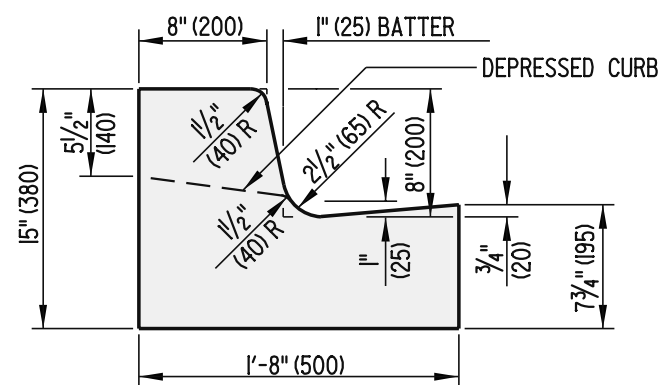
P.C.C. CURB
TYPE 3



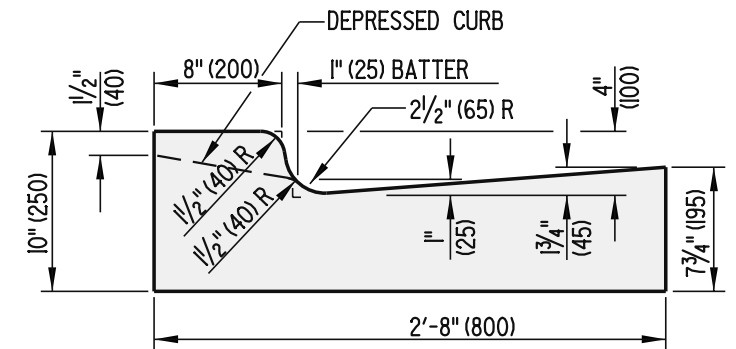
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 1



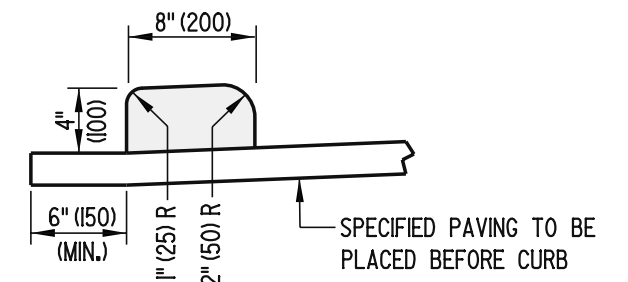
INTEGRAL P.C.C. CURB AND GUTTER
TYPE 2



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 3



INTEGRAL P.C.C. CURB AND GUTTER
TYPE 4



**HOT-MIX, HOT LAID BITUMINOUS
CONCRETE CURB**

- NOTES:
1. WHEN P.C.C. CURB OR INTEGRAL P.C.C. CURB AND GUTTER IS PLACED ADJACENT TO PORTLAND CEMENT CONCRETE PAVEMENT, CONSTRUCT THE JOINT AS PER THE LONGITUDINAL JOINT SEALANT DETAIL ON STANDARD P-2, SHEET 3 OF 5. USE APPROVED JOINT FILLER TO SEAL. WORK TO BE PAID UNDER RESPECTIVE CURB AND GUTTER ITEM.
 2. DEPRESS CURB AT ENTRANCES AS DETAILED ON THIS SHEET.
 3. DEPRESS CURB FLUSH WITH PAVEMENT AT CURB RAMPS. MAXIMUM SLOPE OF CURB AT CURB RAMPS IS 20:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL. SEE STANDARD NO C-2, 1 OF 4.



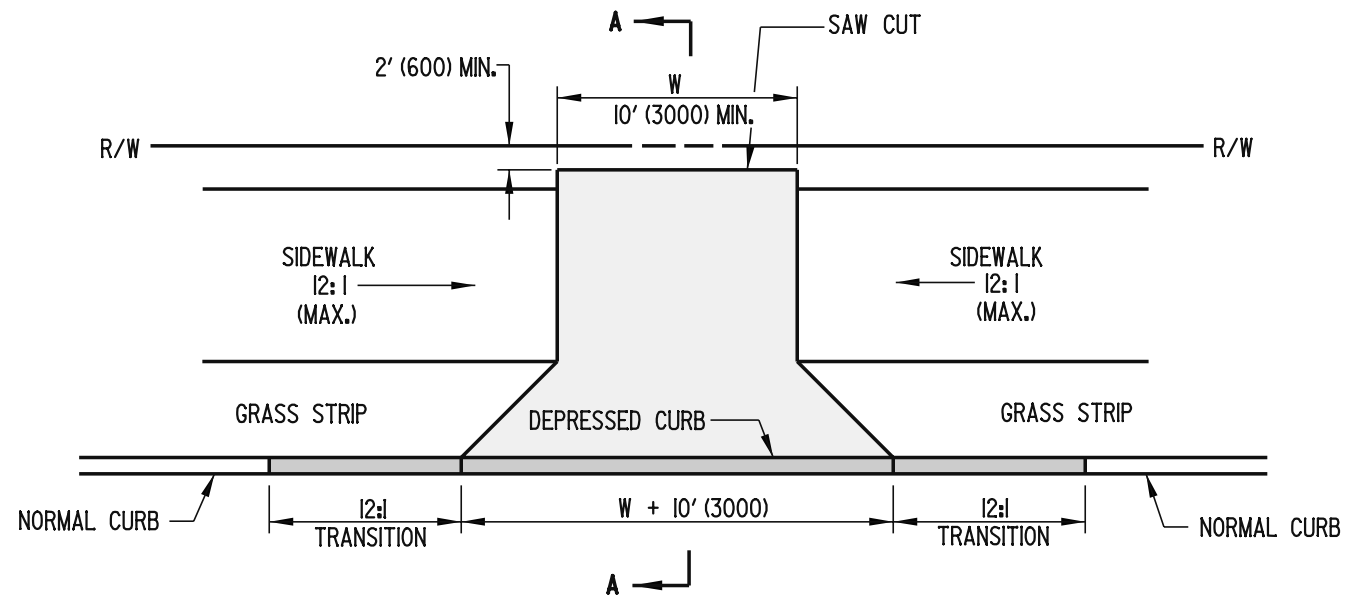
DELAWARE
DEPARTMENT OF TRANSPORTATION

P.C.C. CURB, P.C.C. CURB & GUTTER, AND HOT-MIX CURB

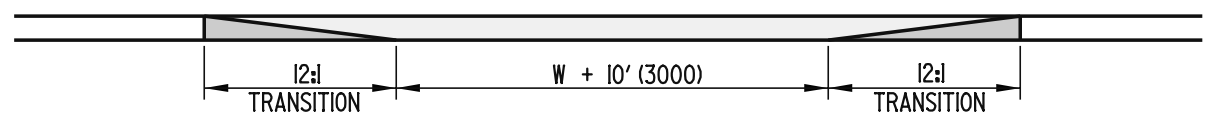
STANDARD NO. C-1 (2005)

SHT. 1 OF 1

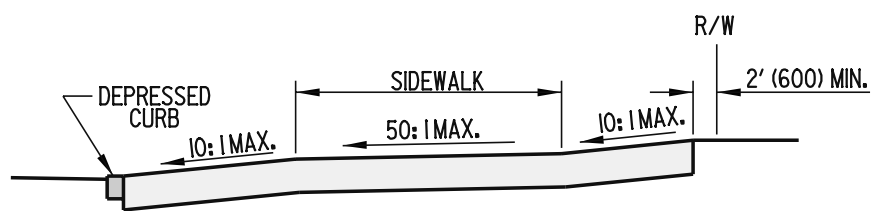
APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



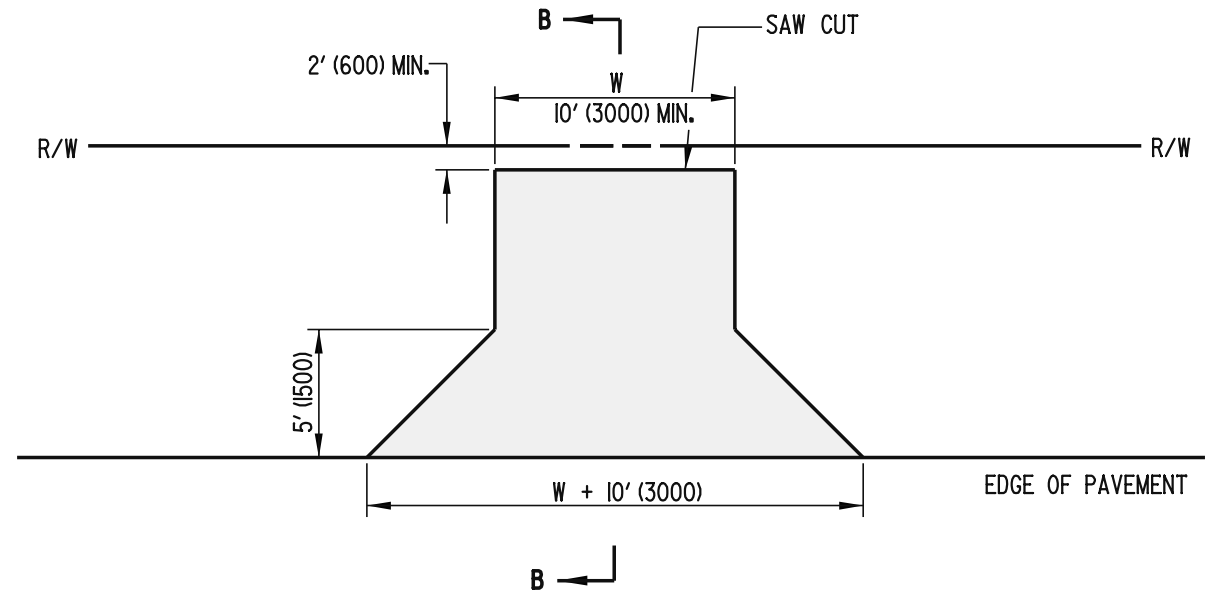
PLAN
ENTRANCE WITH SIDEWALK



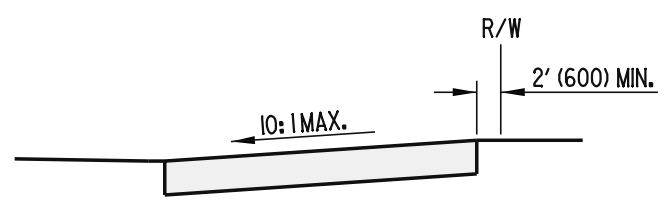
ELEVATION




SECTION A-A

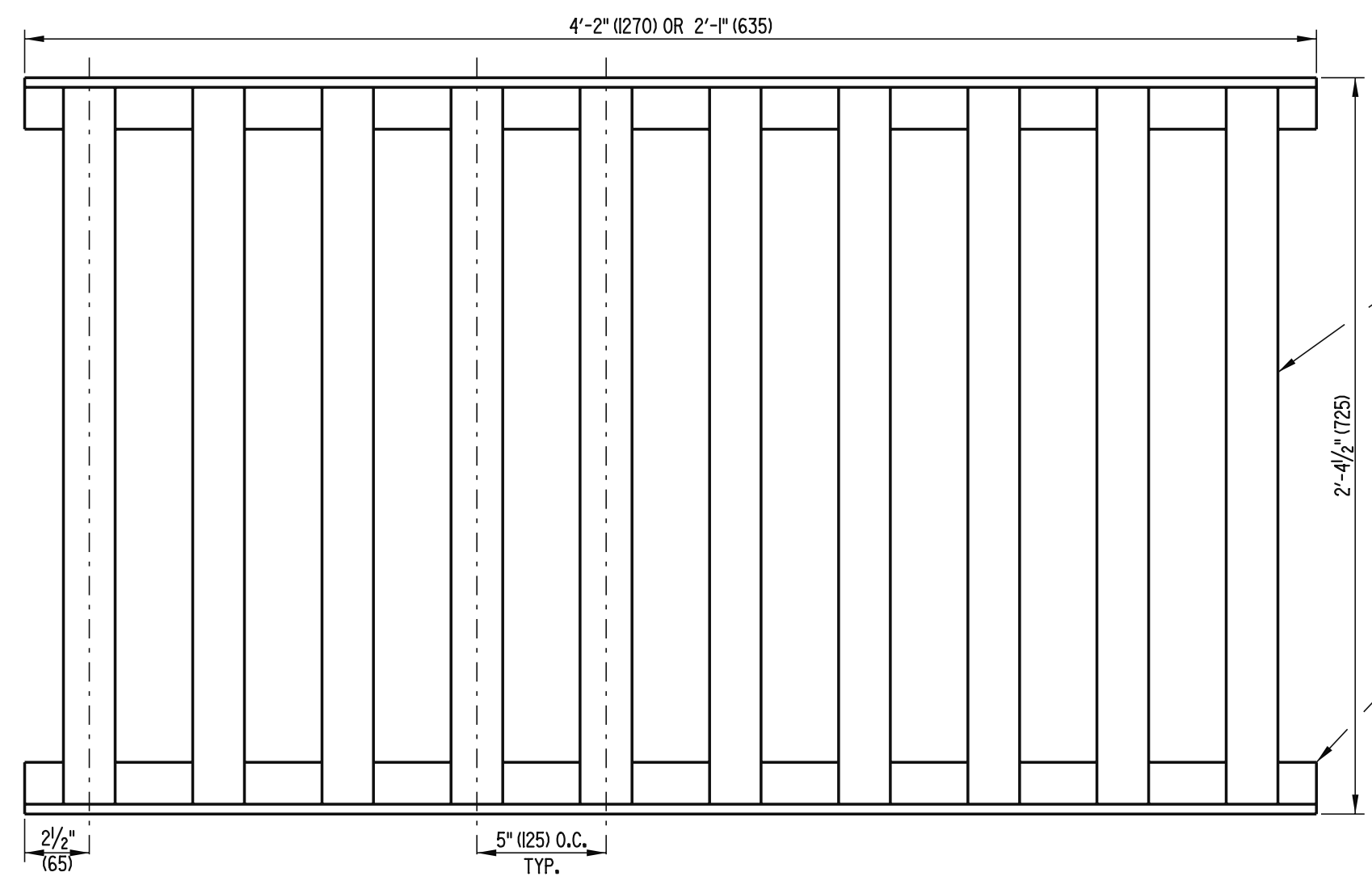


PLAN
ENTRANCE WITHOUT SIDEWALK



SECTION B-B

 DELAWARE DEPARTMENT OF TRANSPORTATION	ENTRANCES			APPROVED <i>Carolann Wick</i> 12/5/05
	STANDARD NO. C-3 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05



GRATE DETAIL

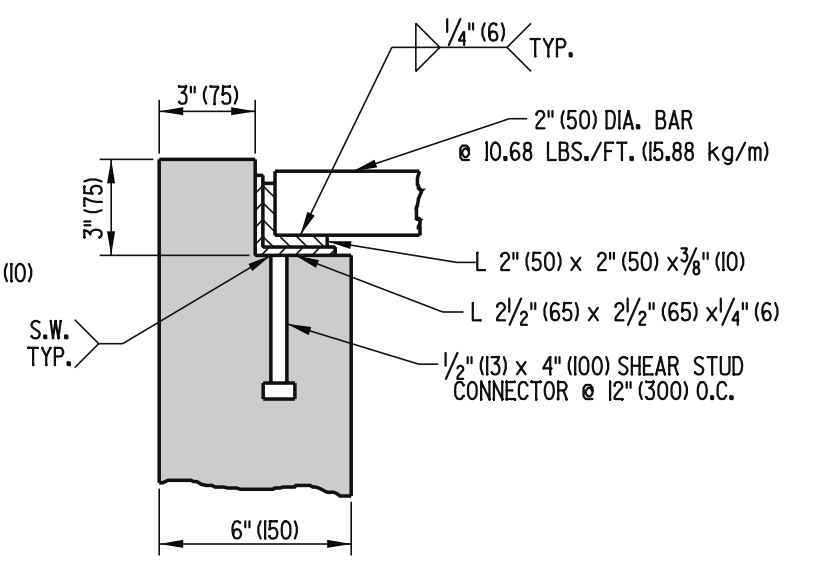
2" (50) DIA. BAR @ 10.68 LBS./FT. (15.88 kg/m)

2'-4 1/2" (725)

L 2" (50) x 2" (50) x 3/8" (10)

2 1/2" (65)

5" (125) O.C. TYP.



FRAME & GRATE ASSEMBLY DETAIL



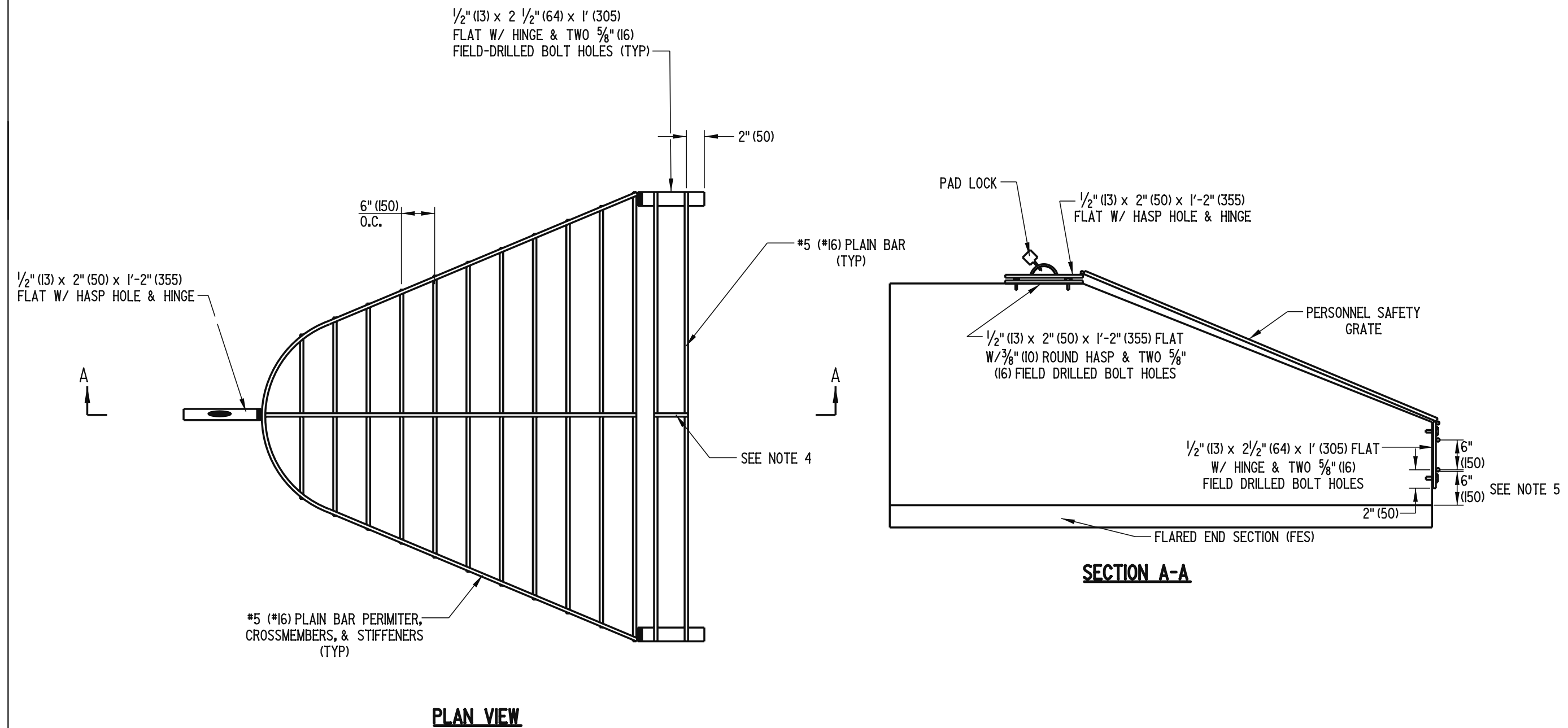
DELAWARE
DEPARTMENT OF TRANSPORTATION

SAFETY GRATES


STANDARD NO. D-3 (2005)

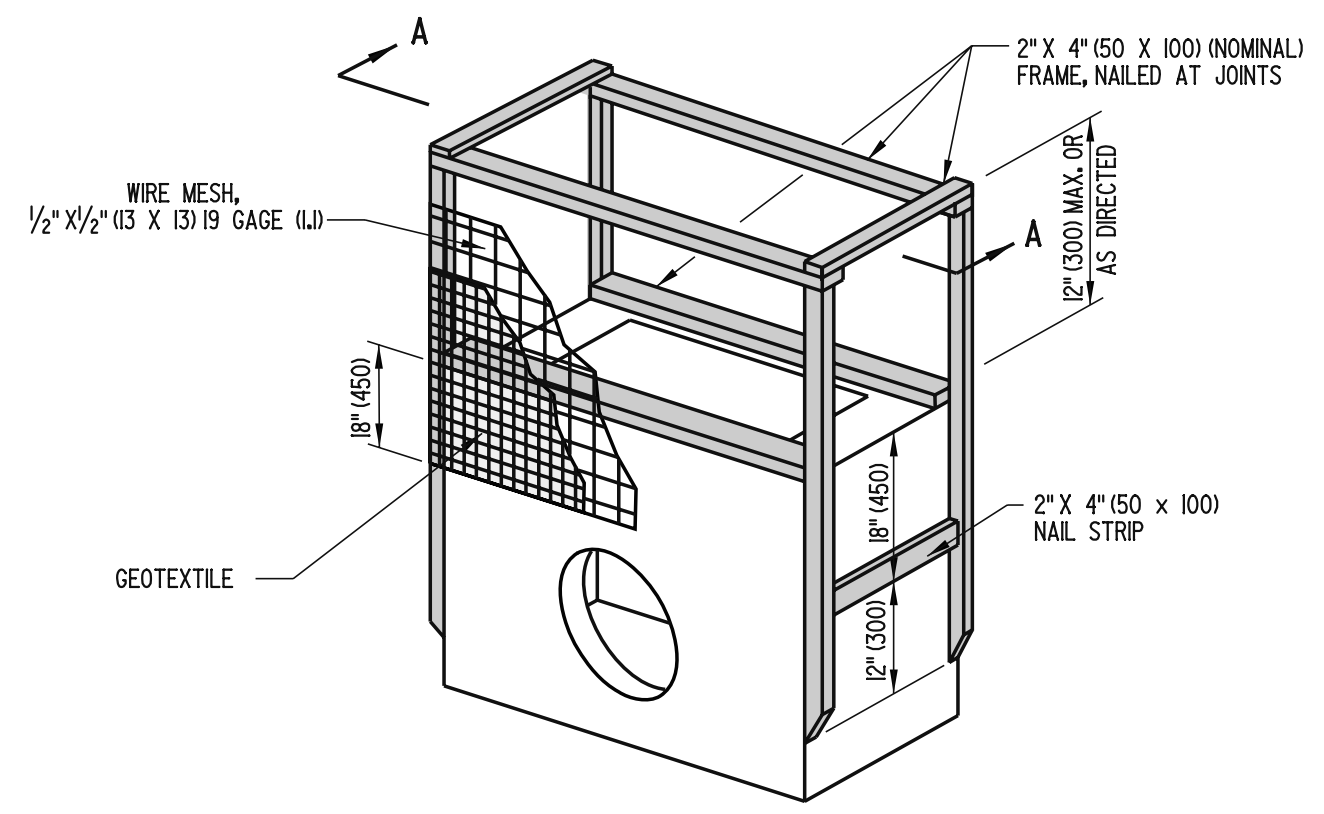
SHT. 1 OF 2

APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE

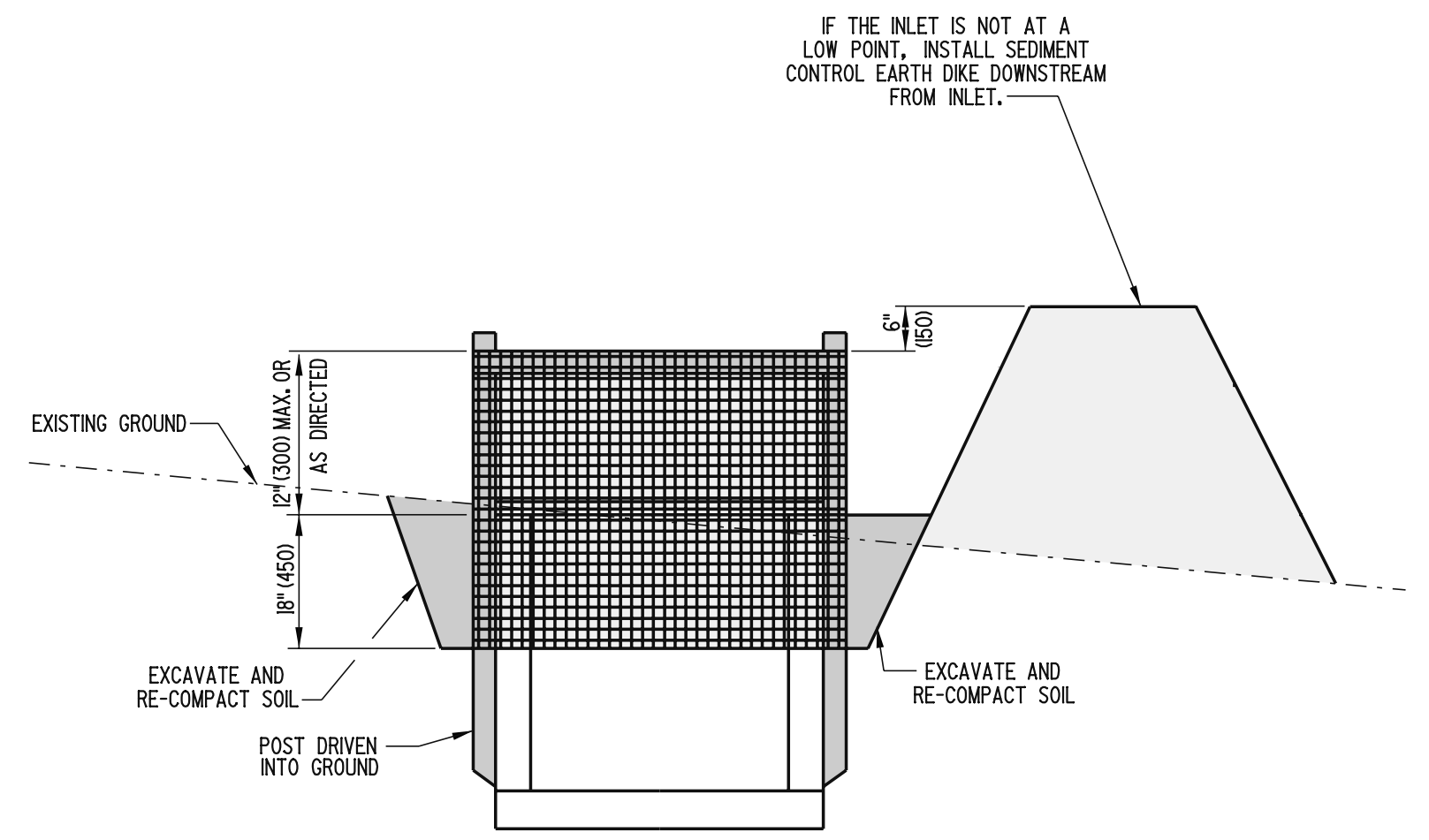


- NOTES:
- 1). PERSONNEL SAFETY GRATES (PSG) SHALL ONLY BE INSTALLED ON STORM WATER PIPE INLETS.
 - 2). THE GRATE SHALL BE MADE TO FIT THE OUTSIDE PERIMETER OF THE FLARED END SECTION (FES) ± 1/2" (13).
 - 3). ALL BOLT HOLES ARE TO BE DRILLED IN THE FIELD.
 - 4). A STIFFENER IS TO BE INSTALLED WHERE TWO OR MORE BARS ARE USED.
 - 5). BOTTOM BAR SHALL BE 6" (150) ABOVE INVERT OF FES.

 DELAWARE DEPARTMENT OF TRANSPORTATION	SAFETY GRATES			APPROVED <i>Carolann Wick</i> 12/15/05 CHIEF ENGINEER DATE
	STANDARD NO. D-3 (2005)	SHT. 2	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



ISOMETRIC VIEW



SECTION A-A



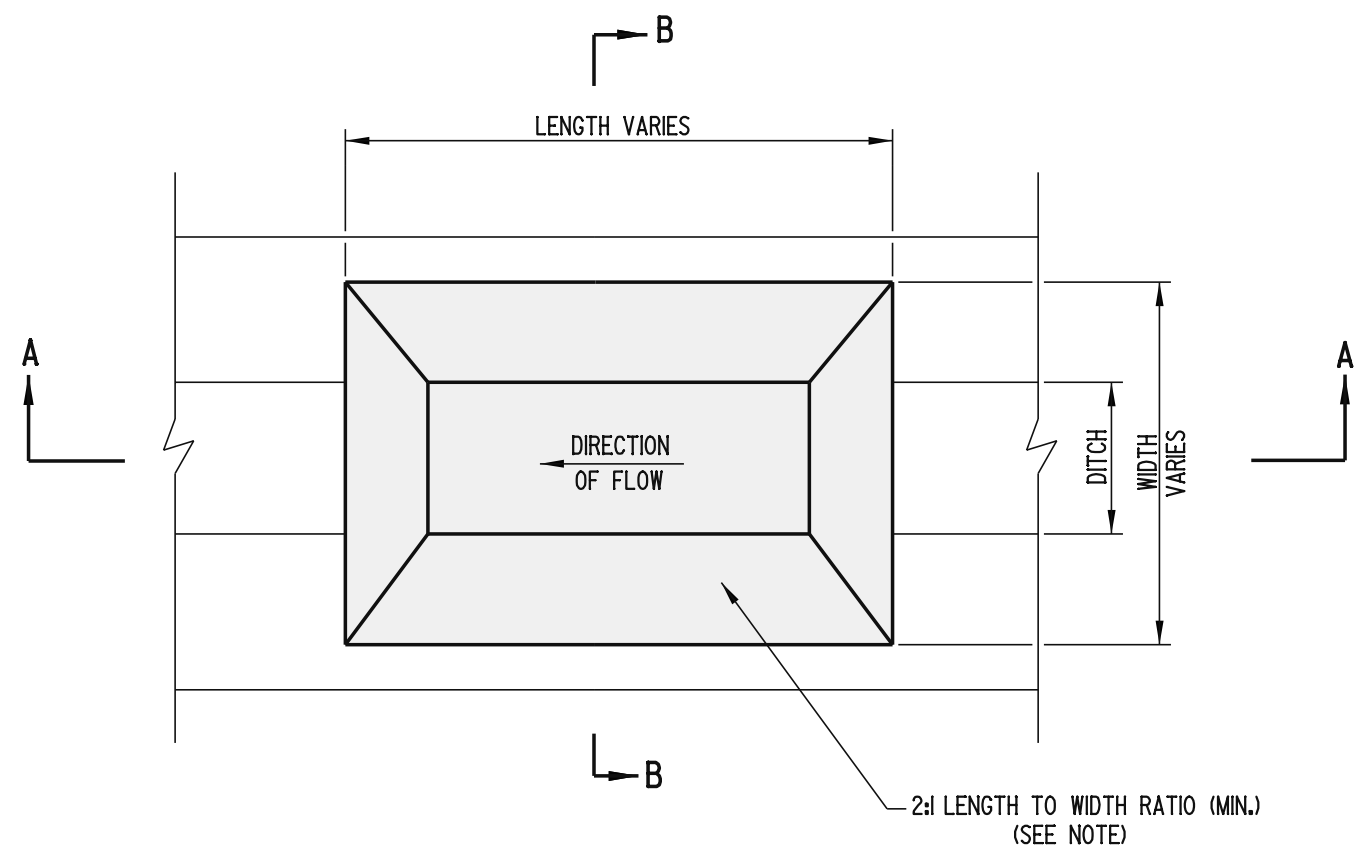
DELAWARE
DEPARTMENT OF TRANSPORTATION

DRAINAGE INLET SEDIMENT CONTROL

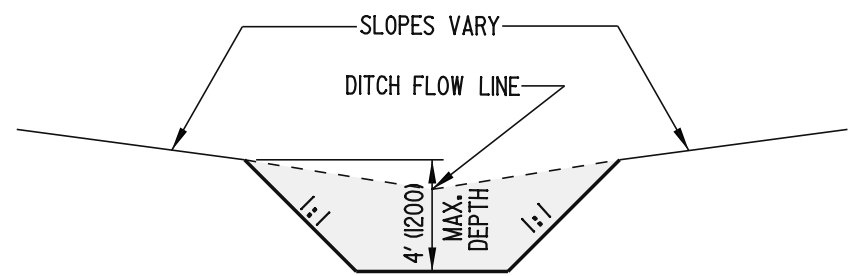
STANDARD NO. E-3 (2005)

SHT. 1 OF 1

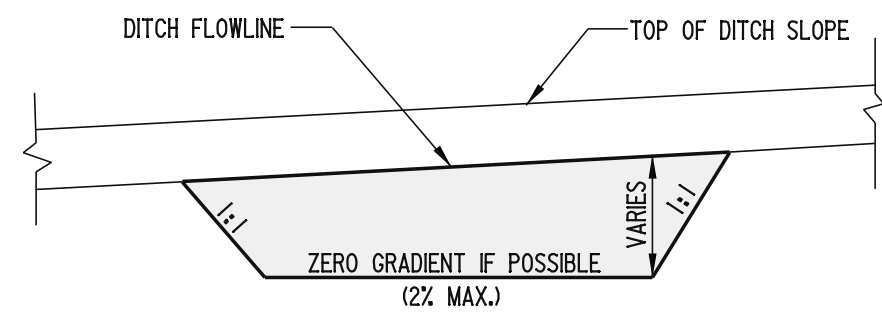
APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



PLAN



SECTION B-B



SECTION A-A

- NOTES:**
- 1). SEDIMENT TRAPS ARE INTENDED FOR USE IN EXISTING, PROPOSED, AND TEMPORARY DITCHES OF ALL TYPES WITH A MAXIMUM DRAINAGE AREA OF 15 ACRES (6 HECTARES), AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.
 - 2). SIDE SLOPES SHALL BE STABILIZED WITH "TEMPORARY GRASS SEEDING, DRY GROUND" AND STRAW MULCH.
 - 3). AN OUTLET STRUCTURE IS REQUIRED. STONE CHECK DAMS, PERFORATED RISER PIPES, SKIMMER DEWATERING DEVICES, OR DRAINAGE INLETS MAY BE USED. SEE APPROPRIATE STANDARD SHEET FOR ADDITIONAL INFORMATION.
 - 4). FOR SIZE, LOCATION, ETC. OF SEDIMENT TRAP, SEE CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLANS.
 - 5). ALL FILL SLOPES SHALL BE 2:1.
 - 6). A 2:1 LENGTH TO WIDTH RATIO SHOULD BE ACHIEVED WHERE POSSIBLE. IF THIS IS NOT POSSIBLE, THE USE OF BAFFLES OR OTHER SPECIAL DESIGNS SHOULD BE INCORPORATED TO INCREASE FLOW TIME.



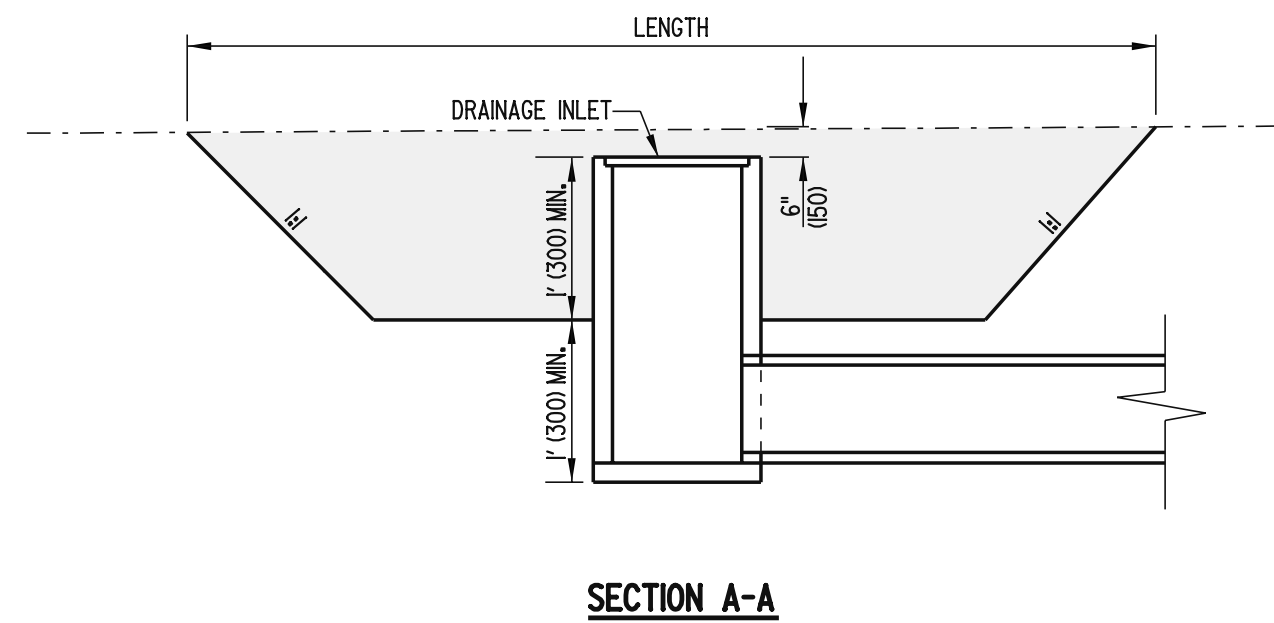
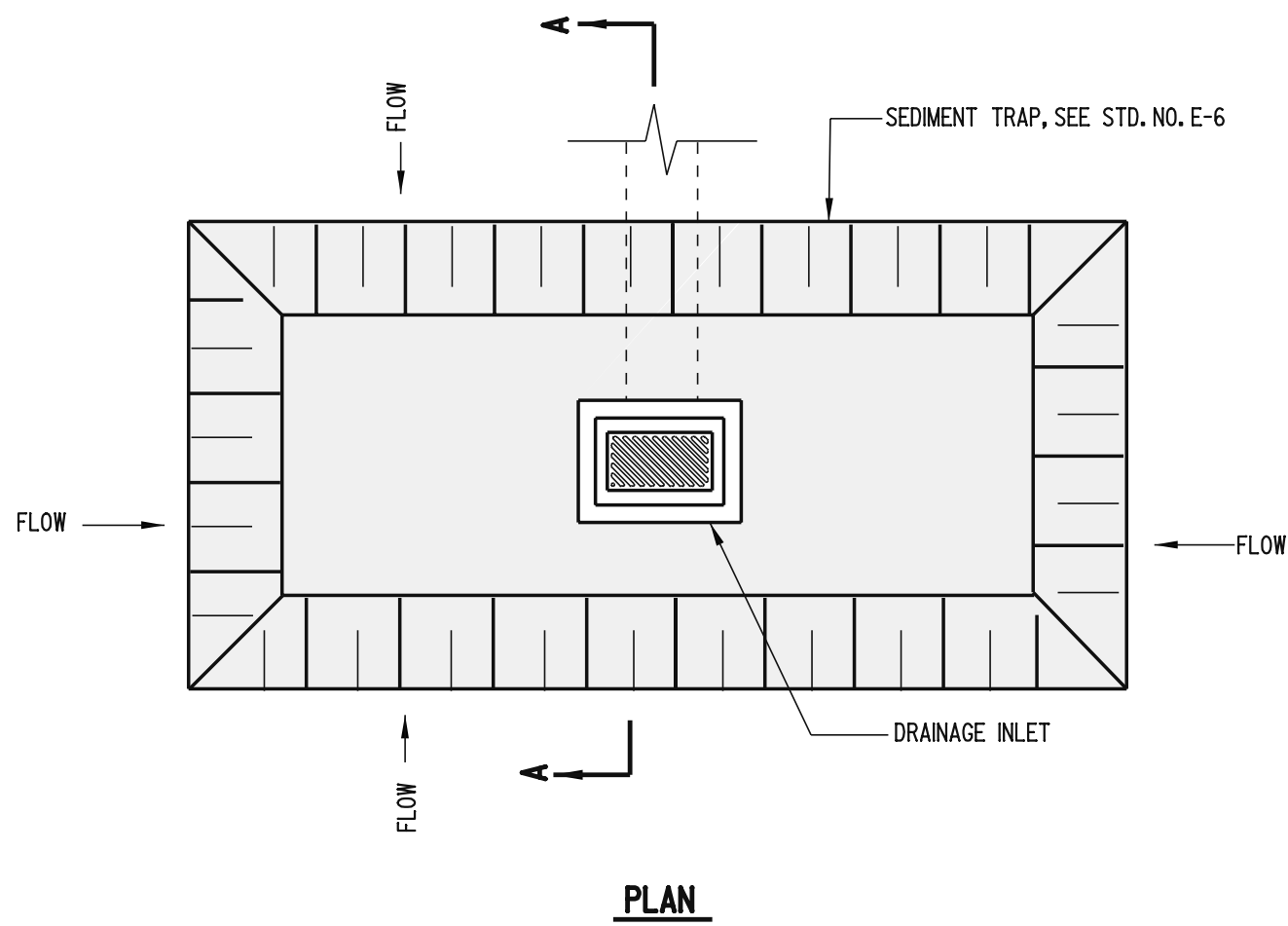
DELAWARE
DEPARTMENT OF TRANSPORTATION

SEDIMENT TRAP


STANDARD NO. E-6 (2005)

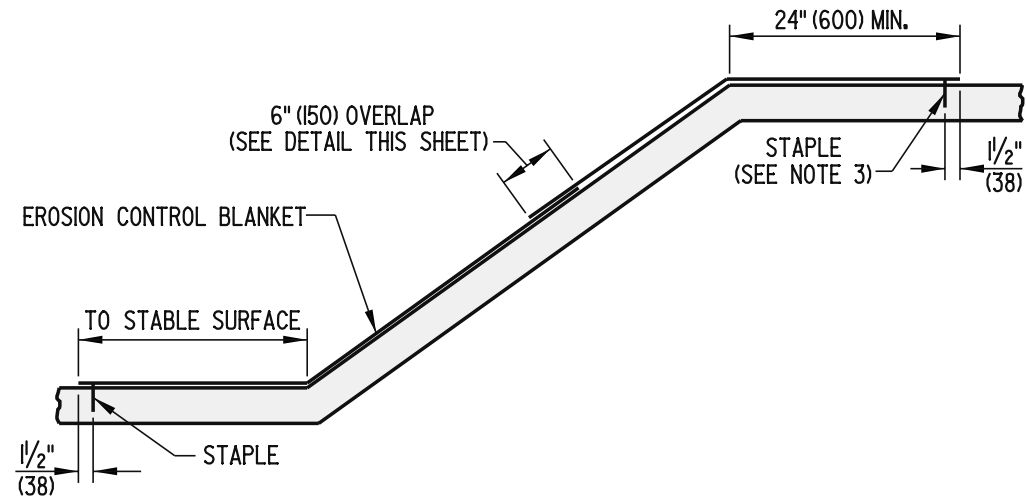
SHT. 1 OF 1

APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



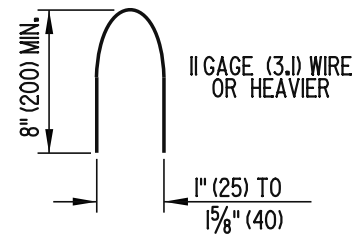
- NOTES:**
- 1). THE WORK SHALL CONSIST OF THE CONSTRUCTION OF A SEDIMENT TRAP AROUND A DRAINAGE INLET TO ALLOW SEDIMENTATION TO OCCUR BEFORE RUNOFF ENTERS THE DRAINAGE INLET.
 - 2). DRAINAGE INLET SEDIMENT TRAPS SHALL BE LIMITED TO A THREE (3) ACRE (1.2 HECTRARE) MAXIMUM DRAINAGE AREA.
 - 3). THE DIMENSIONS OF THE DRAINAGE INLET SEDIMENT TRAP ARE TO BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

 DELAWARE DEPARTMENT OF TRANSPORTATION	SEDIMENT TRAP, USING DRAINAGE INLET AS OUTLET			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. E-7 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE

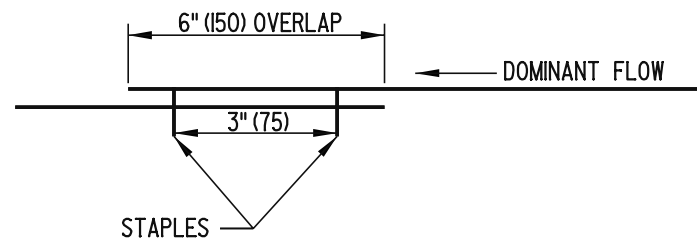


STABILIZATION OF EMBANKMENTS

- NOTES:**
1. STAPLES TO BE STAGGERED AT 18" (450) SPACING.
 2. TOPSOIL UNDER EROSION CONTROL BLANKET IS TO BE TRACKED AND SEEDED.
 3. WHEN OFFSITE RUNOFF OCCURS, ADDITIONAL MEASURES AS DIRECTED BY THE ENGINEER SHALL BE USED TO ENSURE STABILITY OF EMBANKMENT.

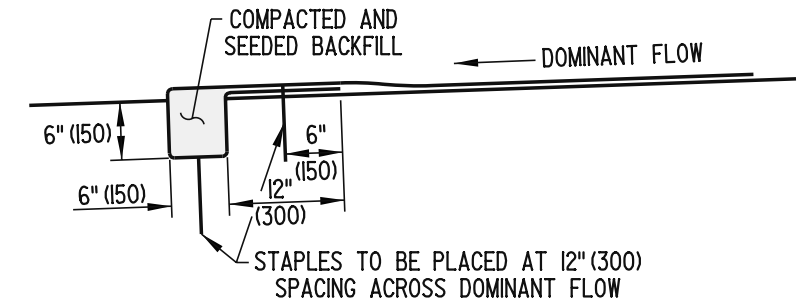


STAPLE DETAIL



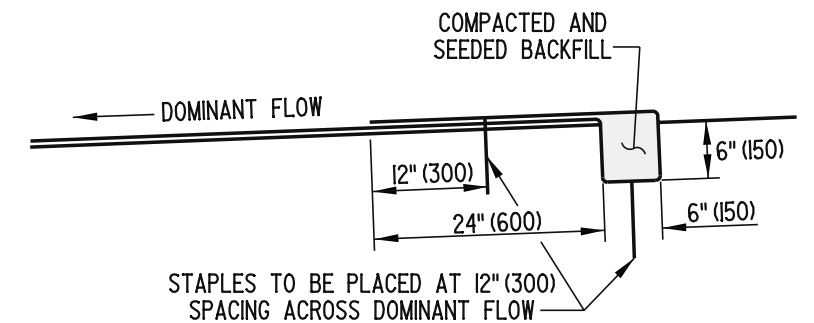
OVERLAP DETAIL

STAPLES TO BE STAGGERED AT 6" (150) SPACING.



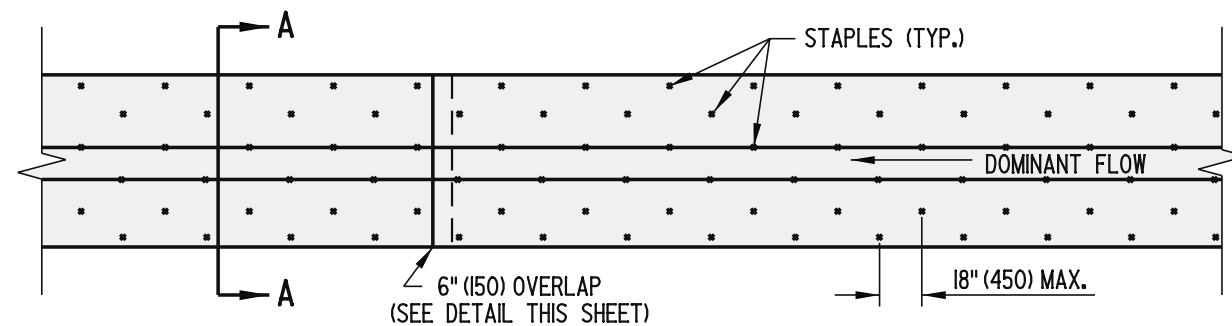
INITIAL TRENCH ANCHOR DETAIL

APPLIED AT THE DOWNSTREAM END OF DITCH



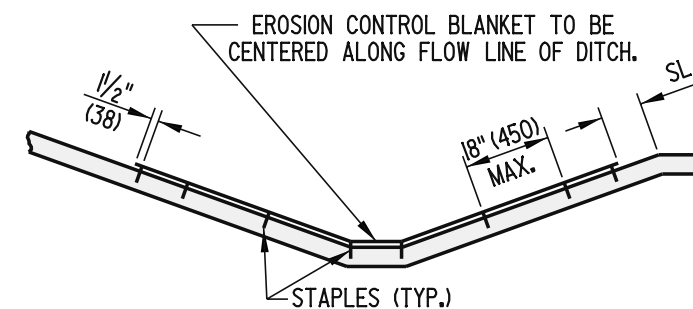
TERMINAL TRENCH ANCHOR DETAIL

APPLIED AT THE UPSTREAM END OF DITCH



STABILIZATION OF DITCHES PLAN

- NOTES:**
1. ADDITIONAL STAPLES NOT SHOWN ARE REQUIRED AT OVERLAPS. SEE OVERLAP DETAIL FOR STAPLE PLACEMENT.
 2. STAPLES ARE TO BE STAGGERED.
 3. TOPSOIL UNDER EROSION CONTROL BLANKET IS TO BE TRACKED AND SEEDED.



STABILIZATION OF DITCHES SECTION A-A

STAPLES ALONG LONGITUDINAL EDGES SHALL BE SPACED AS FOLLOWS:
18" (450) WHEN SL ≤ 20' (6000)
9" (225) WHEN SL > 20' (6000)



DELAWARE
DEPARTMENT OF TRANSPORTATION

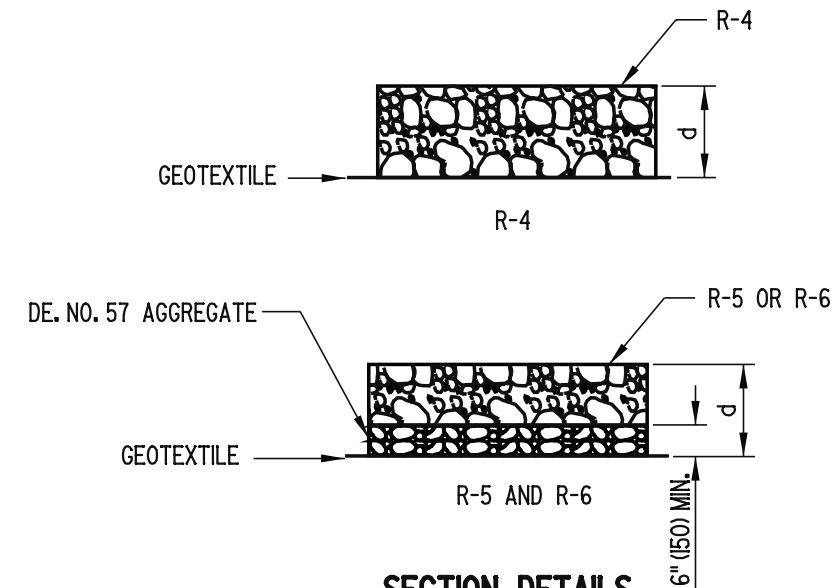
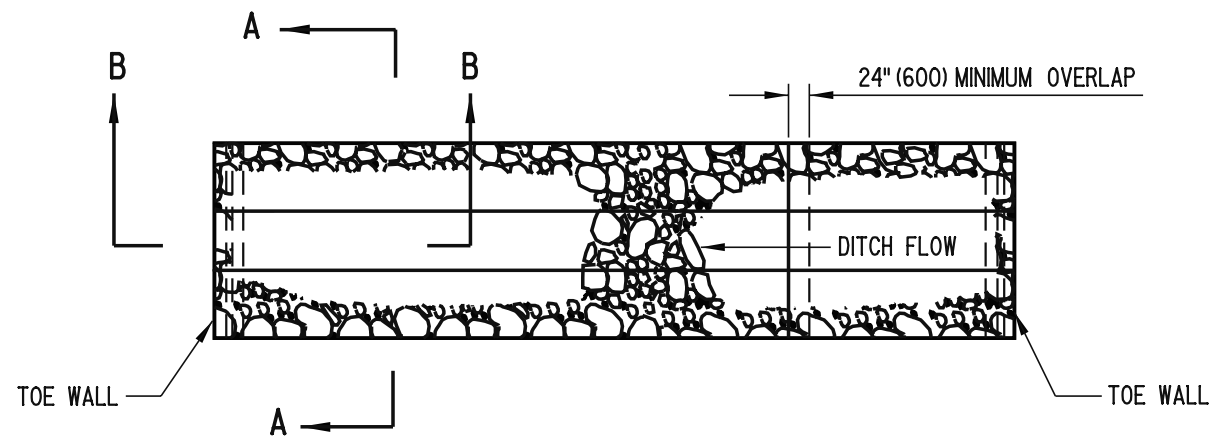
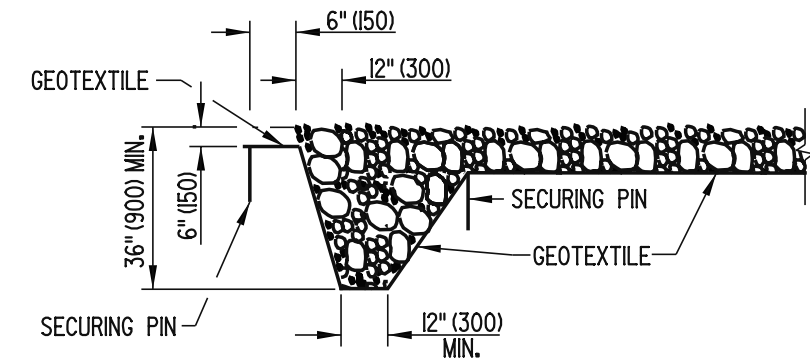
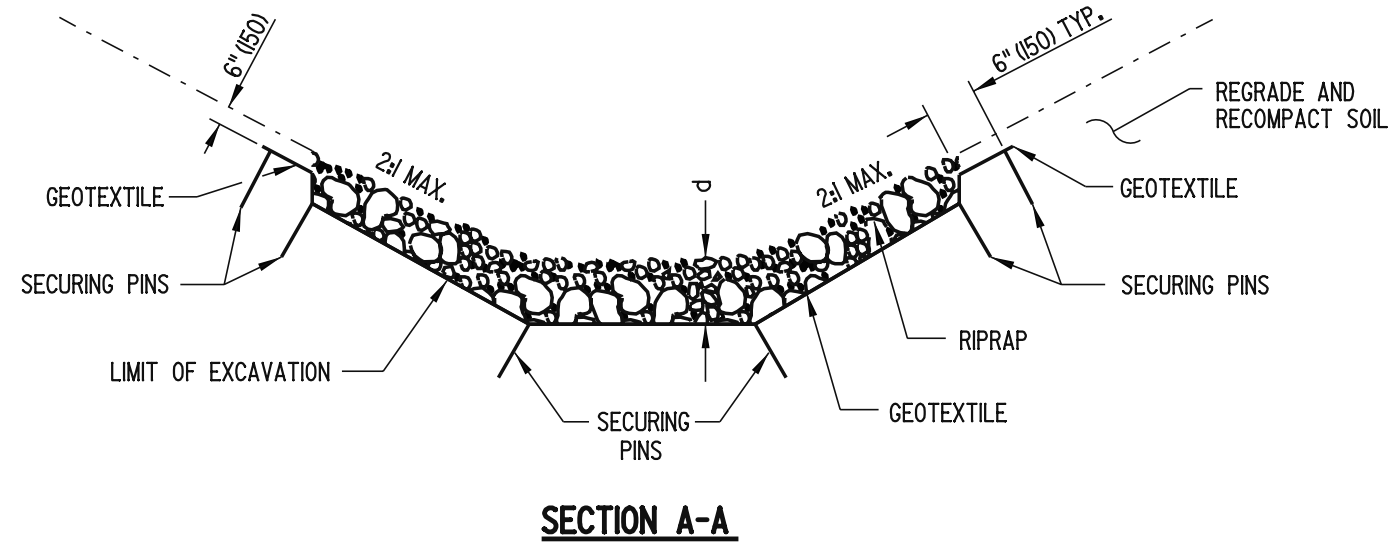
EROSION CONTROL BLANKET APPLICATIONS

STANDARD NO. E-9 (2005)

SHT. 1 OF 1

APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE

RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



CLASS RIPRAP

- R-4 d = 14" (350) MIN.
- R-5 d = 26" (650) MIN.
- R-6 d = 34" (850) MIN.

- NOTES:**
- 1). SECURING PINS ARE TO BE PLACED AT LOCATIONS SHOWN AND AT 24" (600) LONGITUDINAL AND LATERAL SPACING.
 - 2). SEE PLANS FOR LOCATION, DIMENSIONS, GRADES, ETC.
 - 3). USE OF R-7 RIPRAP WILL REQUIRE A SEPARATE PROFESSIONAL ENGINEERING DESIGN FOR SIGHT SPECIFIC CONDITIONS.



DELAWARE
DEPARTMENT OF TRANSPORTATION

RIPRAP DITCH

STANDARD NO.

E-10 (2005)

SHT. 1

OF 1

APPROVED

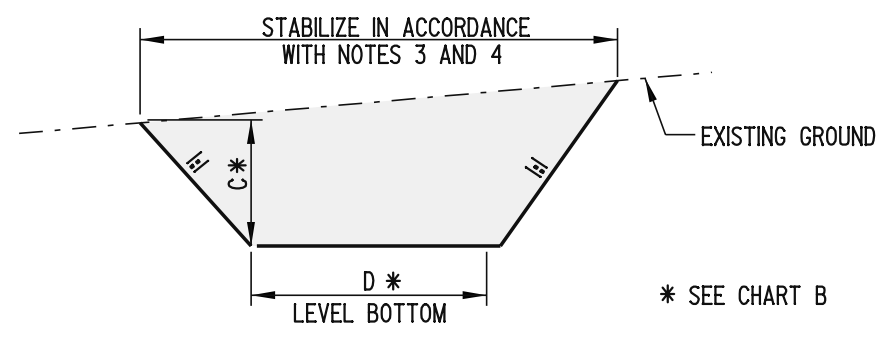
Carolann Wick
CHIEF ENGINEER

12/5/05
DATE

RECOMMENDED

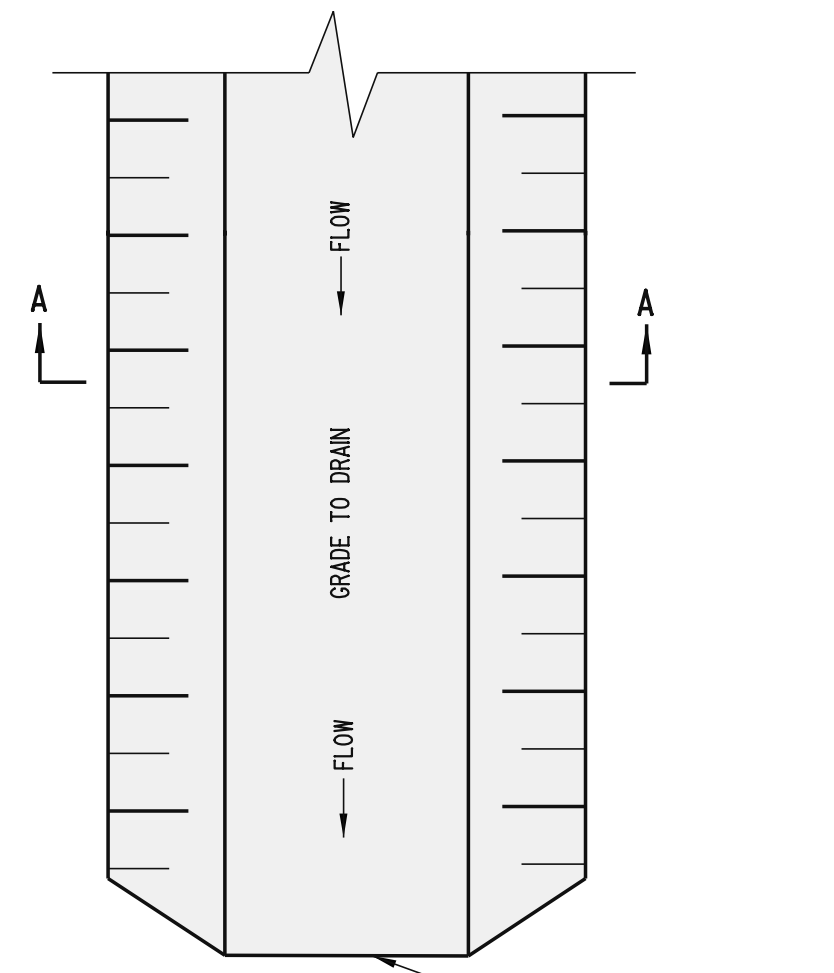
James M. O'Brien
DESIGN ENGINEER

11/29/05
DATE



SECTION A-A

CHART A - STABILIZATION			
SYMBOL	SWALE GRADE	TYPE OF TREATMENT	
		DRAINAGE AREA A (5 AC (2 ha) OR LESS)	DRAINAGE AREA B (5 AC - 10 AC (2 ha - 4 ha))
1	0.5-2.0%	SEED USED WITH EROSION CONTROL BLANKET	SEED USED WITH EROSION CONTROL BL.
2	2.1-8.0%	R-4 RIRRAP	R-4 RIRRAP
3	8.1-20%	ENGINEERED DESIGN	ENGINEERED DESIGN

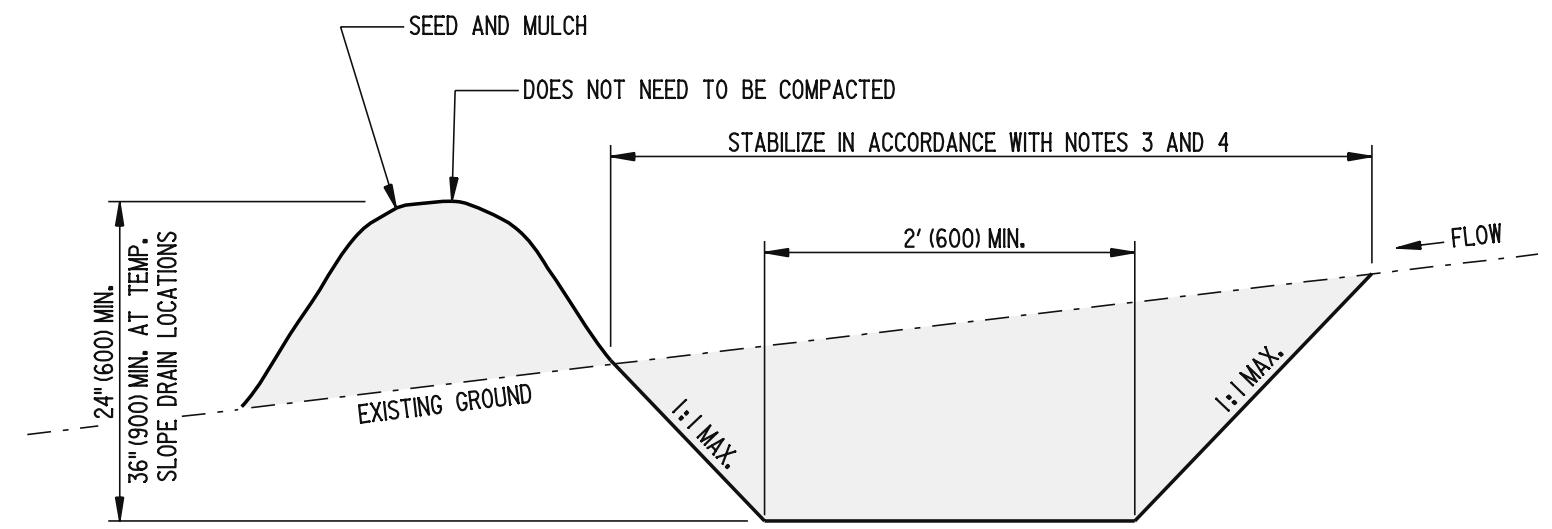


PLAN

CHART B - SWALE DIMENSIONS		
SYMBOL	SWALE A	SWALE B
C	1' (300) MIN.	1' (300) MIN.
D	4' (1200) MIN.	6' (1800) MIN.

SEE SECTION A - A

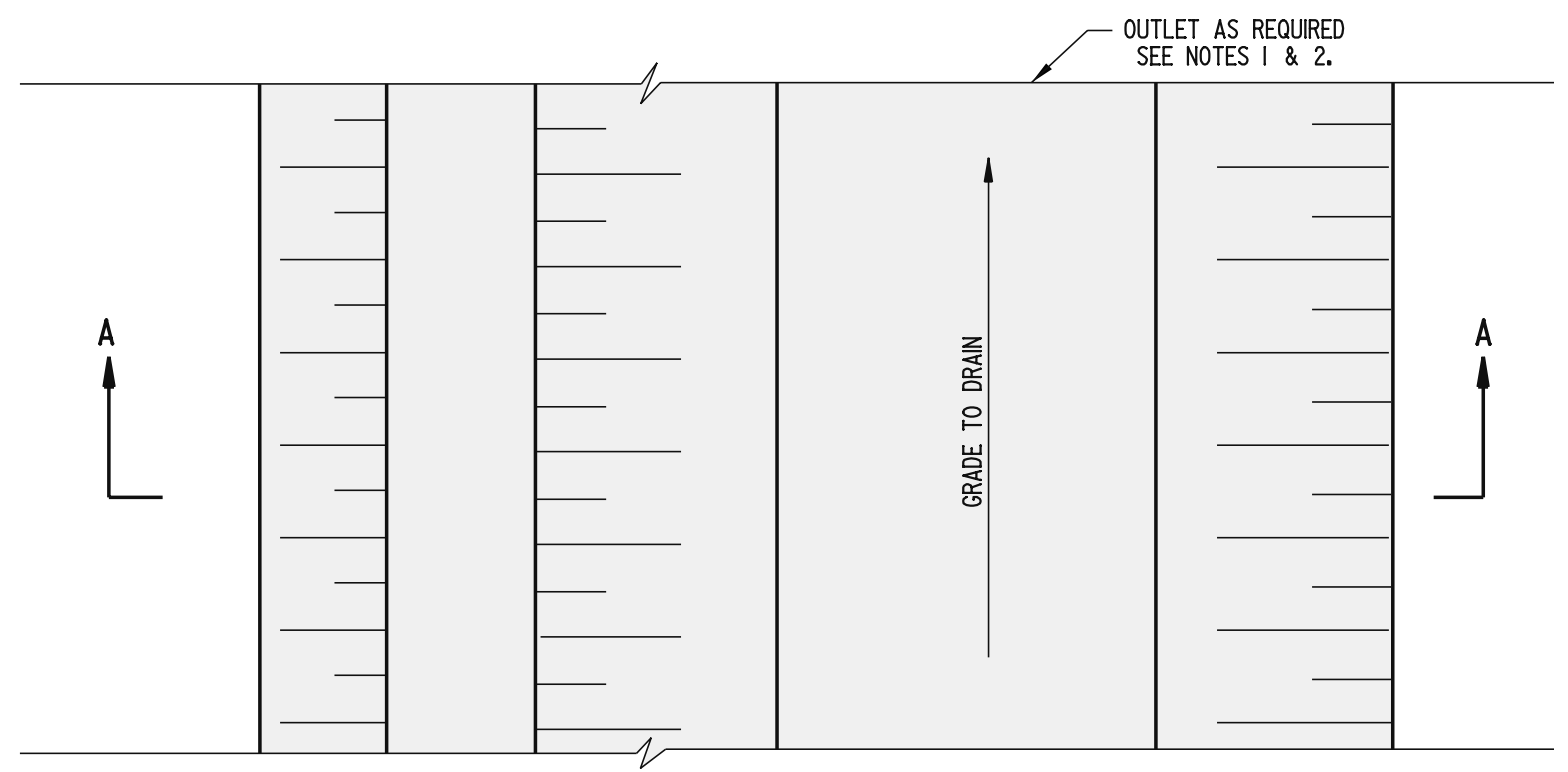
- NOTES:**
- 1). DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
 - 2). DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
 - 3). IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR MORE THAN 14 DAYS, THEY SHALL BE STABILIZED IN ACCORDANCE WITH CHART A PRIOR TO BECOMING OPERATIONAL.
 - 4). IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR LESS THAN 14 DAYS, THEY SHALL BE STABILIZED WITH GEOTEXTILE IN ACCORDANCE WITH THE STANDARD DETAIL, "GEOTEXTILE-LINED CHANNEL DIVERSION".



SECTION A-A




CHART A - SWALE STABILIZATION		
SYMBOL	SWALE GRADE	TYPE OF TREATMENT
A-1	0.5-2.0%	SEED AND EROSION CONTROL BLANKET
A-2	2.1-8.0%	LINED R-4 RIPRAP
A-3	8.1-20%	ENGINEERED DESIGN

MAXIMUM DRAINAGE AREA: 2 ACRES (0.8 ha)



PLAN

- NOTES:**
- 1). DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
 - 2). DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
 - 3). IF PERIMETER DIKE SWALES ARE TO BE OPERATIONAL FOR MORE THAN 14 DAYS, THEY SHALL BE STABILIZED IN ACCORDANCE WITH CHART A PRIOR TO BECOMING OPERATIONAL.
 - 4). IF TEMPORARY SWALES OR CLEAN WATER DIVERSIONS ARE TO BE OPERATIONAL FOR LESS THAN 14 DAYS, THEY SHALL BE STABILIZED WITH GEOTEXTILE IN ACCORDANCE WITH THE STANDARD DETAIL, "GEOTEXTILE-LINED CHANNEL DIVERSION".

 DELAWARE DEPARTMENT OF TRANSPORTATION	PERIMETER DIKE / SWALE			APPROVED  12/5/05 <small>CHIEF ENGINEER</small> DATE
	STANDARD NO. E-12 (2005)	SHT. 1	OF 1	RECOMMENDED  11/29/05 <small>DESIGN ENGINEER</small> DATE

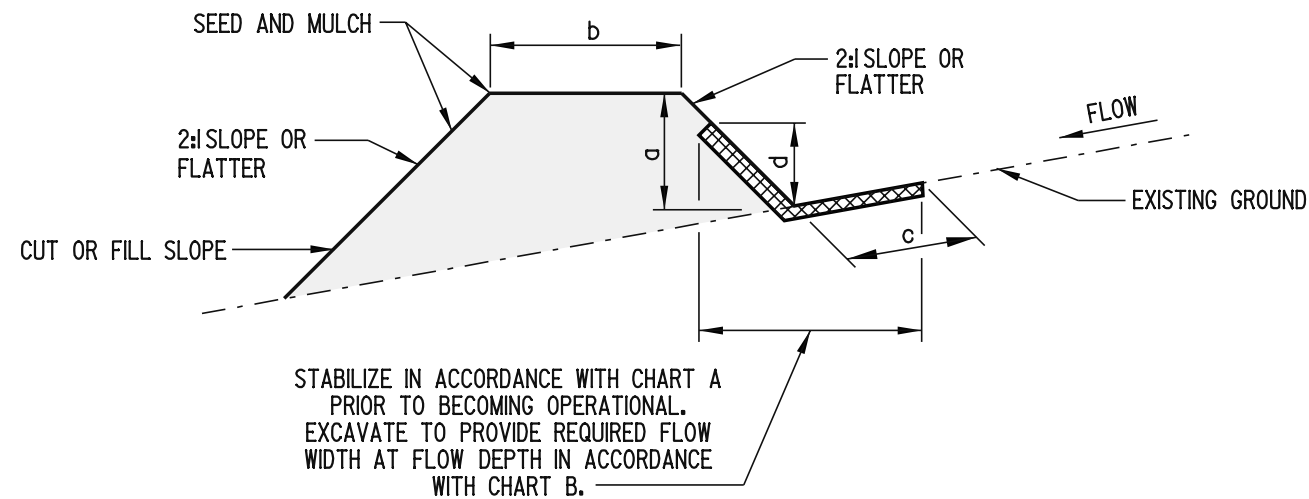


CHART A - FLOW CHANNEL STABILIZATION		
TYPE	CHANNEL GRADE	TYPE OF TREATMENT
1	0.5-2.0%	SEED AND EROSION CONTROL BLANKET
2	2.1-8.0%	R-4 RIPRAP
3	8.1-20%	ENGINEERED DESIGN

SECTION A-A

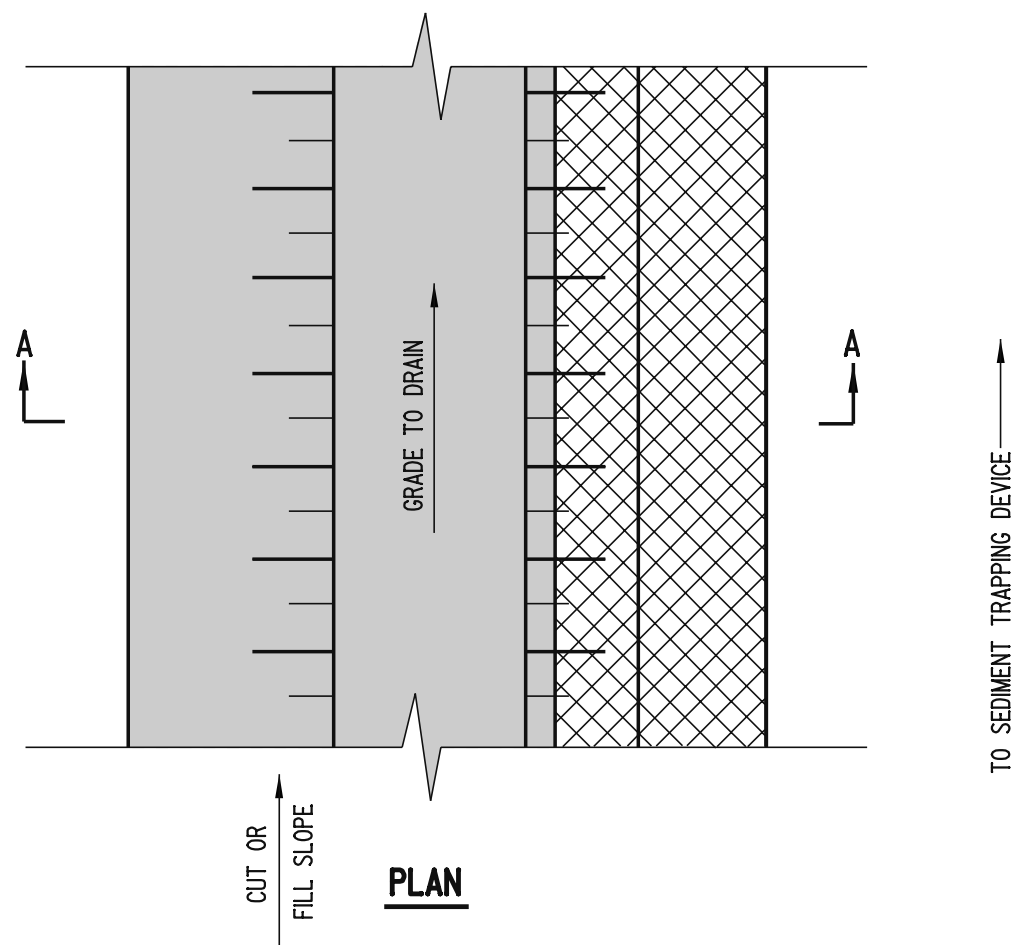
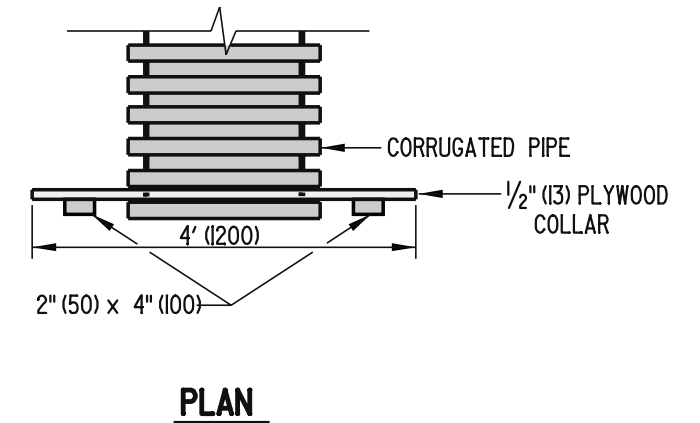
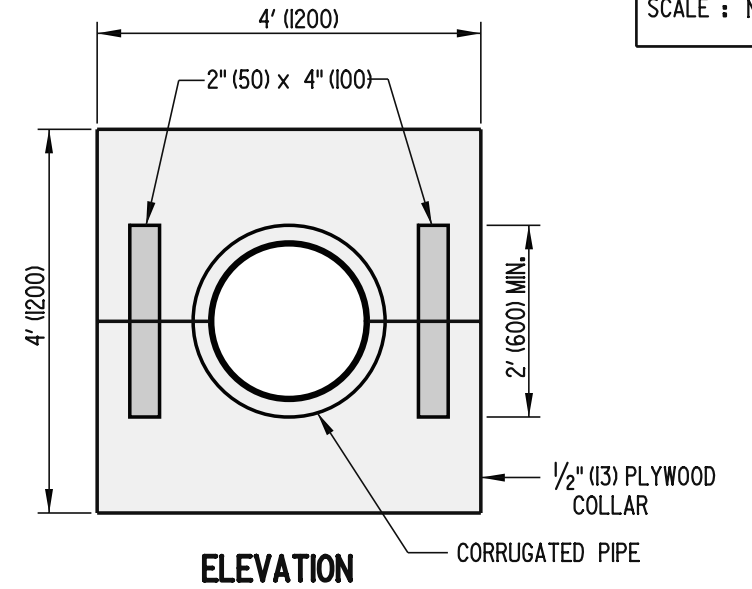
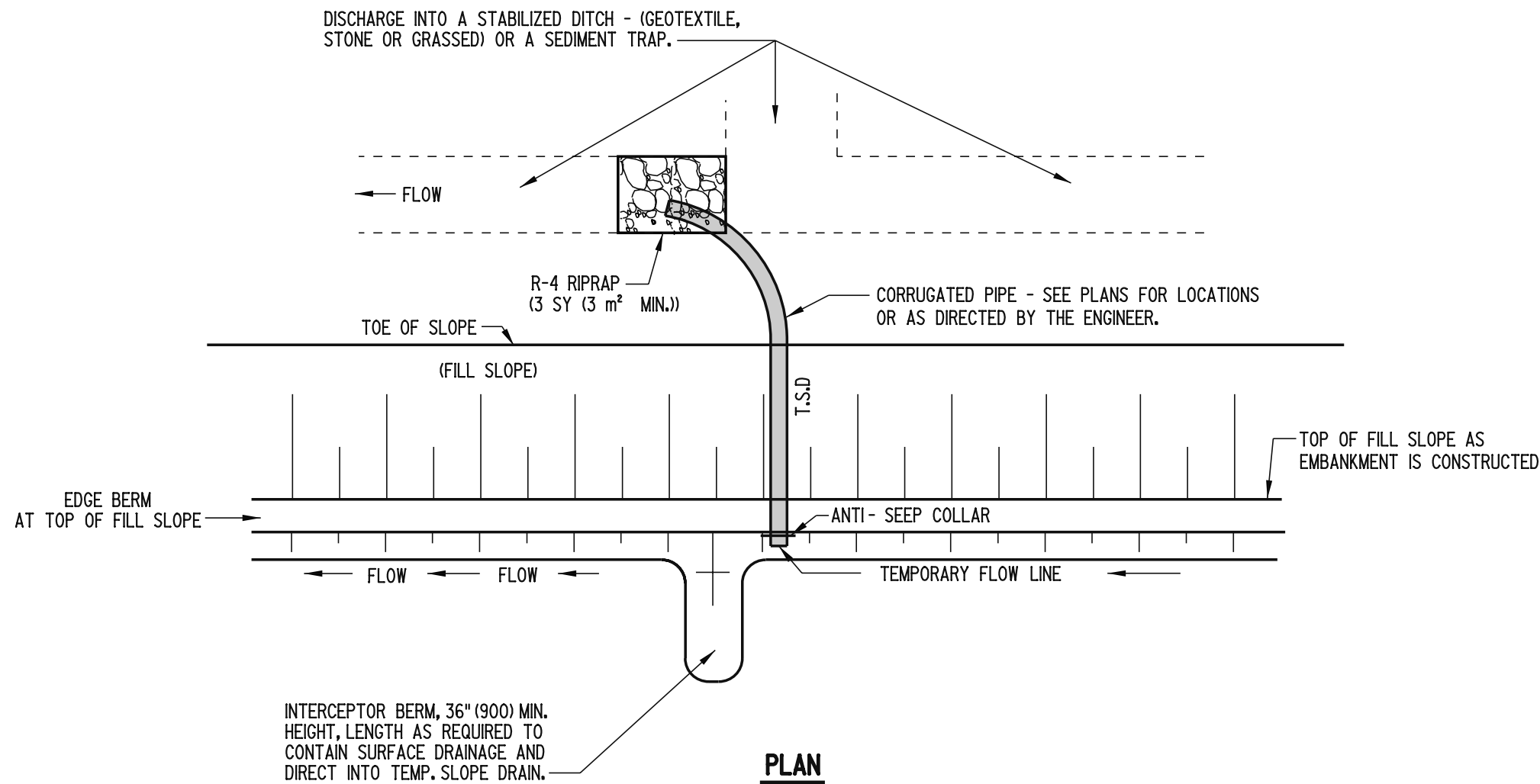


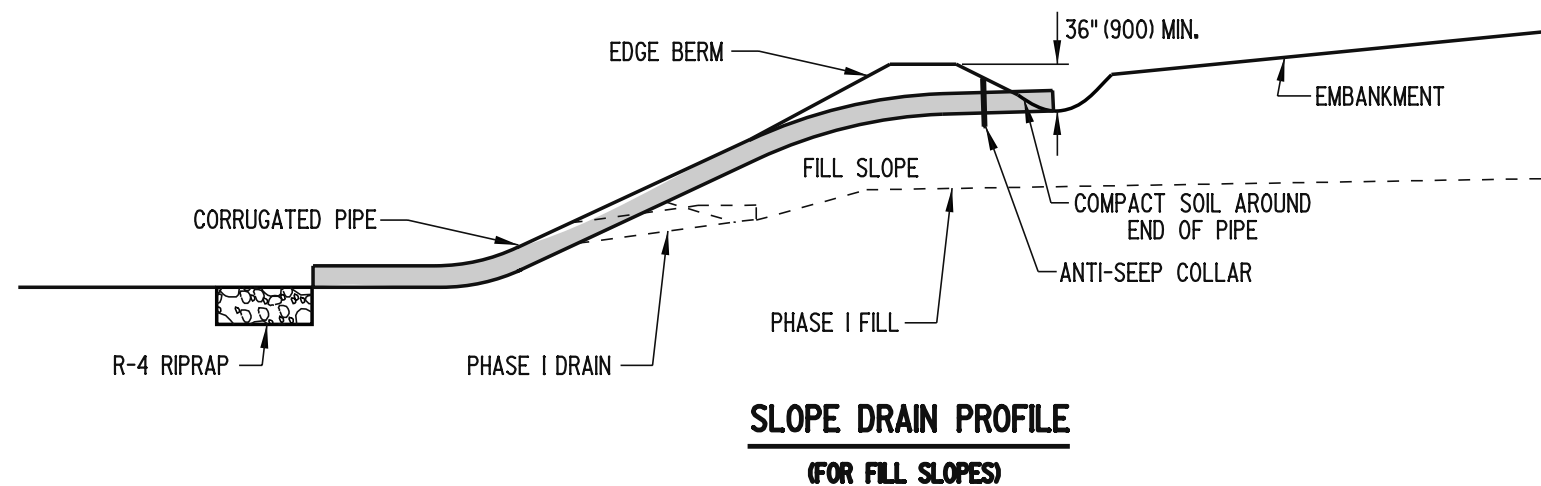
CHART B - EARTH DIKE DIMENSIONS		
SYMBOL	DIKE A (5 ac (2 ha) or less)	DIKE B (5-10ac(2-4 ha))
a-DIKE HEIGHT	12" (300)	18" (450)
b-DIKE WIDTH	12" (300)	24" (600)
c-FLOW WIDTH	48" (1200)	72" (1800)
d-FLOW DEPTH	14" (350)	27" (680)

- NOTES:
- 1). IF DESIRED, TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
 - 2). FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO INSURE A STABILIZED OUTFALL.

SCALE : N.T.S.



ANTI-SEEP COLLAR



- NOTES:** 1). ALL TEMPORARY SLOPE DRAINS SHALL DISCHARGE INTO THE BACK OF SEDIMENT TRAPS, INTO SEDIMENT BASINS OR DITCHES DISCHARGING INTO TRAPS OR BASINS.
- 2). TEMPORARY SLOPE DRAINS SHALL BE USED AT THE TOP OF FILL SLOPES AS EMBANKMENT IS CONSTRUCTED, TO PREVENT EXCESSIVE EROSION UNTIL SHOULDERS ARE CONSTRUCTED AND THE SLOPES ARE SEEDED AND MULCHED.

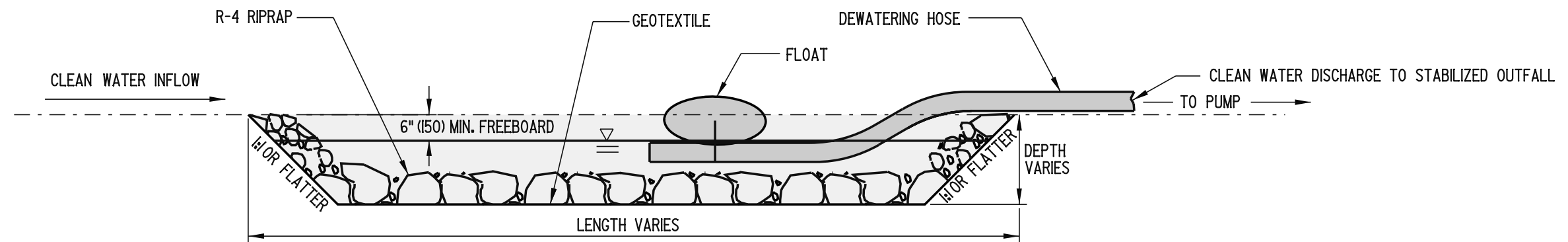


DELAWARE
DEPARTMENT OF TRANSPORTATION

TEMPORARY SLOPE DRAIN

STANDARD NO. E-14 (2005) SHT. 1 OF 1

APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



- NOTES:**
- 1). THE WORK SHALL CONSIST OF CONSTRUCTING A STILLING WELL FOR THE PURPOSE OF PUMPING CLEAN WATER AROUND A DISTURBED CONSTRUCTION AREA TO A STABILIZED OUTFALL.
 - 2). THE DIMENSIONS OF THE STILLING WELL SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.



DELAWARE
DEPARTMENT OF TRANSPORTATION

STILLING WELL

STANDARD NO.

E-15 (2005)

SHT. 1

OF 1

APPROVED

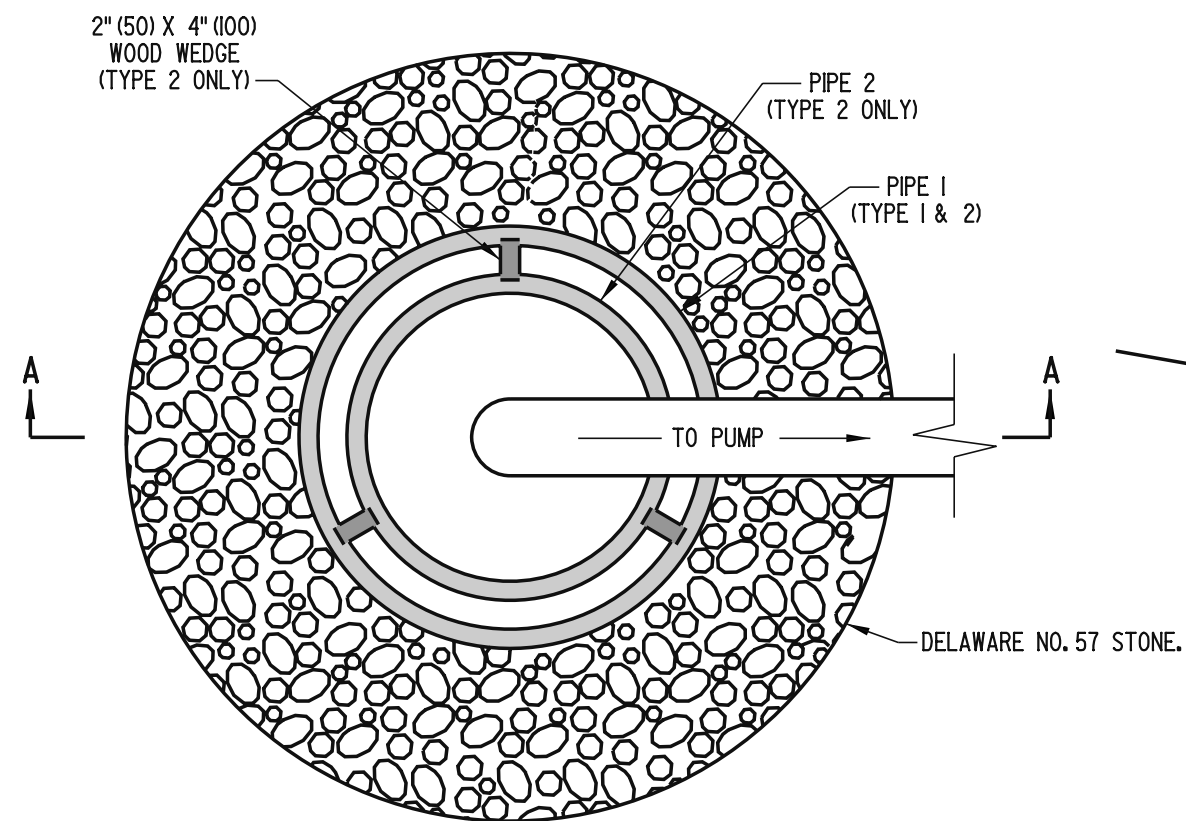
Carolann Wick
CHIEF ENGINEER

12/5/05
DATE

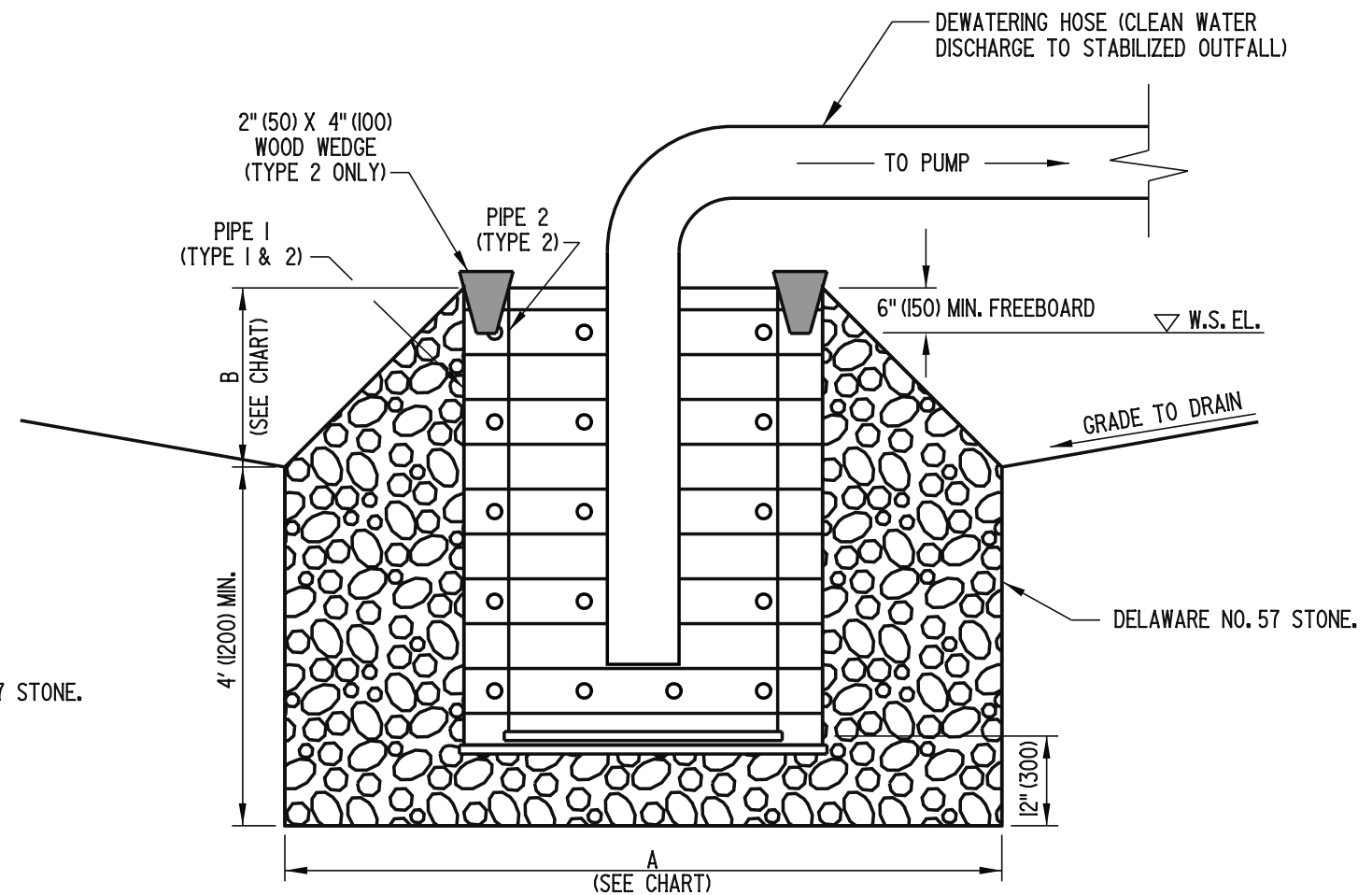
RECOMMENDED

James M. O'Brien
DESIGN ENGINEER

11/29/05
DATE



PLAN



SECTION A-A

- NOTES:**
- 1). THE WORK SHALL CONSIST OF CONSTRUCTING A SUMP PIT FOR THE PURPOSE OF FILTERING AND PUMPING WATER TO A STABILIZED OUTFALL.
 - 2). GEOTEXTILE FOR THE 36" (900) CMP SHALL BE REPLACED WHEN CLOGGED WITH SEDIMENT.
 - 3). $\frac{1}{2}$ " x $\frac{1}{2}$ " (13 x 13) 19 GAGE (I.I) WIRE MESH SHALL BE PLACED AROUND THE REMOVABLE 36" (900) CMP BEFORE ATTACHING THE GEOTEXTILE TO INCREASE FLOW THROUGH THE GEOTEXTILE.
 - 4). ALL PERFORATIONS SHALL BE 1" (25) IN DIAMETER AND 12" (300) ON CENTER IN ALL DIRECTIONS.
 - 5). TYPE I SUMP PIT SHALL BE USED ONLY WHEN PUMPING IS NEEDED FOR LESS THAN 7 DAYS.

SUMP PIT CHART				
TYPE	PIPE 1	PIPE 2	A	B
1	PERFORATED 24" (600) CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE.	N/A	4' (1200) MIN.	12" (300)
2	PERFORATED 48" (1200) CMP WITH PERFORATED CAP WELDED ON BOTTOM	REMOVABLE PERFORATED 36" (900) CMP WITH PERFORATED CAP WELDED ON BOTTOM AND COMPLETELY WRAPPED WITH GEOTEXTILE.	8' (2400) MIN.	24" (600)



DELAWARE
DEPARTMENT OF TRANSPORTATION

SUMP PIT, TYPE 1 & 2

STANDARD NO.

E-16 (2005)

SHT. 1

OF 1

APPROVED

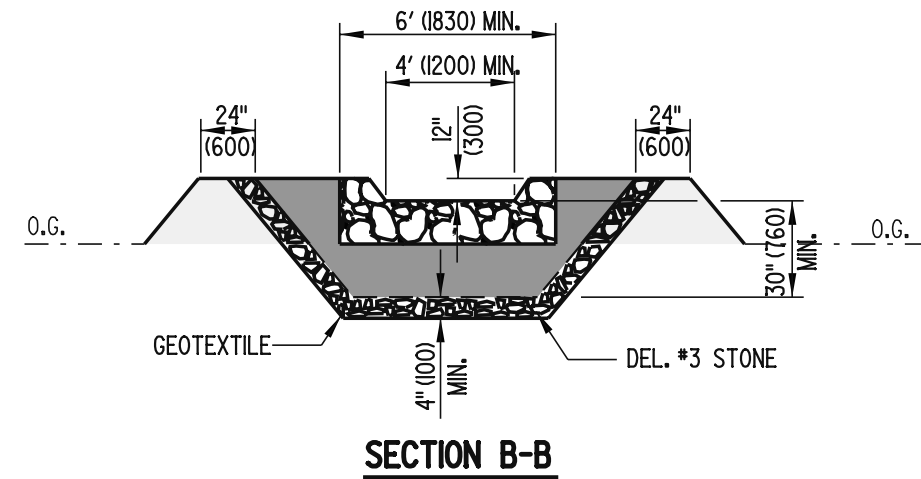
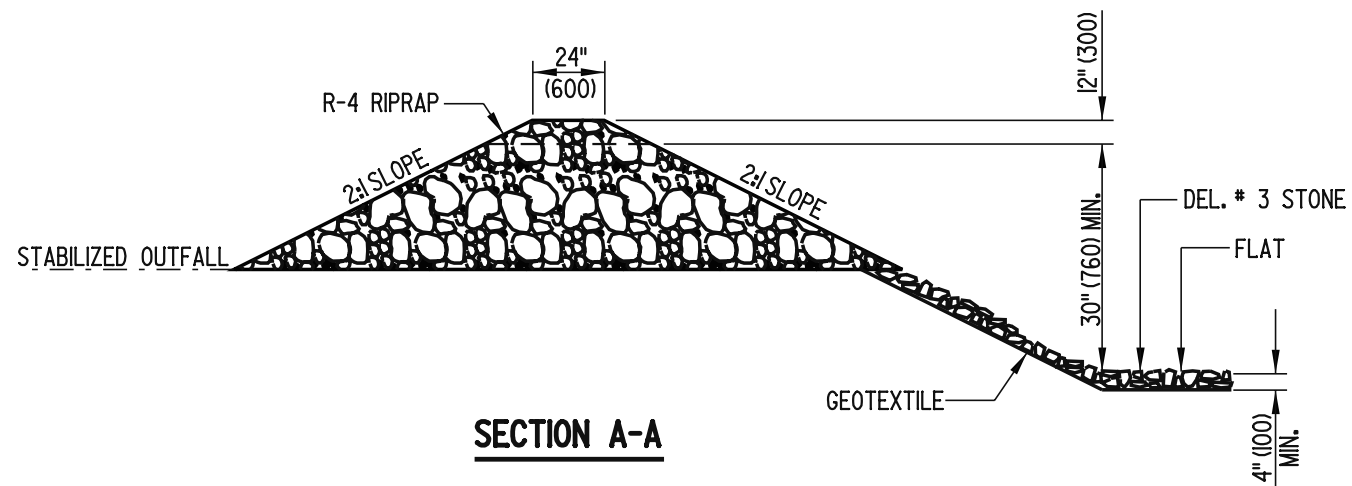
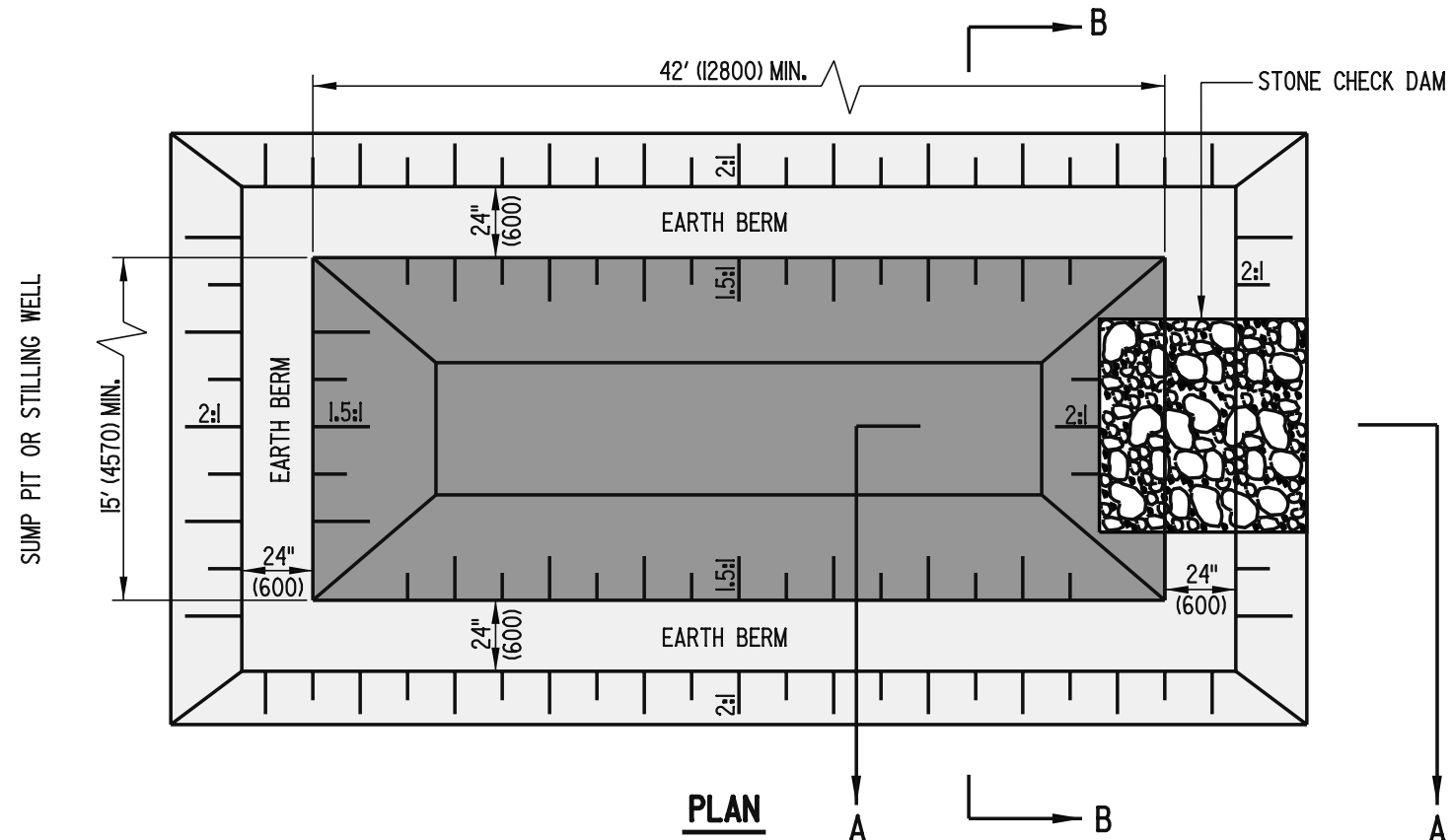
Carolann Wick
CHIEF ENGINEER

12/5/05
DATE

RECOMMENDED

James M. O'Brien
DESIGN ENGINEER

11/29/05
DATE



- NOTES:**
- 1.) A DEWATERING BASIN (DWB) IS USED TO REMOVE SEDIMENT FROM SEDIMENT-LADEN WATER PUMPED FROM A CONSTRUCTION SITE BEFORE THE WATER RE-ENTERS THE WATERWAY. THE DWB SHALL HAVE A MINIMUM TOP WIDTH OF 15' (4570) AND A MINIMUM DEPTH OF 3.5' (1065). THE MINIMUM TOP LENGTH SHOWN IN THE PLAN IS USED ONLY FOR QUANTITY CALCULATIONS BY THE ENGINEER. THE ACTUAL TOP LENGTH IN THE FIELD SHALL BE CALCULATED BY THE EQUATION:
 US CUSTOMARY : TOP LENGTH (FEET) = $26' + .01 \times Y$
 METRIC : TOP LENGTH (mm) = $7930 + 48300 \times Y$
 WHERE Y IS THE MAXIMUM CAPACITY IN GALLONS PER MINUTE (CUBIC METERS PER SECOND) OF THE DEWATERING PUMP.
 - 2.) THE OUTFALL FROM THE BASIN TO THE RECEIVING WATERS SHALL BE STABILIZED. PUMPING INTO THE DWB SHALL CEASE WHEN THE EFFLUENT FROM THE BASIN BECOMES SEDIMENT-LADEN.
 - 3.) A SUMP PIT OR STILLING WELL (SEE STANDARD SHEETS) SHALL BE USED IN CONJUNCTION WITH A DWB. THE BASIN MAY BE BYPASSED INTO THE STABILIZED OUTFALL IF THE WATER BEING PUMPED IS NON-SEDIMENT-LADEN. DIRECT DISCHARGE TO THE RECEIVING WATERS SHALL CEASE AND BE REDIRECTED TO THE DWB WHEN EFFLUENT FROM THE PUMP BECOMES SEDIMENT-LADEN.
 - 4.) MAINTENANCE MUST BE PERFORMED IN ORDER FOR THE DWB TO FUNCTION PROPERLY. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED DISPOSAL AREA WHEN THE BASIN IS FILLED TO WITHIN 12" (300) FROM THE CREST.
 - 5.) WHEN USED IN CONJUNCTION WITH A COFFERDAM, DEWATERING SHALL BEGIN NO SOONER THAN 12 HOURS AFTER COFFERDAM INSTALLATION IN ORDER TO ALLOW SEDIMENT PRODUCED DURING INSTALLATION TO SETTLE COMPLETELY.



DELAWARE
DEPARTMENT OF TRANSPORTATION

DEWATERING BASIN

STANDARD NO. E-17 (2005)

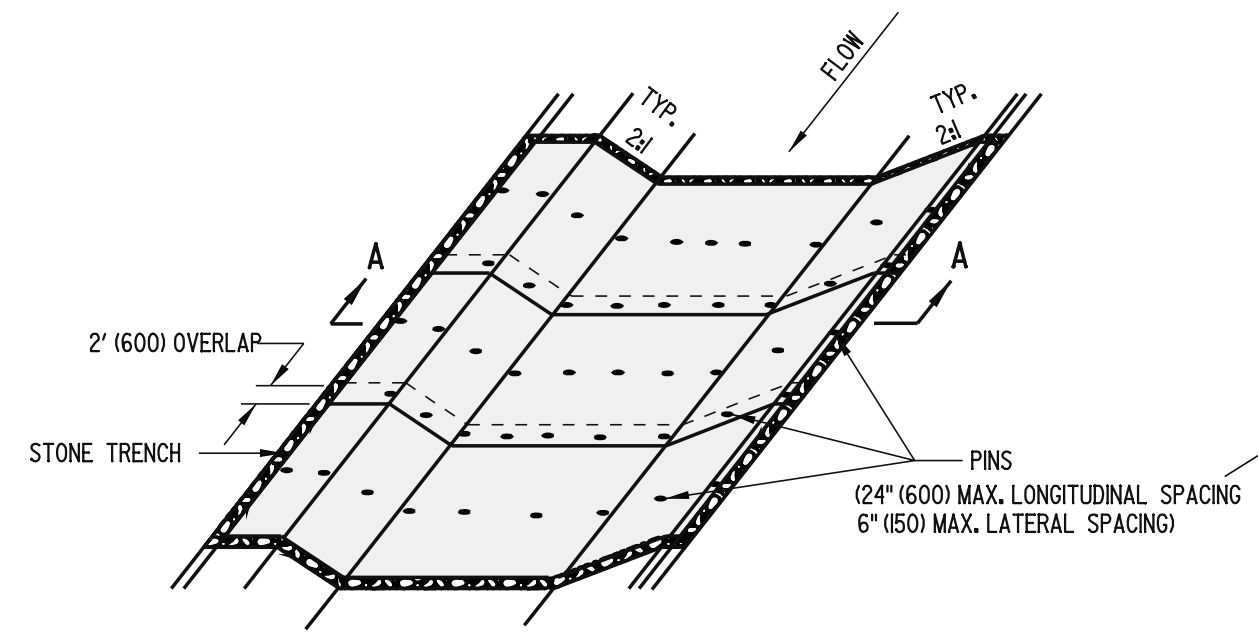
SHT. 1 OF 1

APPROVED *Carolann Wick*
CHIEF ENGINEER

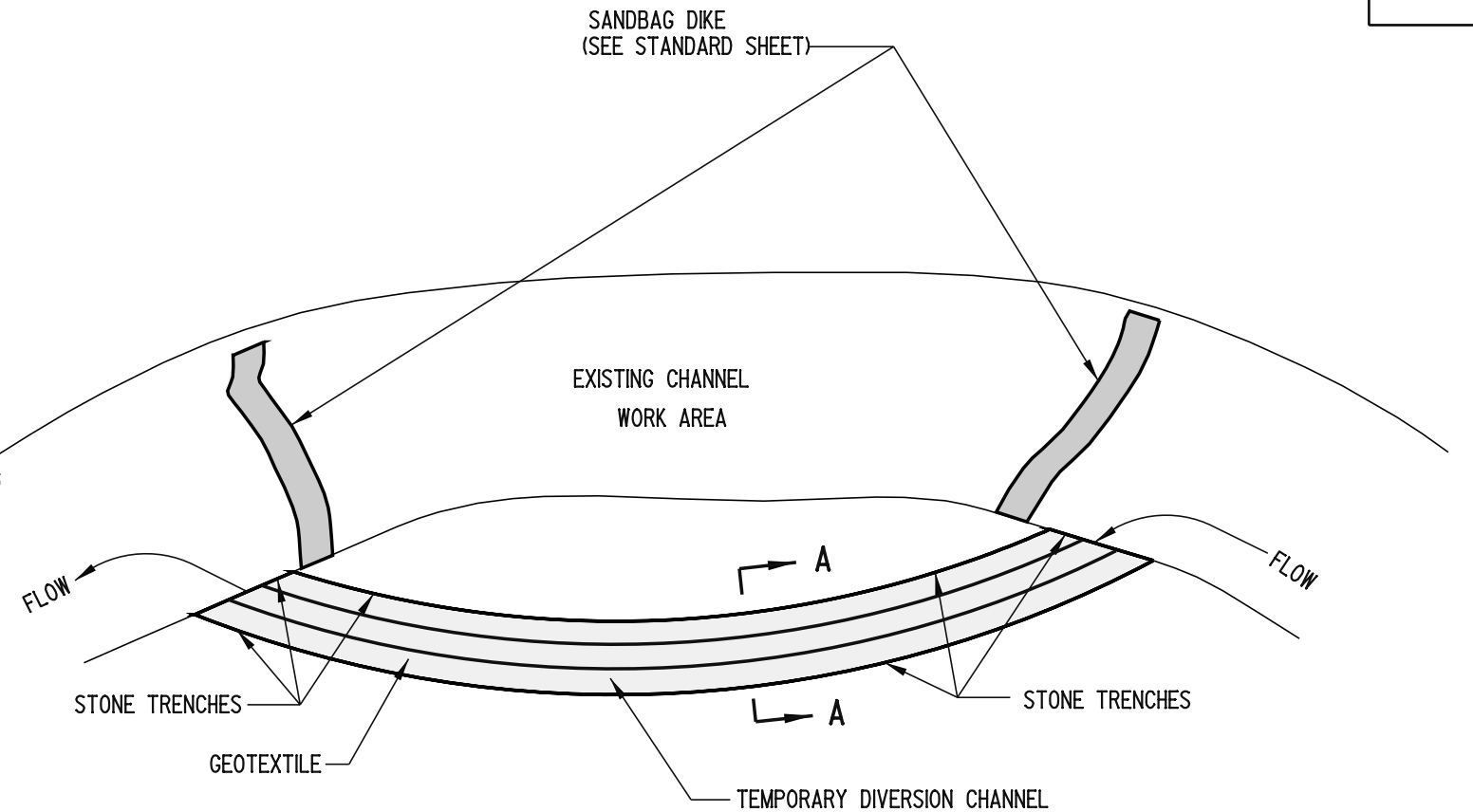
12/5/05
DATE

RECOMMENDED *James M. O'Brien*
DESIGN ENGINEER

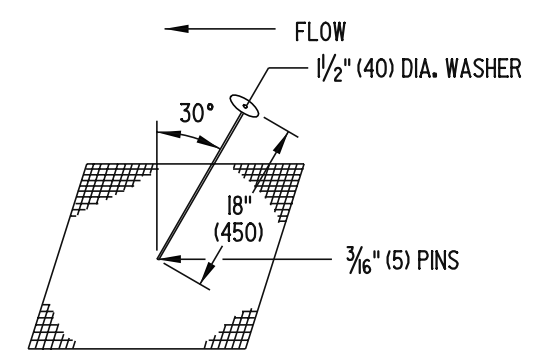
11/29/05
DATE



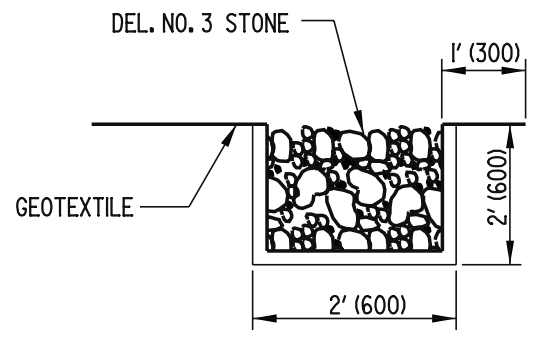
OBLIQUE VIEW



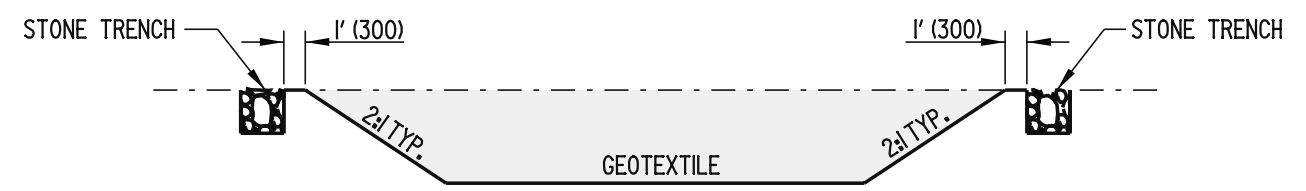
PLAN



FASTENING DETAIL




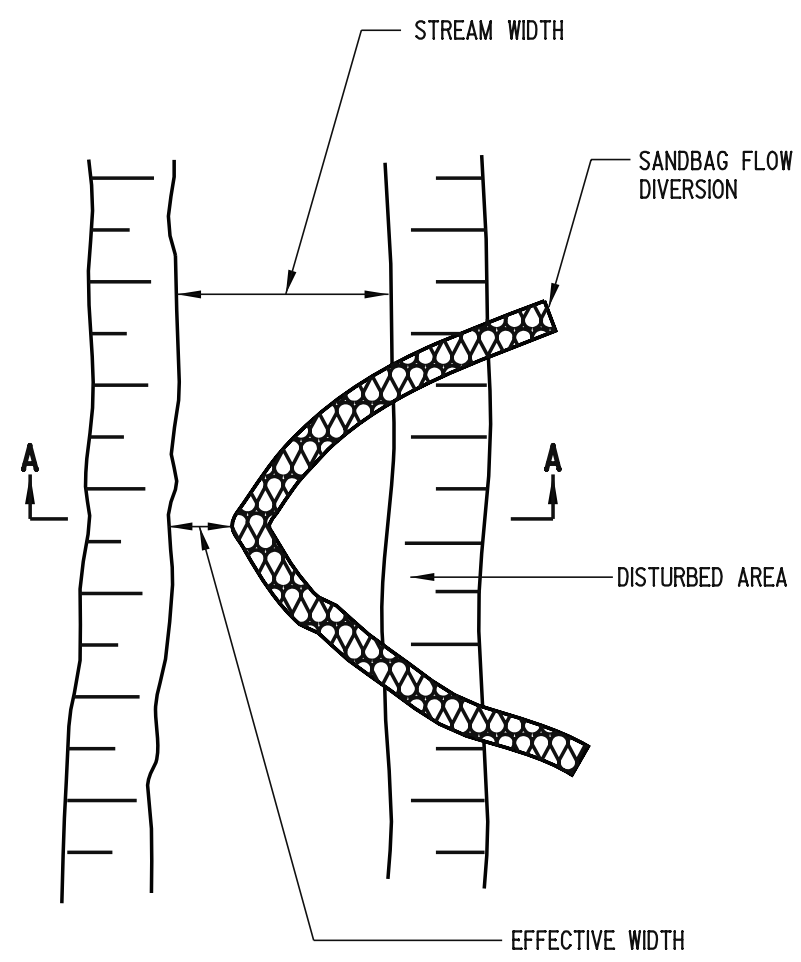
TRENCHING DETAIL



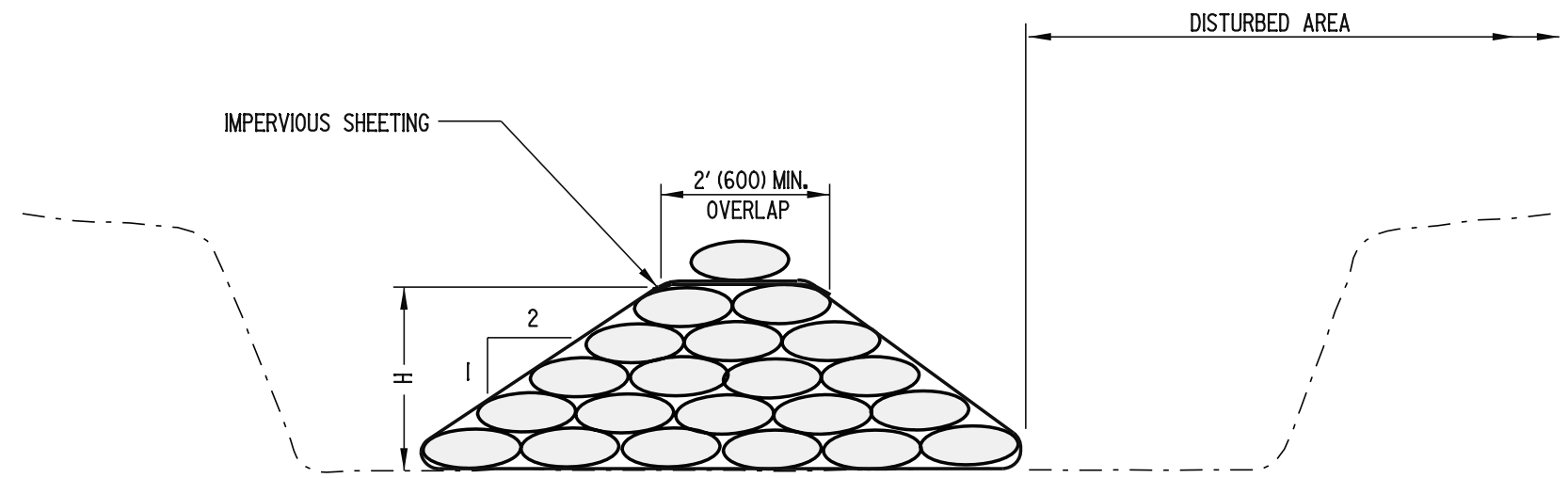
SECTION A-A

NOTE: SEE PLANS FOR LOCATION, DIMENSIONS, GRADES, ETC.

 DELAWARE DEPARTMENT OF TRANSPORTATION	GEOTEXTILE-LINED CHANNEL DIVERSION			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. E-18 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



PLAN



SECTION A-A

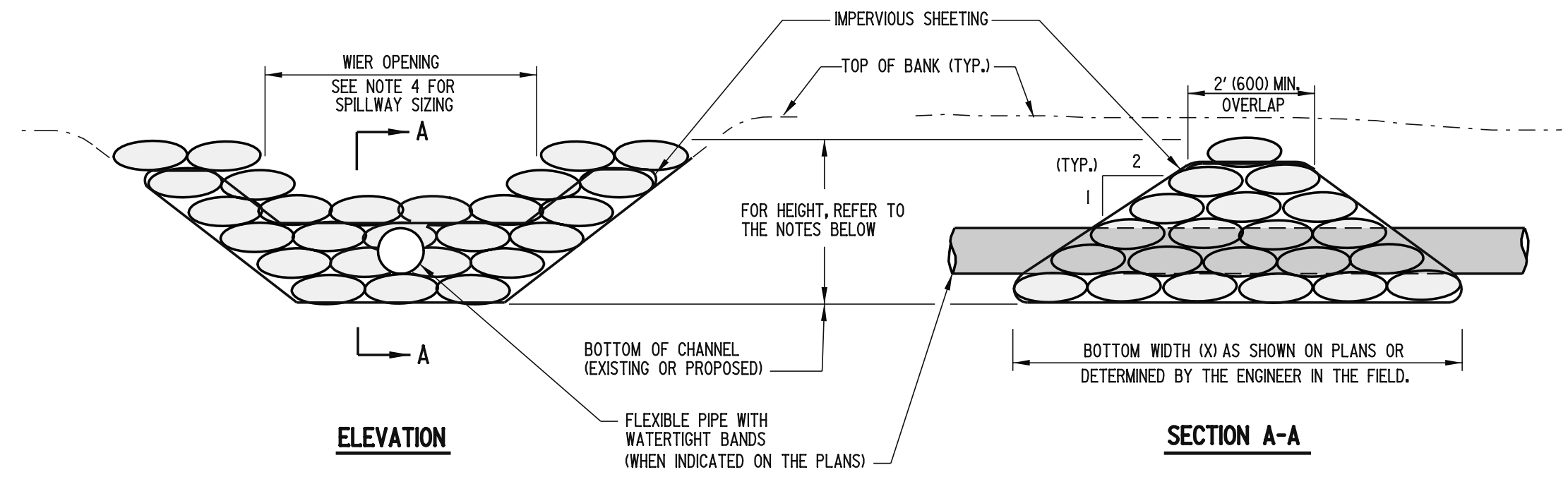
- NOTES:**
- 1). THE WORK SHALL CONSIST OF INSTALLING FLOW DIVERSIONS FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
 - 2). THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
 - 3). THE EFFECTIVE CHANNEL WIDTH SHALL BE SIZED TO PASS A ONE YEAR STORM EVENT PEAK FLOW, OR 1/3 OF STREAM WIDTH, WHICHEVER IS GREATER.
 - 4). THE SANDBAG DIVERSION HEIGHT (H) SHALL BE 1' (300) ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM.



DELAWARE
DEPARTMENT OF TRANSPORTATION

SANDBAG DIVERSION			
STANDARD NO.	E-19 (2005)	SHT.	1 OF 1

APPROVED	<i>Carolann Wick</i>	12/5/05
	CHIEF ENGINEER	DATE
RECOMMENDED	<i>James M. O'Brien</i>	11/29/05
	DESIGN ENGINEER	DATE



- NOTES:** 1). THE WORK SHALL CONSIST OF INSTALLING A SANDBAG DIKE FOR THE PURPOSE OF EROSION CONTROL WHEN CONSTRUCTION ACTIVITIES TAKE PLACE WITHIN THE STREAM CHANNEL SUCH AS BANK STABILIZATION OR BRIDGE ABUTMENT CONSTRUCTION.
- 2). THE SANDBAG DIKE SHALL BE INSTALLED AT THE UPSTREAM LOCATION FIRST.
- 3). THE HEIGHT OF THE SANDBAG DIKE SHALL BE 1' (300) ABOVE THE PEAK ELEVATION OF THE ONE YEAR STORM, OR EQUAL WITH THE TOP OF BANK, WHICHEVER IS LESS. SEE PLANS FOR INFORMATION.
- 4). THE SPILLWAY SHALL BE SIZED TO PASS A (1) ONE YEAR STORM EVENT PEAK FLOW, SEE PLANS.
- 5). THE PIPE, WHEN UTILIZED, SHALL BE SIZED TO PASS THE STREAM BASE FLOW.

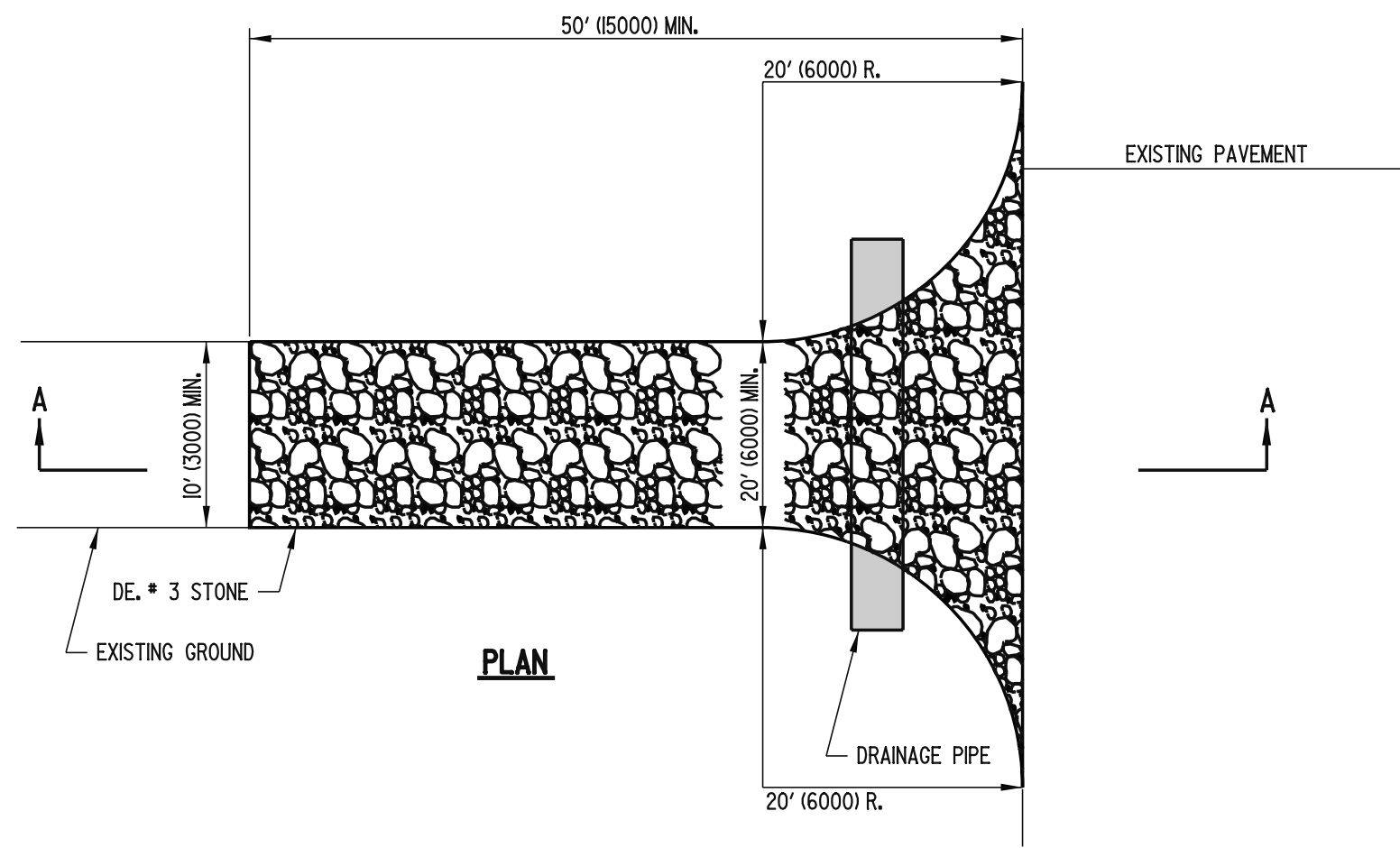


DELAWARE
DEPARTMENT OF TRANSPORTATION

SANDBAG DIKE			
STANDARD NO.	E-20 (2005)	SHT.	1 OF 1

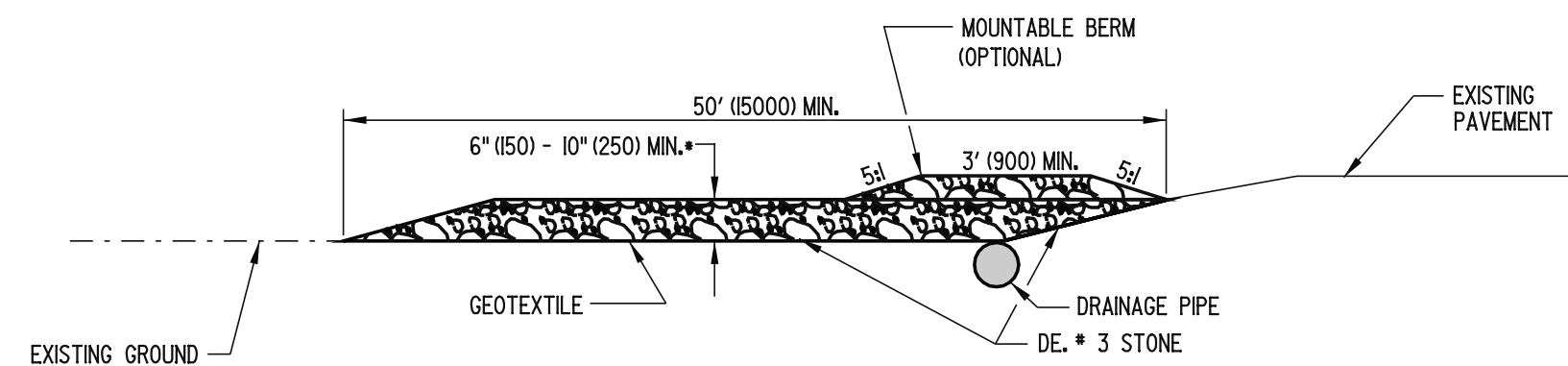
APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE

RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



PLAN

- NOTES:**
- 1). ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED UNDER THE ENTRANCE. IF NECESSARY, A MOUNTABLE BERM WITH 5:1 SLOPES SHALL BE ALLOWED TO FACILITATE PLACEMENT OF PIPES IN SHALLOW CONDITIONS.
 - 2). THE LOCATION AND NUMBER OF STABILIZED CONSTRUCTION ENTRANCES SHALL BE AS INDICATED ON THE PLANS. ANY CHANGE IN LOCATION, ADDITION, OR DELETION OF AN ENTRANCE SHALL BE APPROVED IN ADVANCE BY THE ENGINEER.
 - 3). DRAINAGE PIPE, IF UTILIZED, SHALL BE PAID FOR SEPARATELY UNDER THE APPROPRIATE BID ITEM.
 - 4). THE TOP 2" (50) OF STONE SHALL BE REMOVED AND REPLACED WITH 2" (50) OF CLEAN STONE WHEN VOIDS ARE FILLED OR AS DIRECTED BY THE ENGINEER.



SECTION A-A

* 6" (150) MIN. (< 3 AXLE)
10" (250) MIN. (> 3 AXLE)

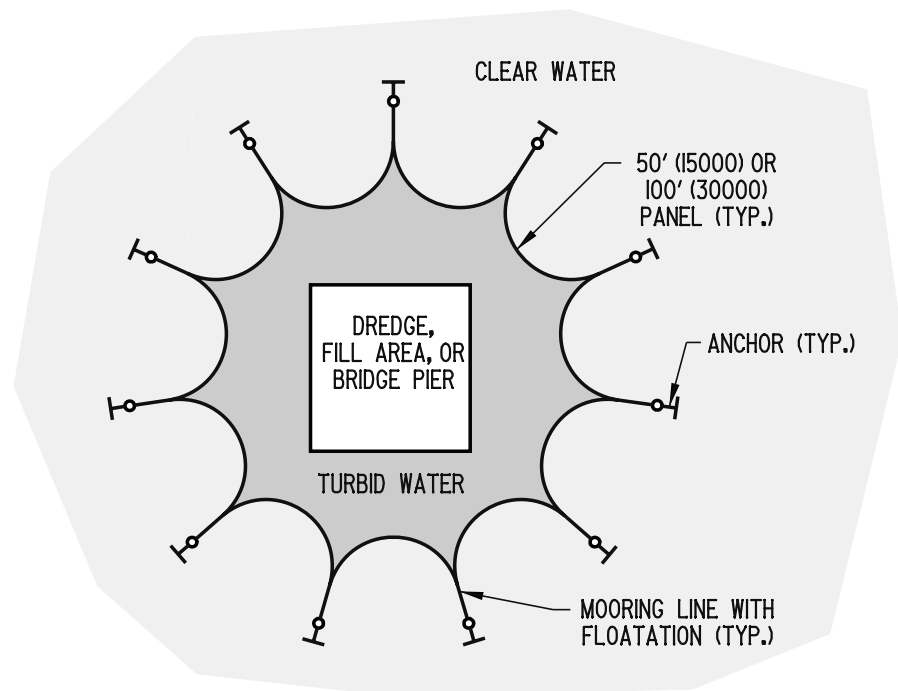


DELAWARE
DEPARTMENT OF TRANSPORTATION

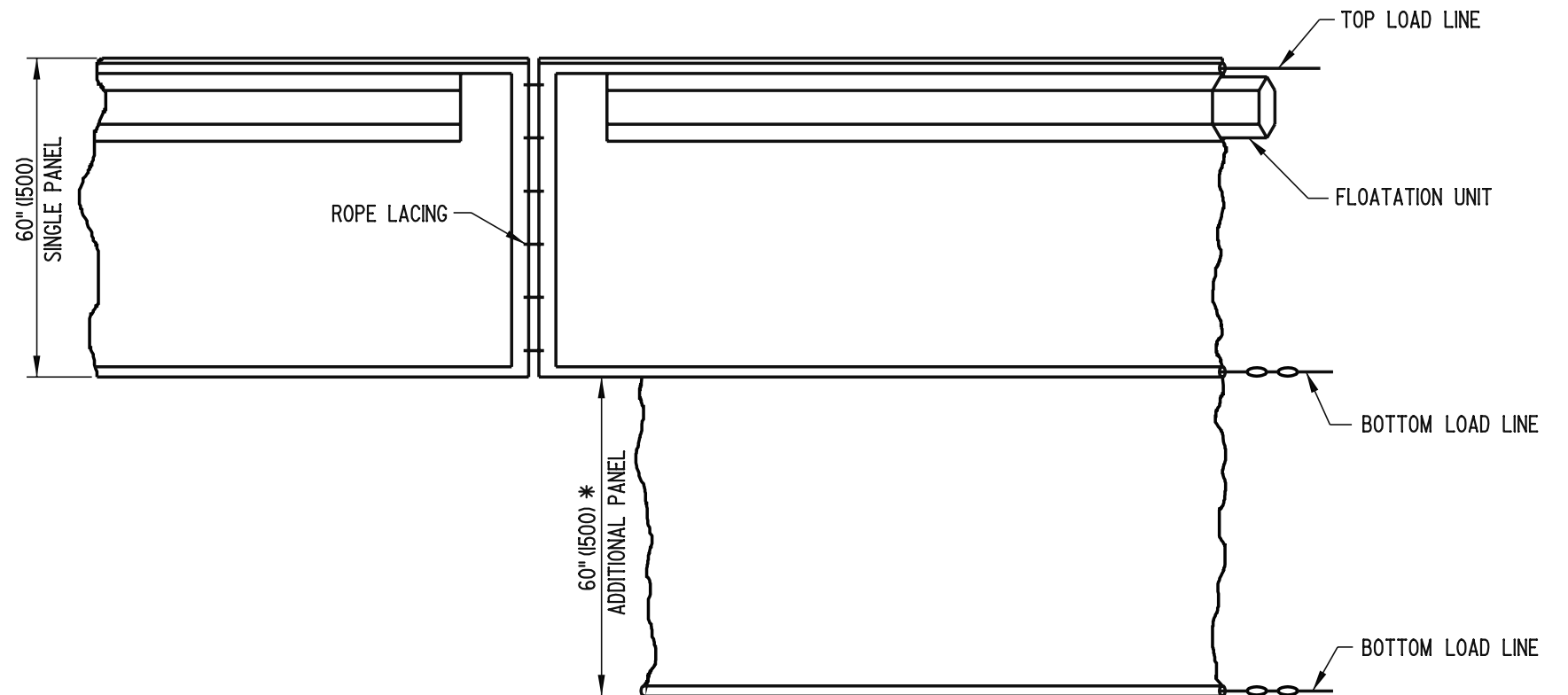
STABILIZED CONSTRUCTION ENTRANCE

STANDARD NO. E-21 (2005) SHT. 1 OF 1

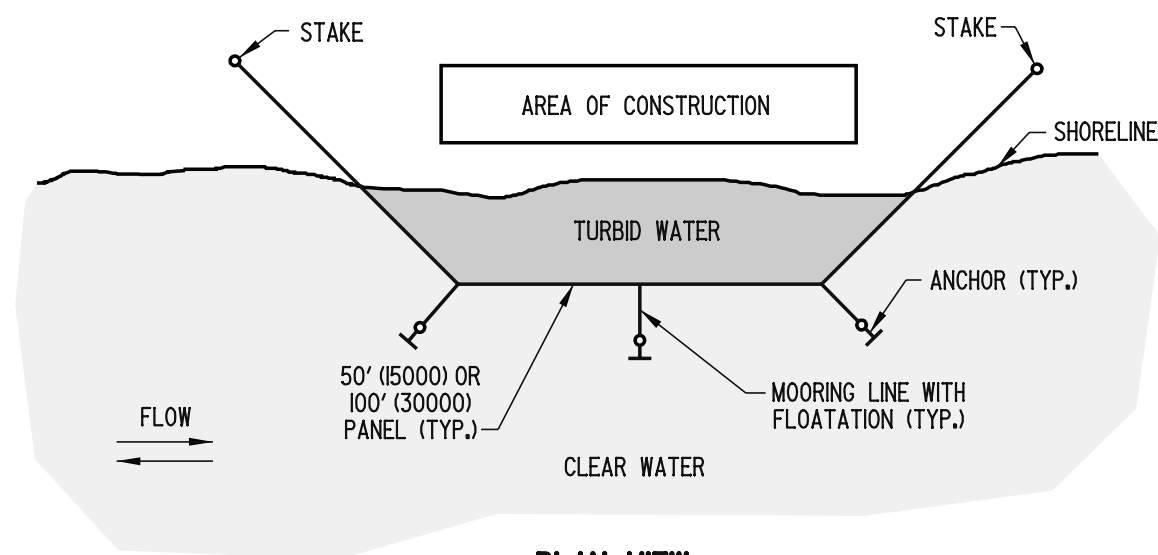
APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



PLAN VIEW
OPEN WATER APPLICATION



ELEVATION



PLAN VIEW
SHORELINE APPLICATION

FLOATING TURBIDITY CURTAIN

- NOTE:** 1.) ADDITIONAL PANEL REQUIRED FOR DEPTHS GREATER THAN 5' (1500).
2.) FLOATING TURBIDITY CURTAIN SHALL REACH BOTTOM UP TO DEPTHS OF 10' (3000) BY USING TWO PANELS. DEPTHS GREATER THAN 10' (3000) SHALL REQUIRE SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DIRECTED BY THE ENGINEER.



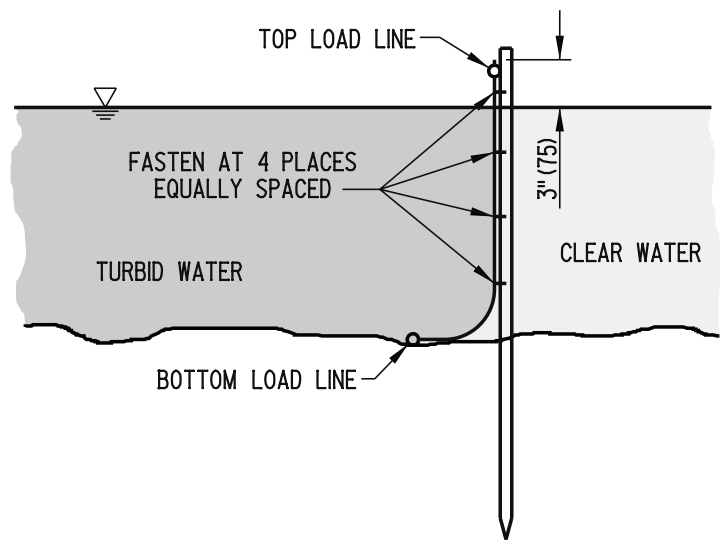
DELAWARE
DEPARTMENT OF TRANSPORTATION

TURBIDITY CURTAIN

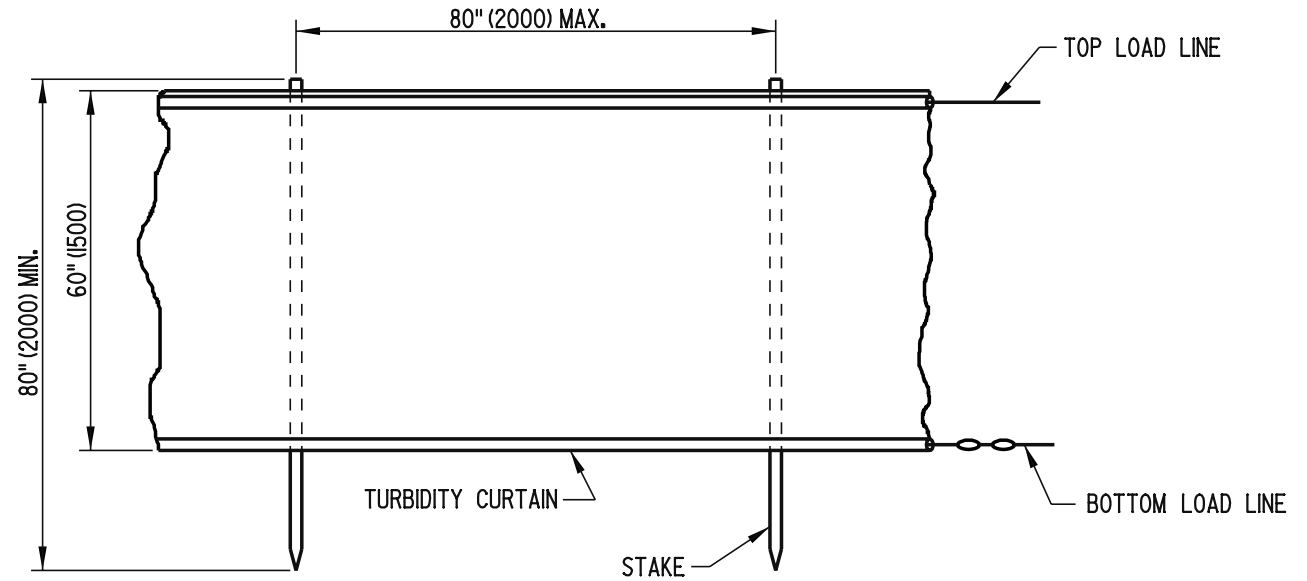
STANDARD NO. E-23 (2005)

SHT. 1 OF 2

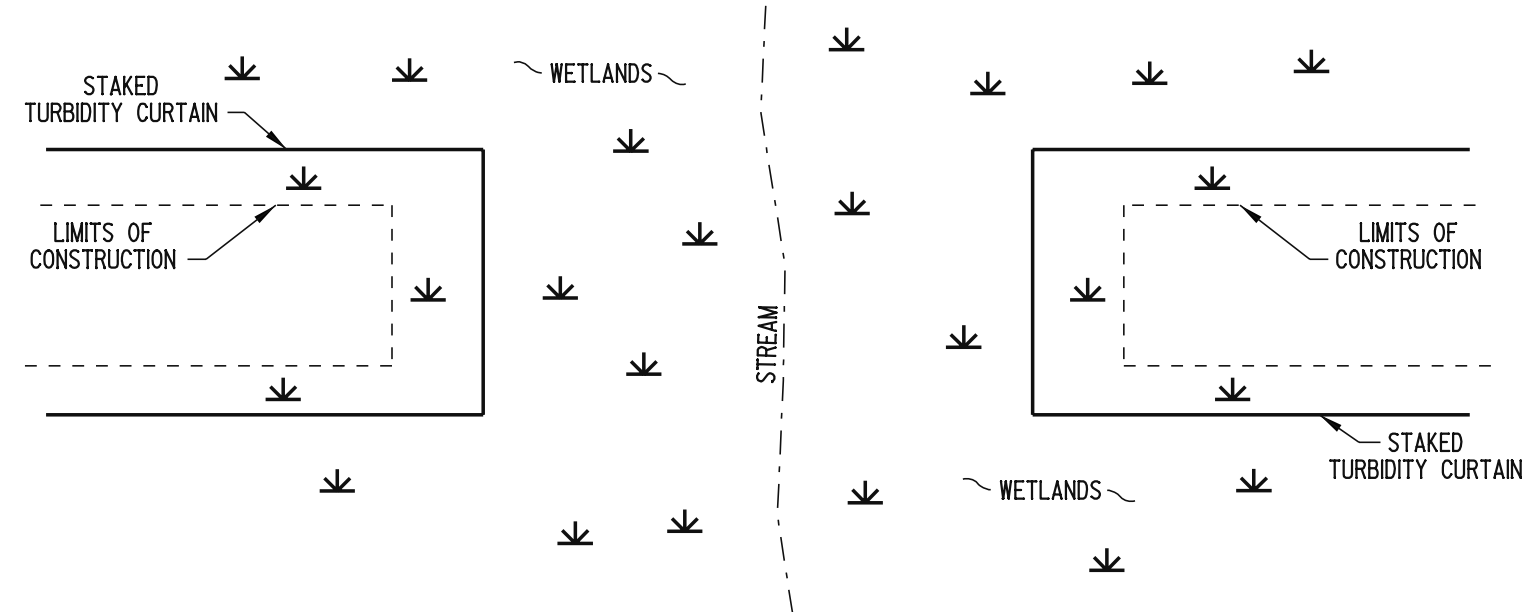
APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



SECTION




ELEVATION

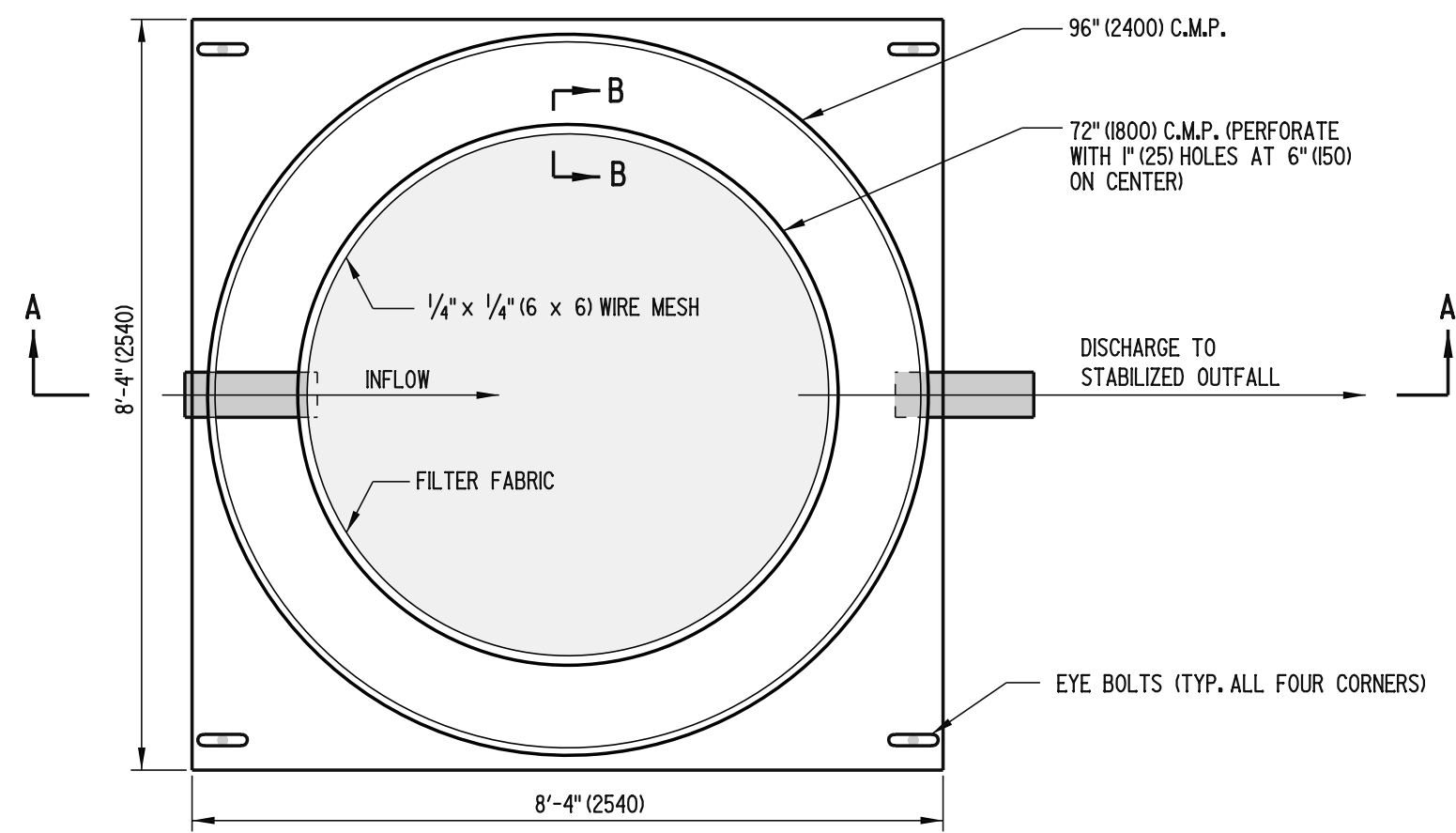


PLAN VIEW
SHALLOW WATER/MARSH APPLICATION

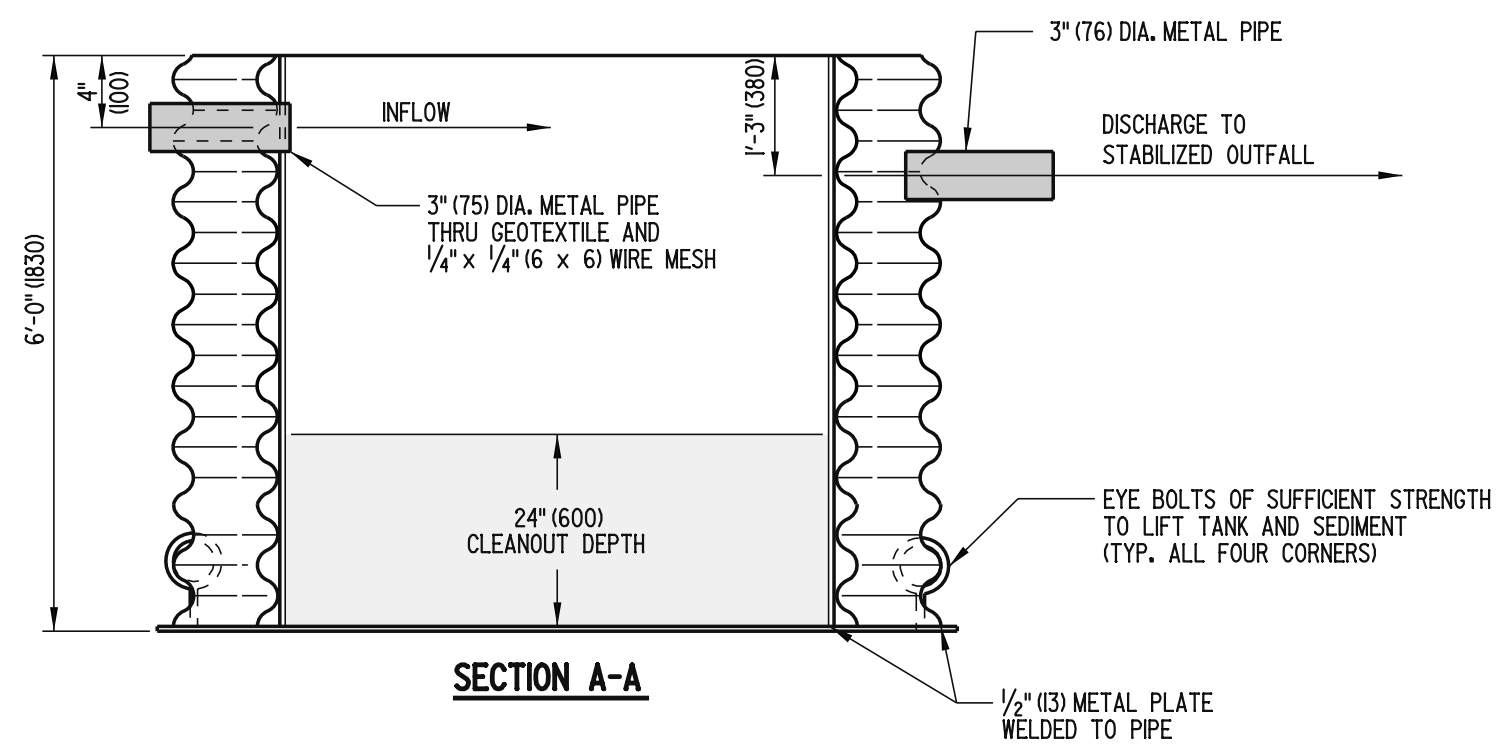
STAKED TURBIDITY CURTAIN

 DELAWARE DEPARTMENT OF TRANSPORTATION	TURBIDITY CURTAIN			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. E-23 (2005)	SHT. 2	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE

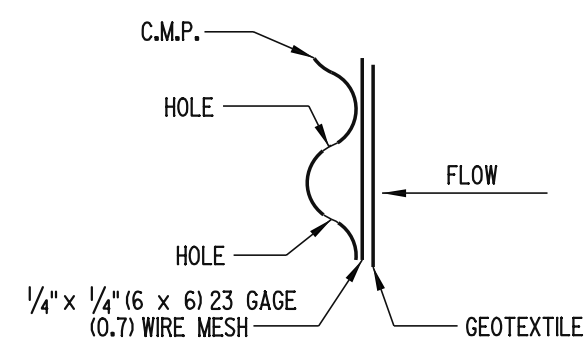
SCALE : N.T.S.



PLAN




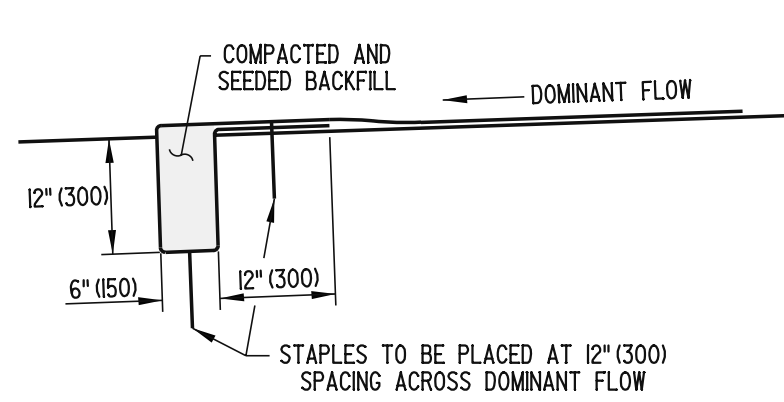
SECTION A-A



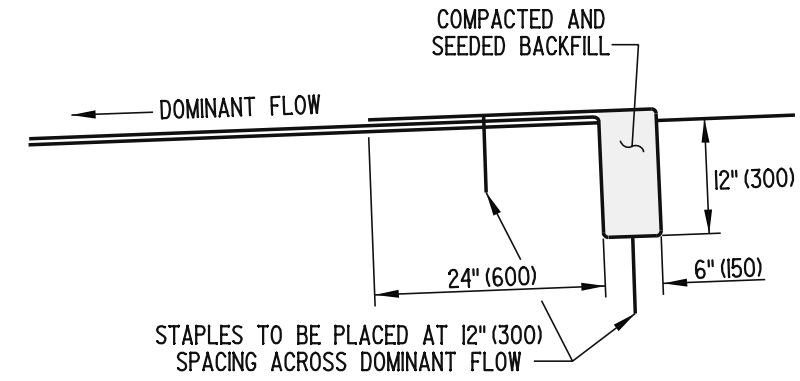
SECTION B-B

- NOTES:**
- 1). THE PORTABLE SEDIMENT TANK SHOWN MAY BE USED IN SITES WHERE SPACE IS LIMITED TO CONSTRUCT A DEWATERING BASIN.
 - 2). THE MAXIMUM PUMP DISCHARGE INTO THIS TYPICAL PORTABLE SEDIMENT TANK SHALL BE 425 GALLONS PER MINUTE (26 LITERS PER SECOND). THE FILTER FABRIC SHALL BE REPLACED WHEN THE PORTABLE SEDIMENT TANK CAN NO LONGER ALLOW THIS FLOW RATE, WHEN THERE IS A TEAR, OR WHEN DIRECTED BY THE ENGINEER.
 - 3). SEVERAL UN-CONNECTED OR CONNECTED IN PARALLEL PORTABLE SEDIMENT TANKS MAY BE USED WHEN A HIGHER FLOW RATE IS NEEDED TO DE-WATER THE JOB.
 - 4). OTHER DESIGNS MAY BE USED PROVIDED THE HYDRAULIC DESIGN IS SUBMITTED TO AND APPROVED BY THE STORMWATER ENGINEER.

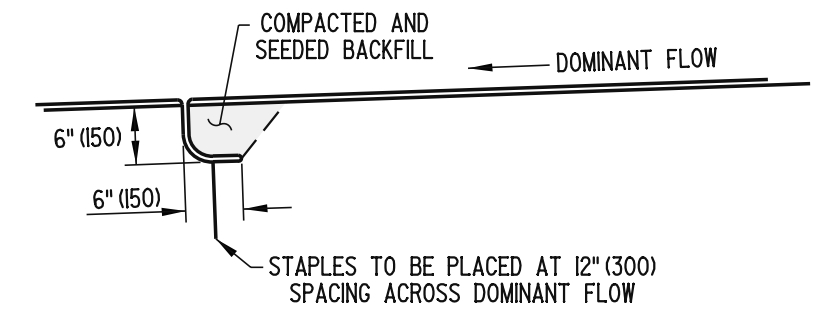
 DELAWARE DEPARTMENT OF TRANSPORTATION	PORTABLE SEDIMENT TANK			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. E-24 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



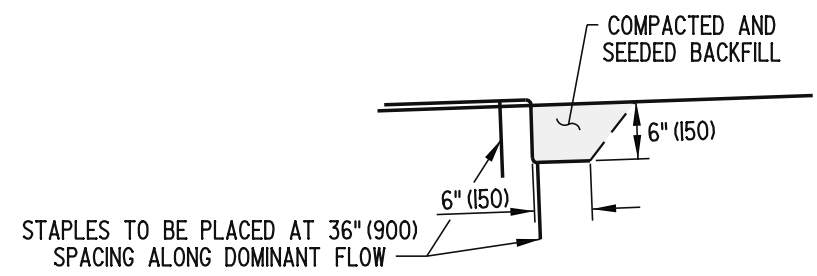
INITIAL TRENCH ANCHOR DETAIL
APPLIED AT THE DOWNSTREAM END OF DITCH



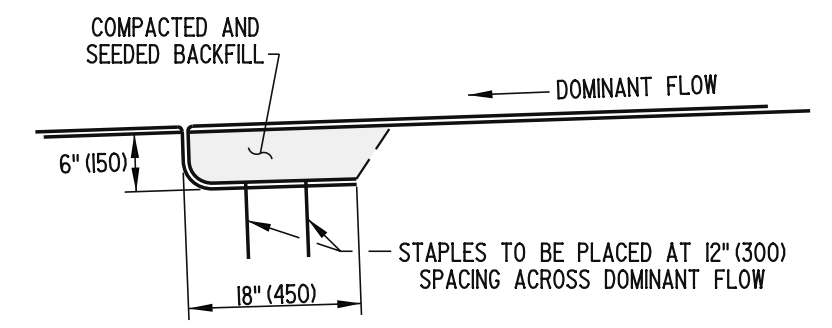
TERMINAL TRENCH ANCHOR DETAIL
APPLIED AT THE UPSTREAM END OF DITCH



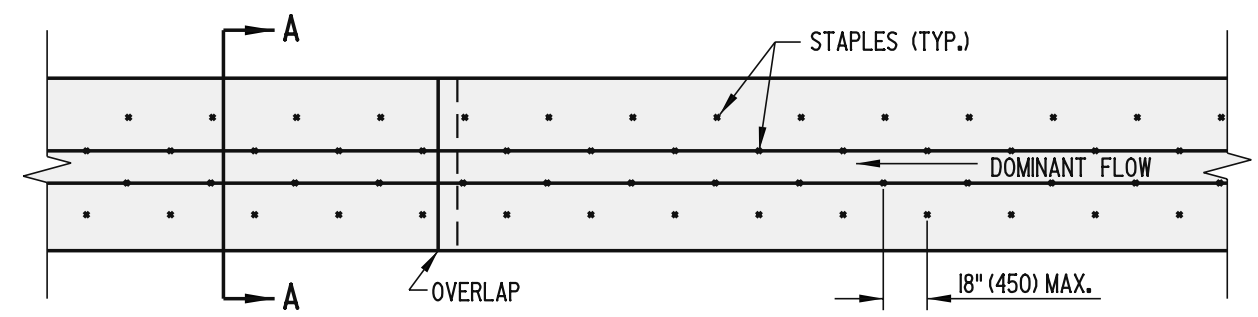
CHECK SLOT DETAIL
(AS NEEDED PER PLANS)



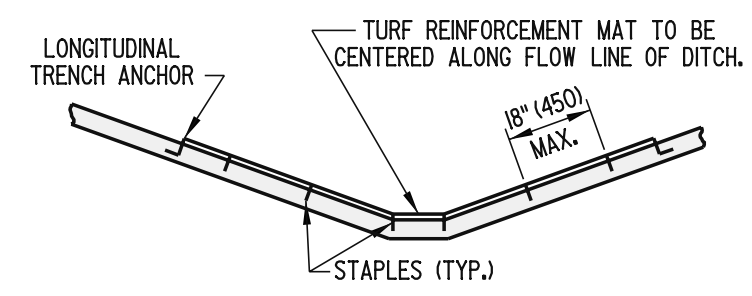
LONGITUDINAL TRENCH ANCHOR DETAIL



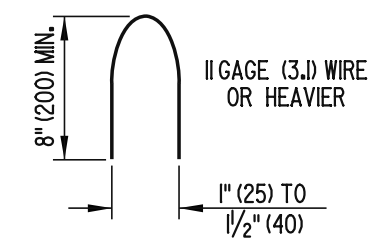
OVERLAP DETAIL



**STABILIZATION OF DITCHES
PLAN**




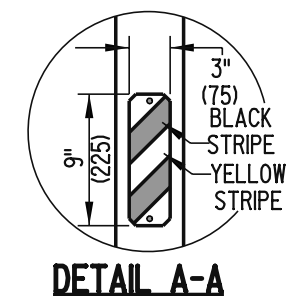
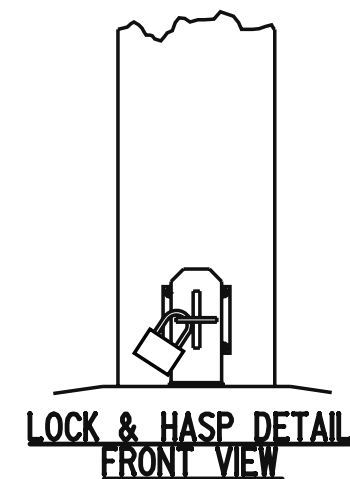
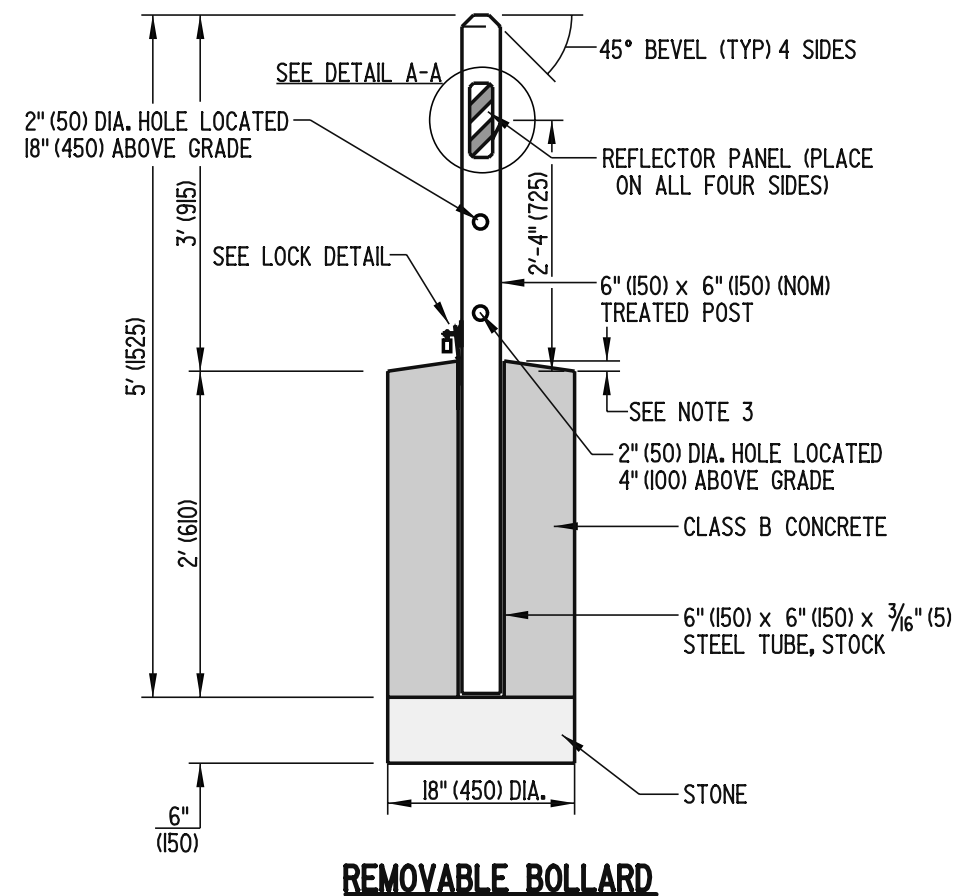
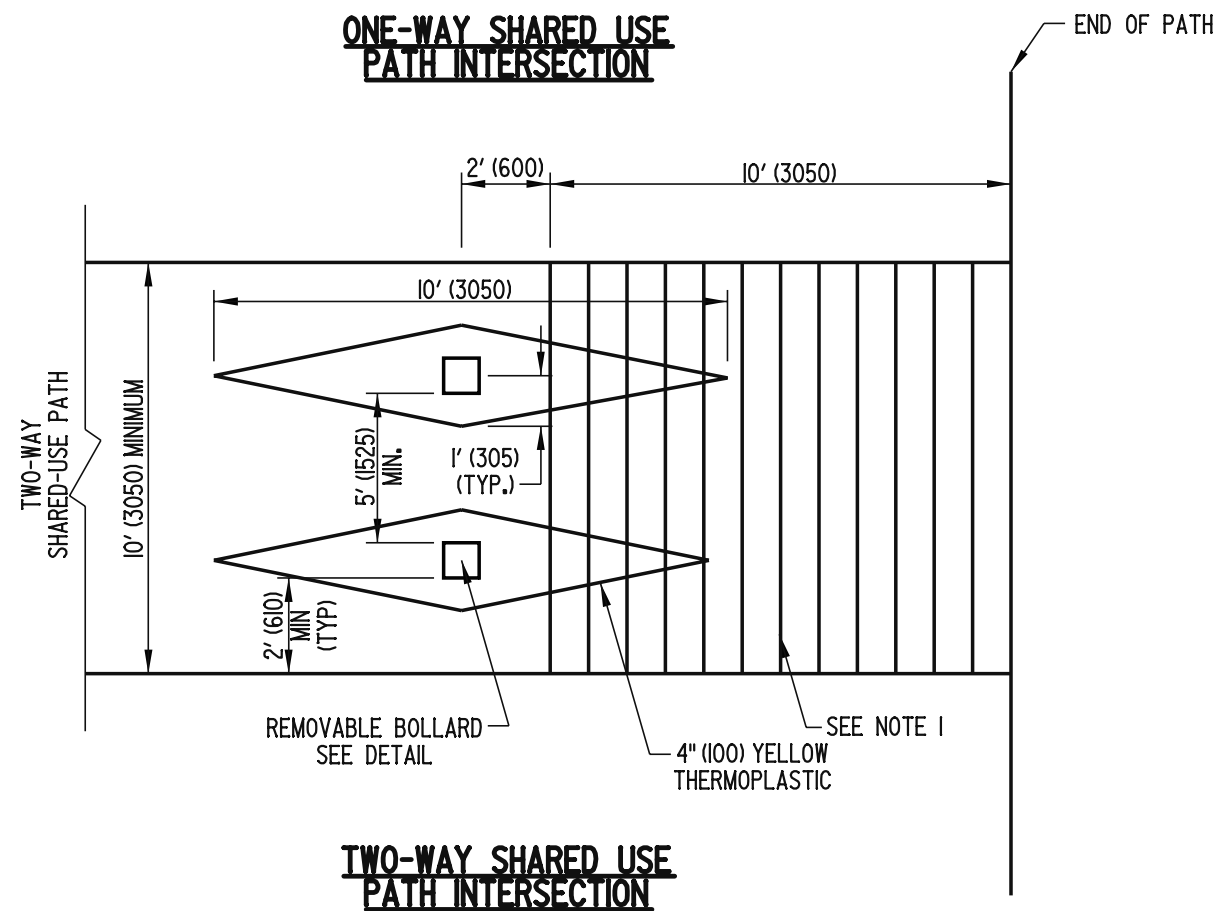
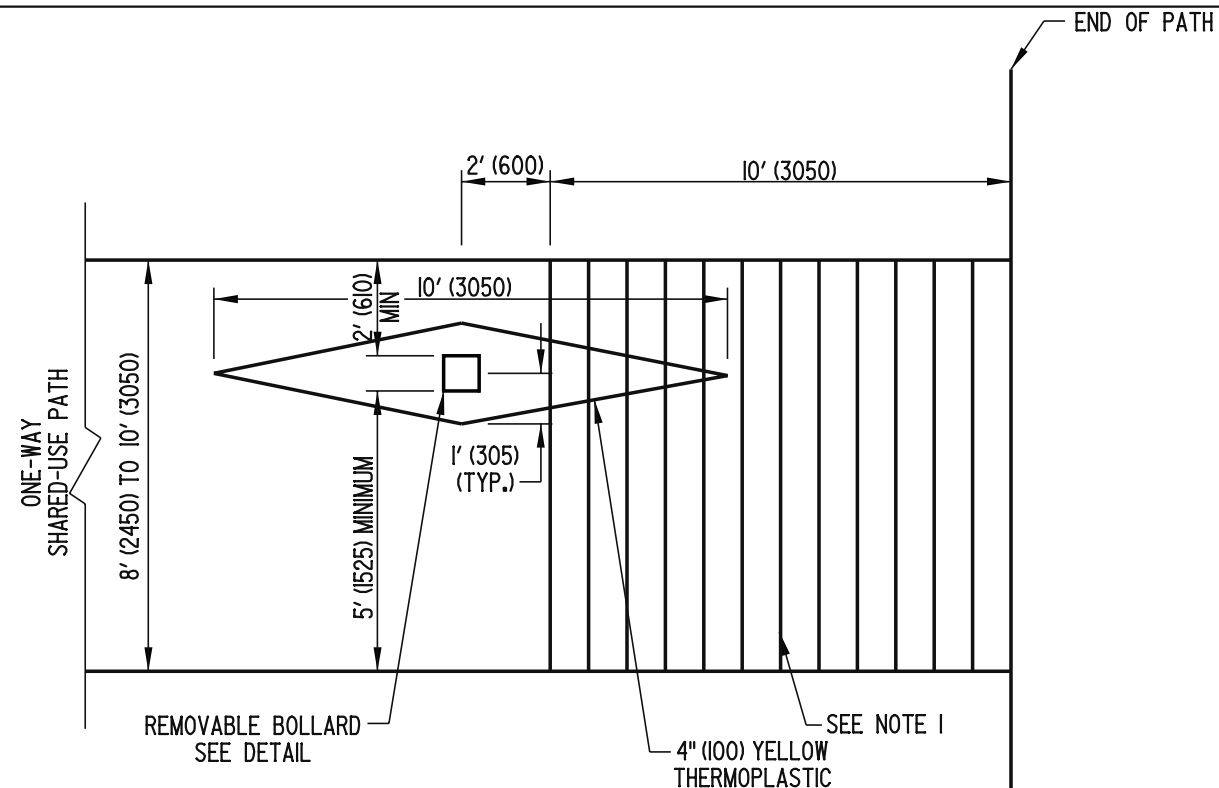
**STABILIZATION OF DITCHES
SECTION A-A**



STAPLE DETAIL

- NOTES: 1. ADDITIONAL STAPLES NOT SHOWN ARE REQUIRED AT OVERLAPS, ENDS, CHECK SLOTS AND EDGES. SEE APPROPRIATE DETAILS FOR STAPLE PLACEMENT.
2. STAPLES ARE TO BE STAGGERED.
3. TOPSOIL UNDER TURF REINFORCEMENT MAT IS TO BE TRACKED AND SEEDED.

 DELAWARE DEPARTMENT OF TRANSPORTATION	TURF REINFORCEMENT MAT APPLICATIONS			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE	
	STANDARD NO. E-25 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE	



- NOTES:

- 1). THE 4" (100) CONCRETE SHARED-USE PATH SHALL BE FINISHED TO INCLUDE A TEXTURED WARNING SURFACE BY USING A JOINT STRIKE TO PRODUCE A 1/2" (12) DEEP V-JOINT AT 6" (150) O.C. PAYMENT FOR INSTALLING THE GROOVED FINISH SHALL BE INCIDENTAL TO THE SIDEWALK CONSTRUCTION.
- 2). IF THE SHARED USE PATH ENDS AT A ROADWAY OR RAILROAD CROSSING, THEN DETECTABLE WARNING TRUNCATED DOMES 24" (600) LONG AND THE FULL WIDTH OF THE PATH SHALL BE INSTALLED. SEE SHEET C-2.
- 3). STEEL TUBE TO EXTEND 1/2" (13) ABOVE GROUND WITH CONCRETE TO SLOPE AWAY FROM TUBE TO KEEP WATER AND SEDIMENT FROM DRAINING INTO TUBE.
- 4). BOLLARDS ARE NOT REQUIRED FOR A SHARED-USE PATH LESS THAN 8' (2450) WIDE.
- 5.) SHAVE THE POST AS NECESSARY SO THAT IT WILL FIT IN THE STEEL TUBE.



BOLLARD DETAILS

STANDARD NO. M-3 (2005)

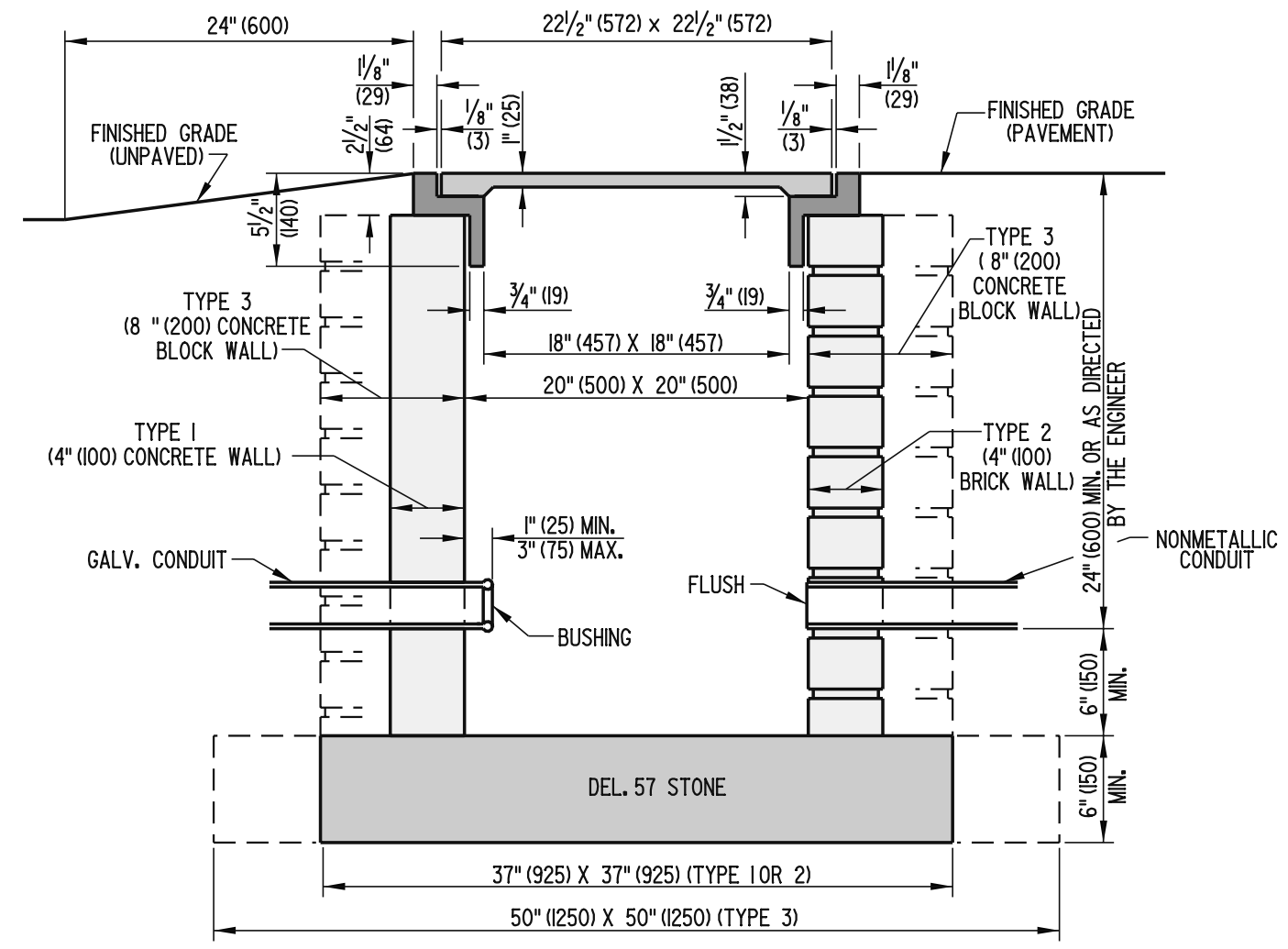
SHT. 1 OF 1

APPROVED

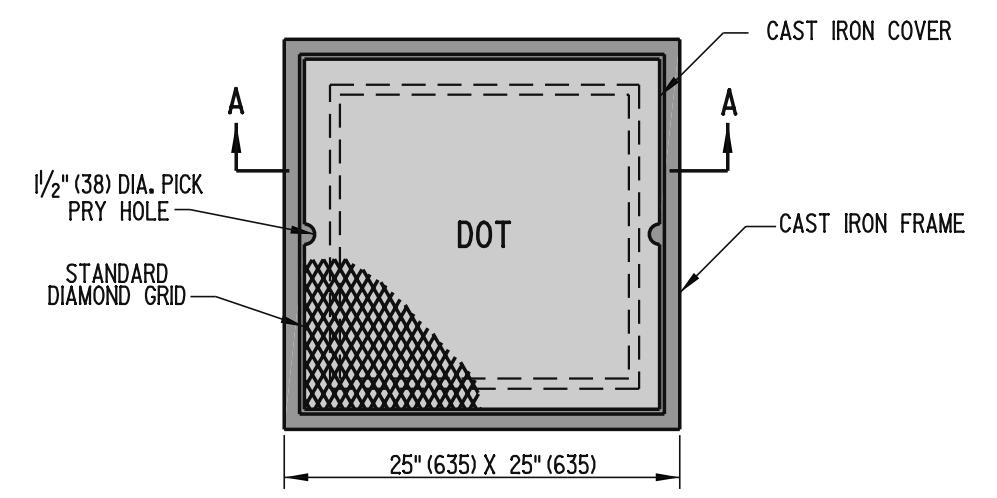
Carolann Wick
CHIEF ENGINEER

RECOMMENDED

DESIGN ENGINEER



SECTION A-A



PLAN VIEW

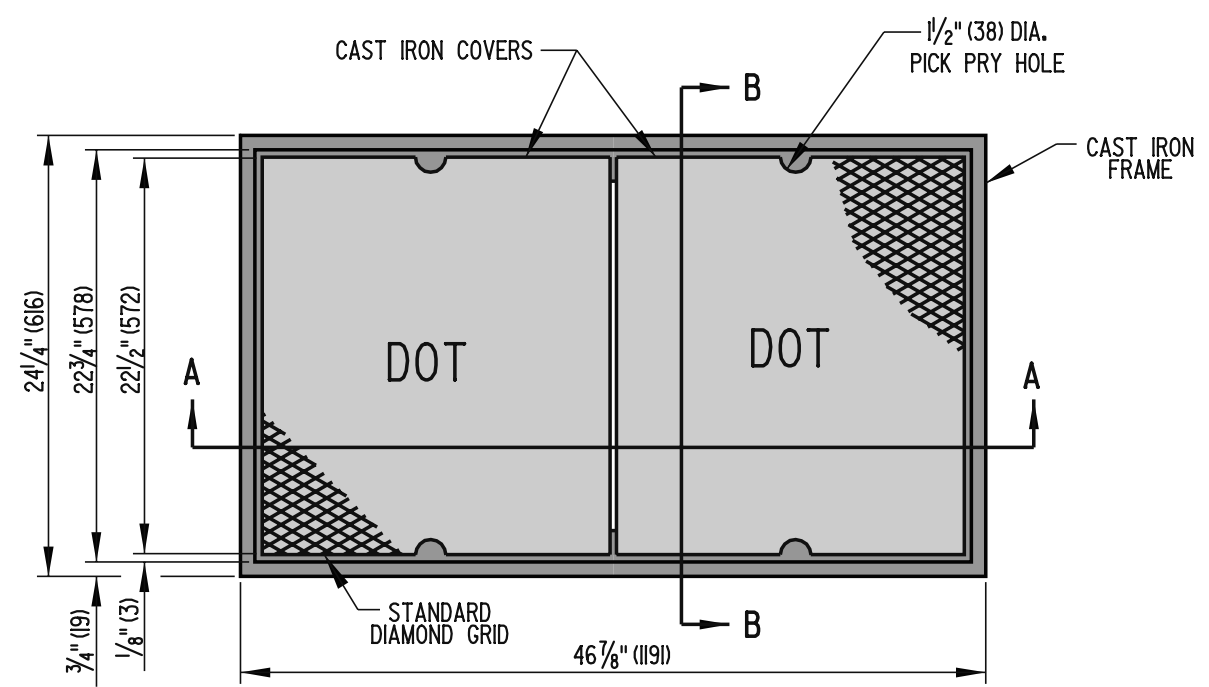
- NOTES:**
1. TYPE 1 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" (125) DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.
 2. TYPE 2 AND TYPE 3 CONDUIT JUNCTION WELLS SHALL BE BRICK AND WILL CONFORM TO STANDARD SPECIFICATIONS FOR BRICK MASONRY. JOINTS SHALL BE CONCAVE TYPE. TYPE 2 WALLS WILL BE A NOMINAL 4" (100) THICK. TYPE 3 WALL WILL BE A NOMINAL 8" (200) THICK.
 3. TYPE 2 AND TYPE 3 CONDUIT JUNCTION WELLS SHALL NOT BE PLACED UNDER ANY TYPE OF PAVEMENT.
 4. ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELL.



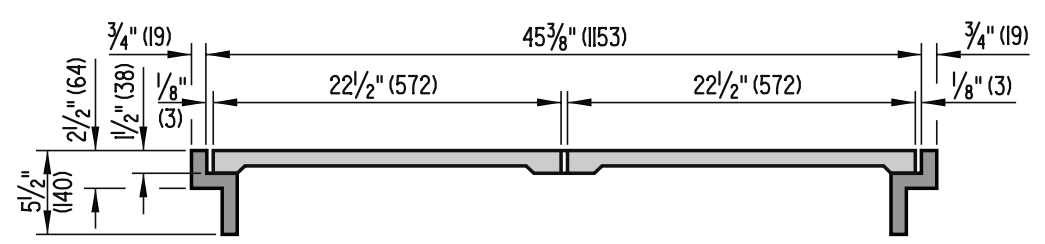
DELAWARE
DEPARTMENT OF TRANSPORTATION

CONDUIT JUNCTION WELL, TYPES 1, 2, AND 3			
STANDARD NO.	T-1 (2005)	SHT.	1 OF 1

APPROVED *Carolann Wick* 12/15/05
CHIEF ENGINEER DATE
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE

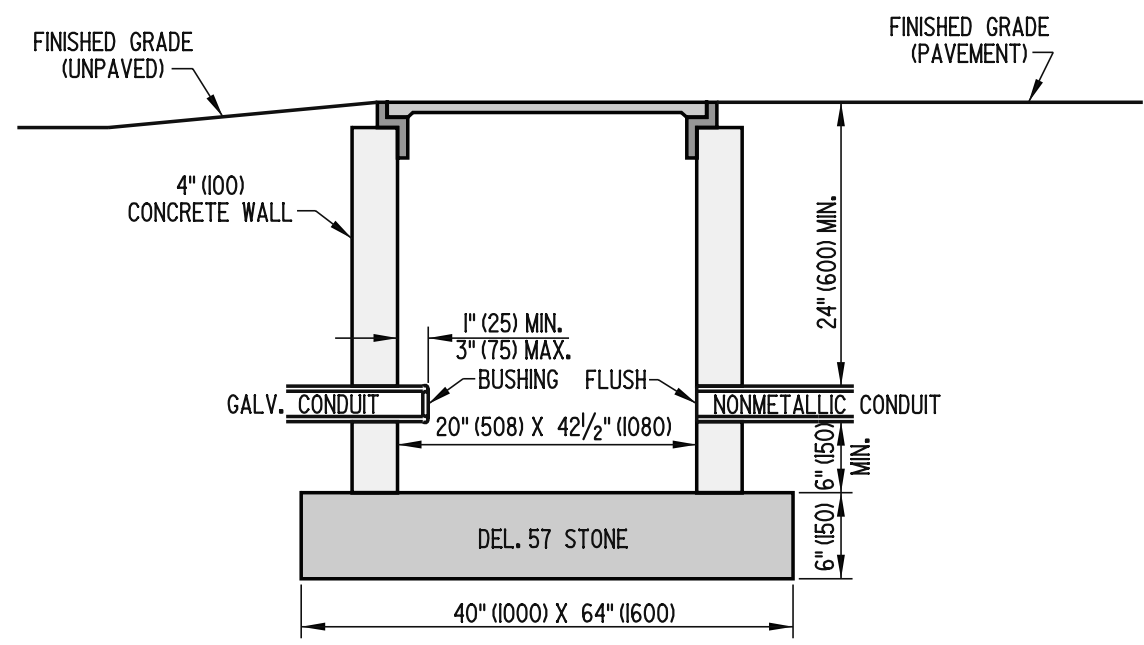


PLAN VIEW




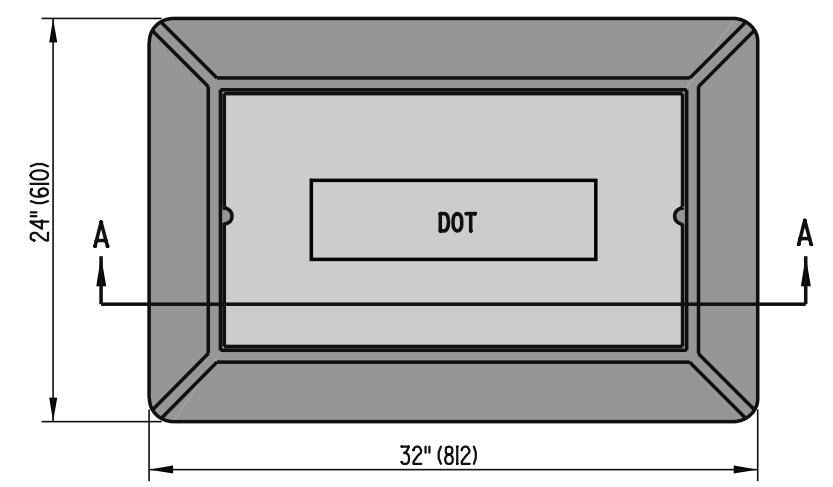
SECTION A-A

- NOTES:**
- 1). TYPE 4 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" (125) DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.
 - 2). ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELL.



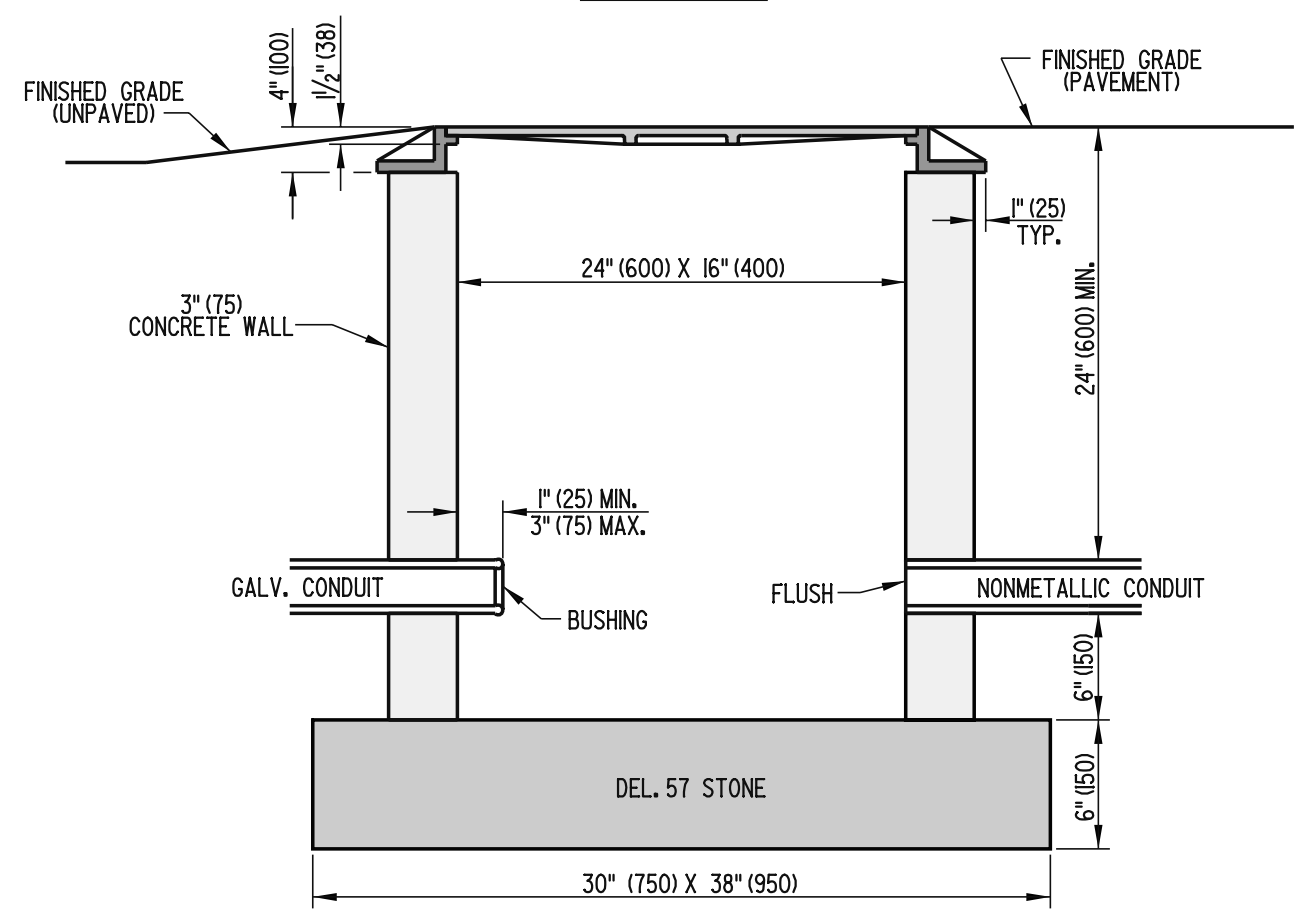
SECTION B-B

 DELAWARE DEPARTMENT OF TRANSPORTATION	CONDUIT JUNCTION WELL, TYPE 4			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-2 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE




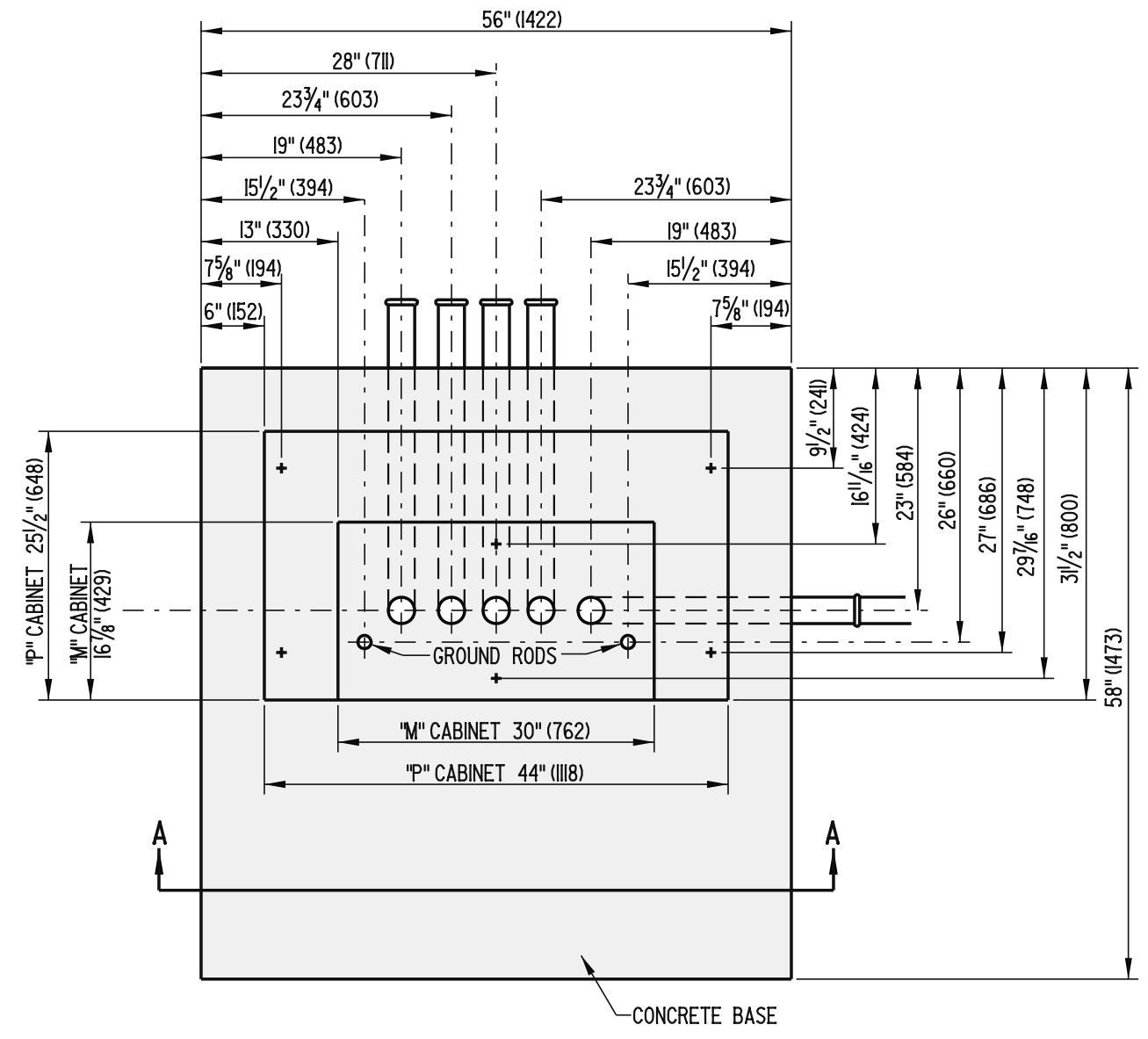
PLAN VIEW

- NOTES: 1). TYPE 5 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" (125) DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.
- 2). ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM CONDUIT JUNCTION WELL.

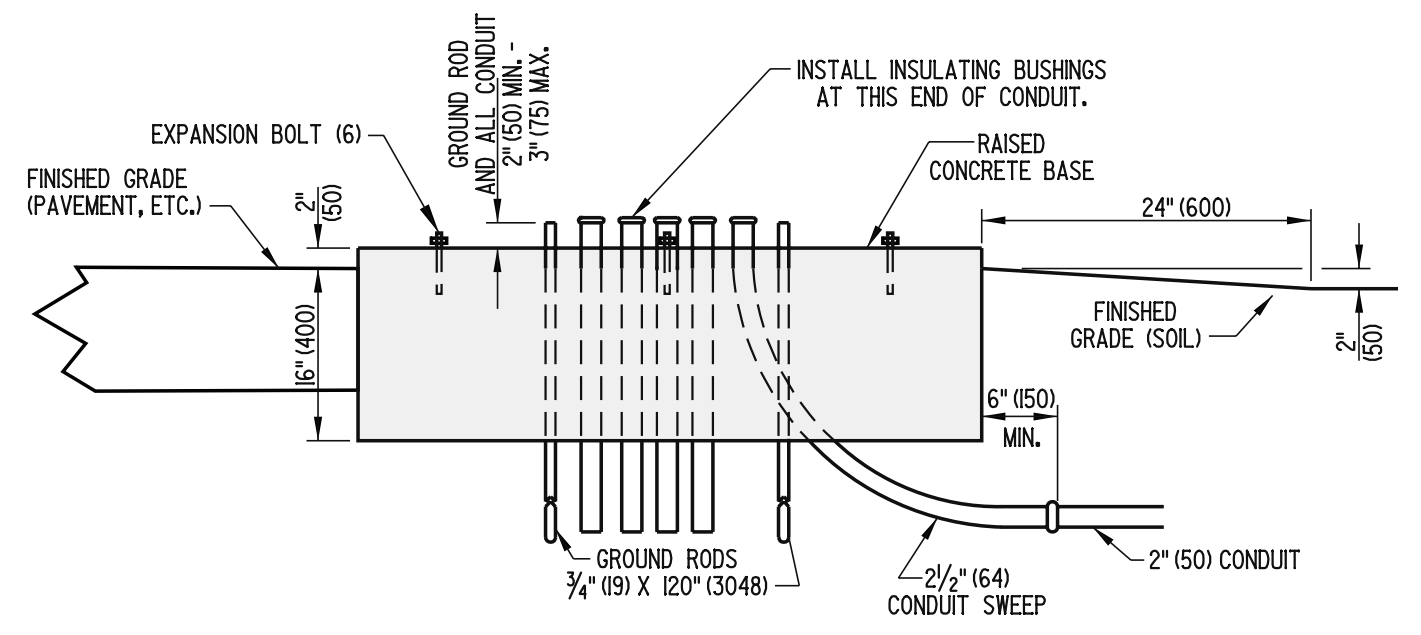


SECTION A-A

 DELAWARE DEPARTMENT OF TRANSPORTATION	CONDUIT JUNCTION WELL, TYPE 5			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-3 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE




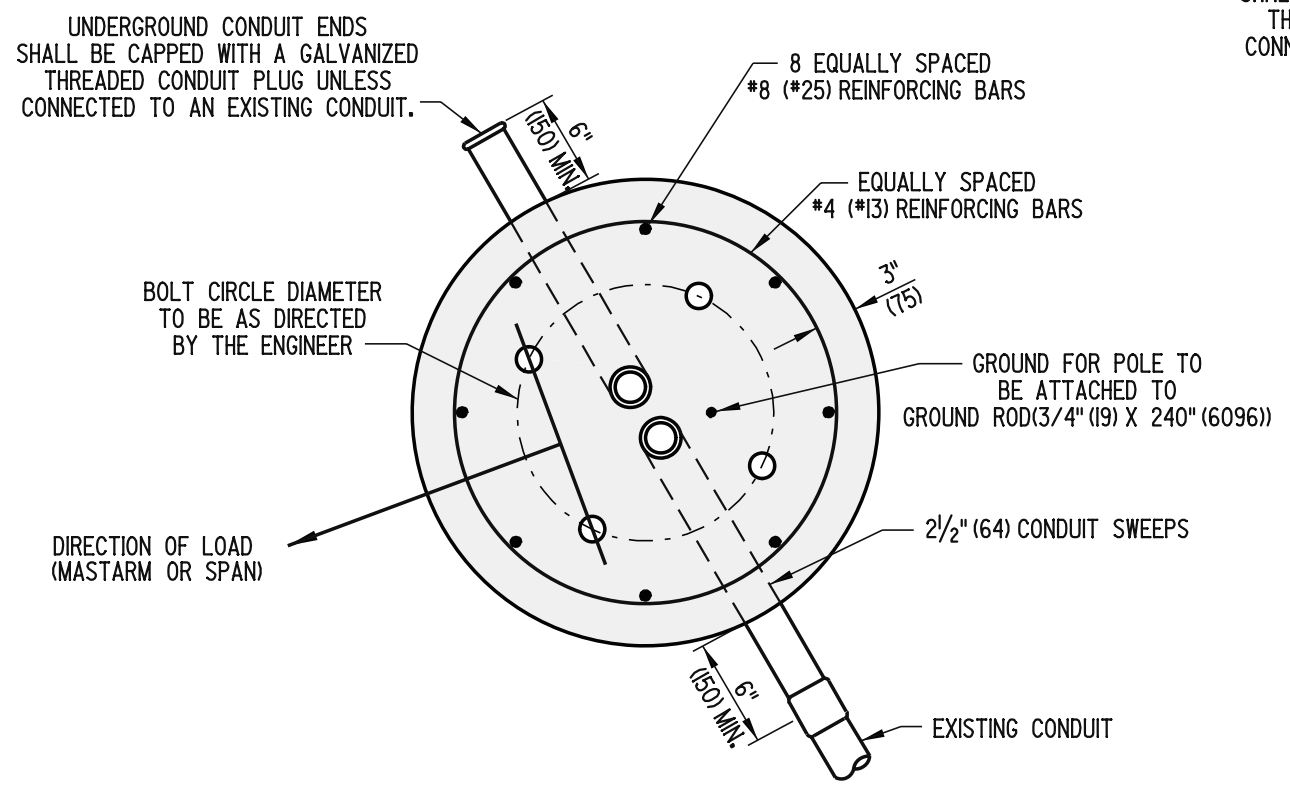
PLAN VIEW



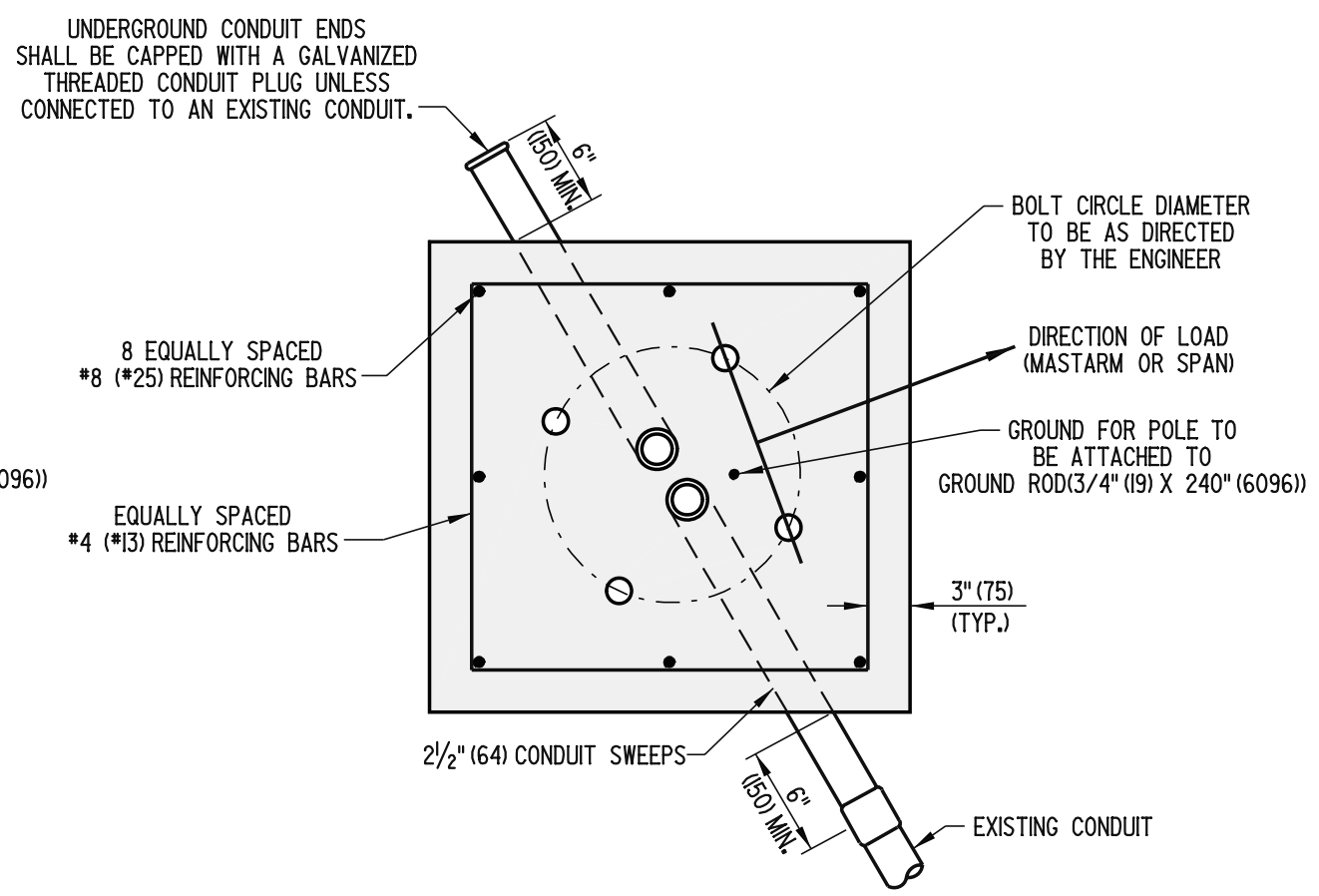
SECTION A-A

CONCRETE CABINET BASE

 DELAWARE DEPARTMENT OF TRANSPORTATION	CABINET BASES (TYPES 'M' & 'P')			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-4 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE




ROUND BASE

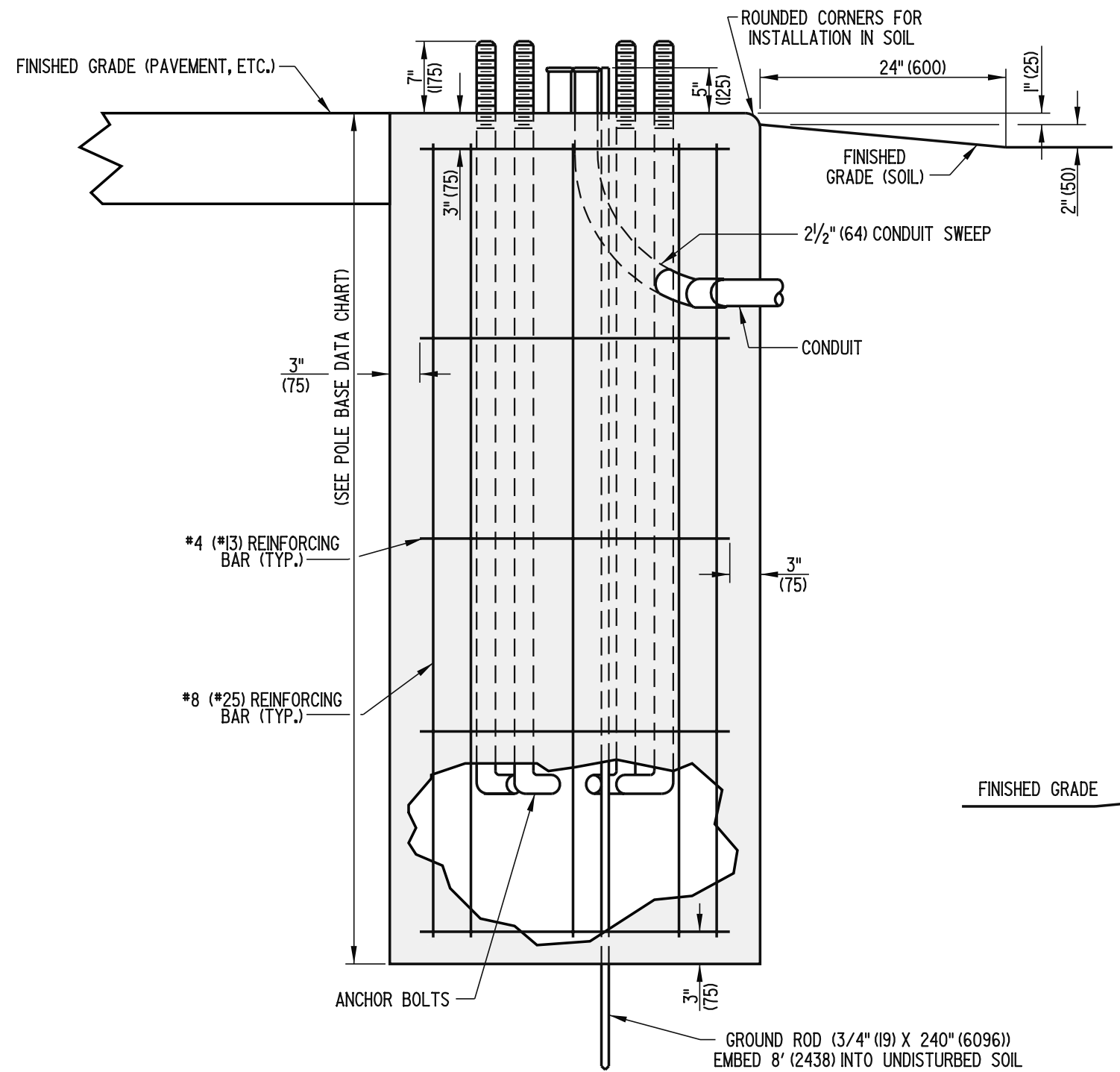


SQUARE BASE

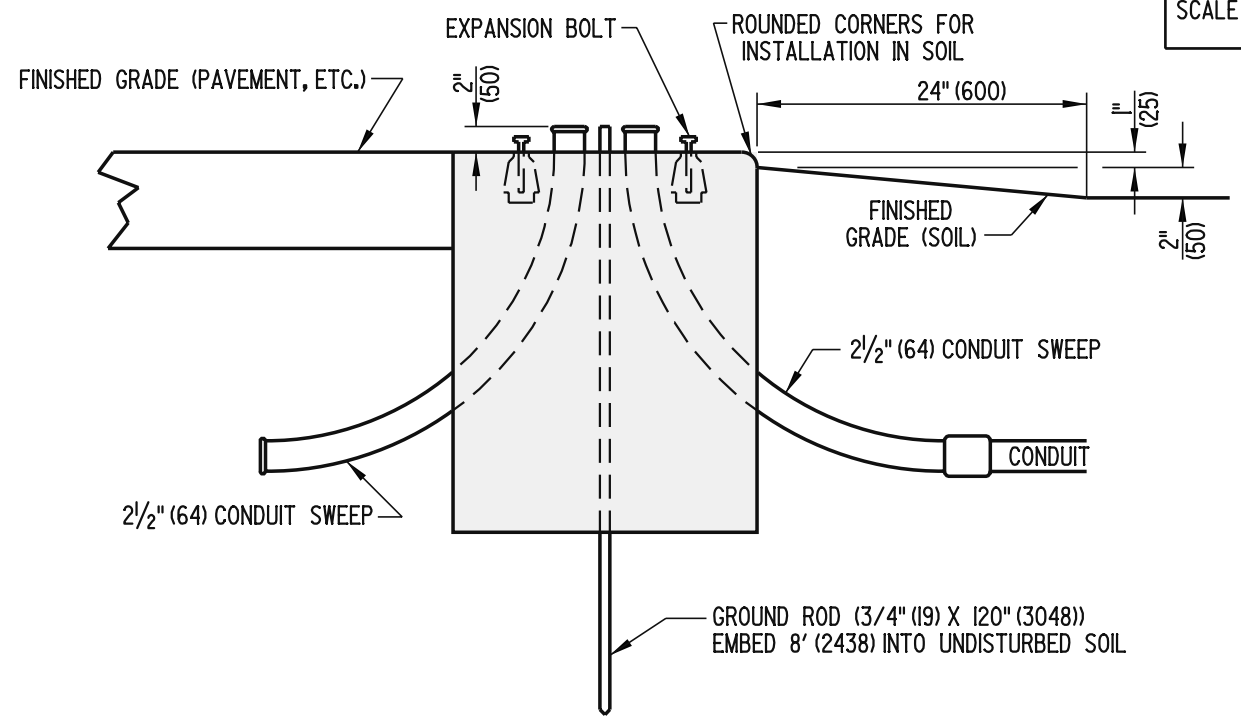
NOTE: BASE DEPENDENT ON POLE AND EQUIPMENT TO BE ATTACHED.

 DELAWARE DEPARTMENT OF TRANSPORTATION	POLE BASES			APPROVED <i>Carolann Wick</i> 12/5/05 <small>CHIEF ENGINEER DATE</small>
	STANDARD NO. T-5 (2005)	SHT. 1	OF 3	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 <small>DESIGN ENGINEER DATE</small>

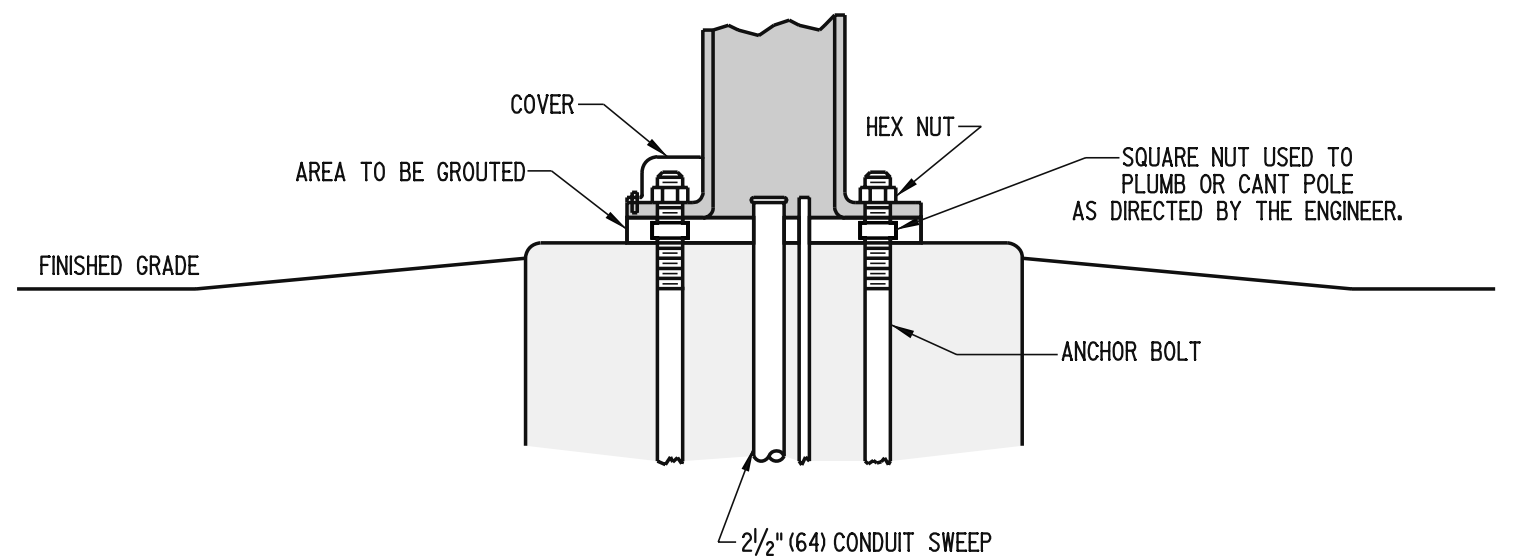
SCALE : N.T.S.



TYPICAL SECTION (BASES 1,2,2A,2B,3,3A,3B, AND 7)




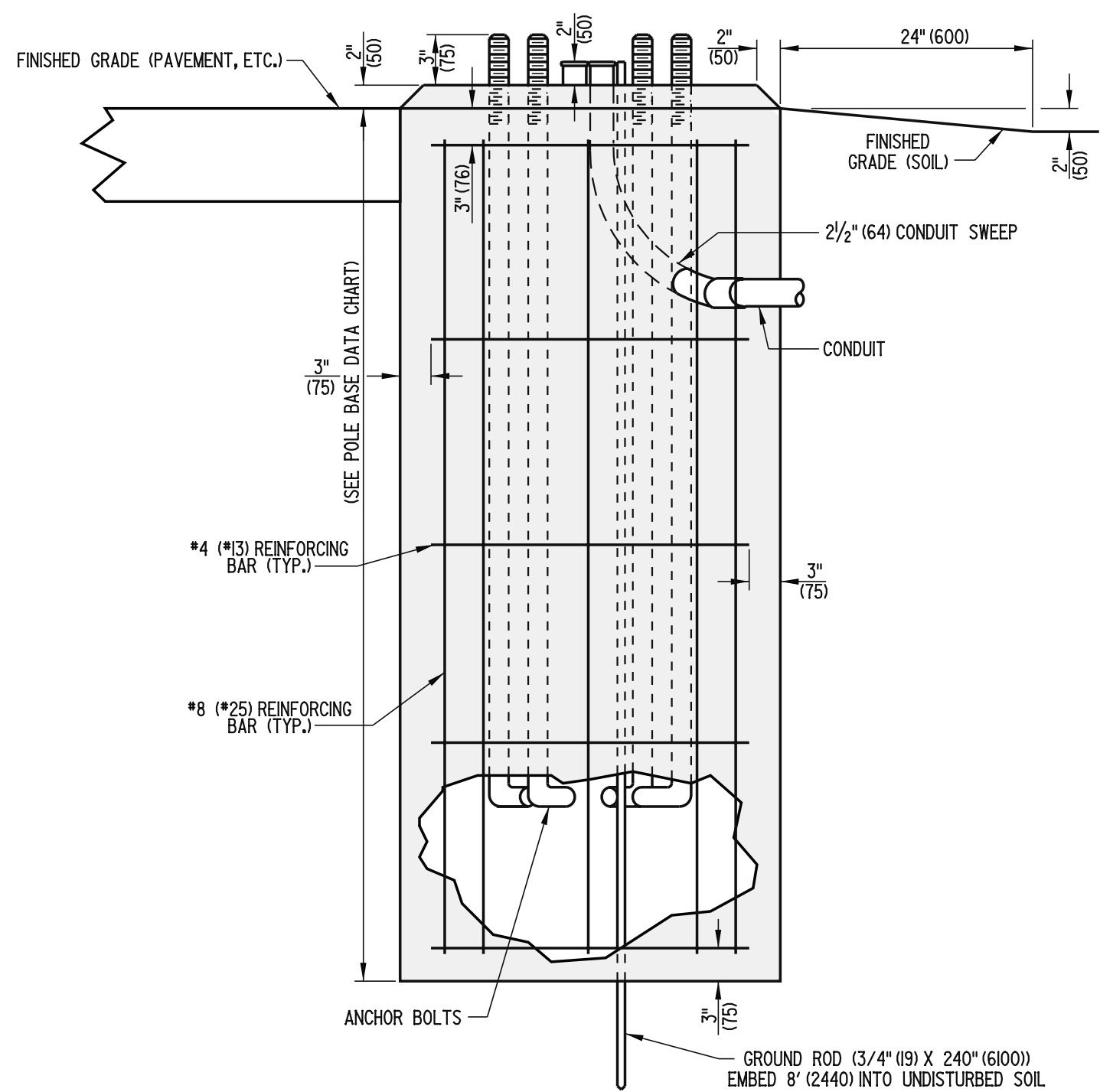
TYPICAL SECTION (BASE 4)



TYPICAL INSTALLATION (BASES 1,2,2A,2B,3,3A,3B,4, AND 7)

- NOTES:**
- 1.) PLACE 2 EACH 6" (150) LONG x 1/2" (13) DIA. P.V.C., SCHEDULE 40 (TYP) VENTS IN THE GROUT AS DIRECTED IN THE FIELD BY ENGINEER.
 - 2.) SEE POLE BASE DATA CHART FOR POLE BASE DIMENSIONS.

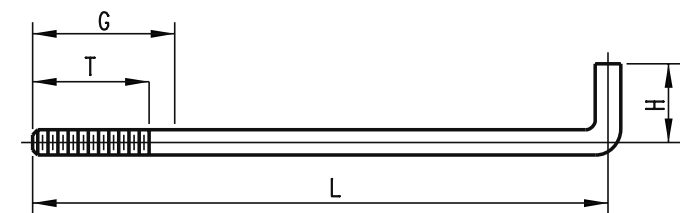
 DELAWARE DEPARTMENT OF TRANSPORTATION	POLE BASES			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-5 (2005)	SHT. 2	OF 3	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



TYPICAL SECTION (BASES 5 AND 6)

POLE BASE DATA CHART				
POLE BASE TYPE #	DIAMETER	DEPTH *	#4 (#13) HORIZONTAL REINFORCING BARS	#8 (#25) VERTICAL REINFORCING BARS
1	36" (915)	7' (2150)	5	8
2	36" (915)	10' (3050)	6	8
2A	48" (1220)	8' (2450)	5	8
2B	60" (1525)	7' (2150)	5	8
3	48" (1220)	10' (3050)	6	8
3A	60" (1525)	9' (2750)	6	8
3B	72" (1830)	7' (2150)	5	8
4	24" (610)	2'-4" (725)	NONE	NONE
5	36" (915)	4' (1225)	NONE	NONE
6	24" (610)	6' (1850)	4	8
7	48" (1220)	13'-4" (4000)	7	8

* - ADDITIONAL DEPTH FOR POLE BASE EXTENSION, IF REQUIRED, TO BE DETERMINED BY TRAFFIC ENGINEERING AND MANAGEMENT (TEAM) FIELD REPRESENTATIVE.

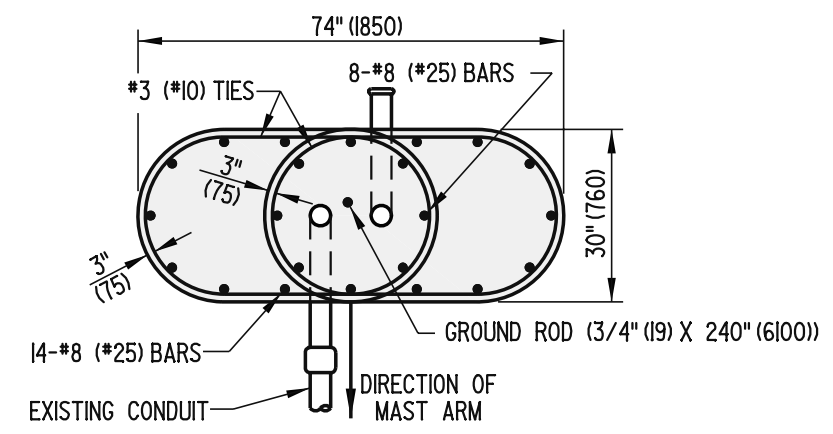
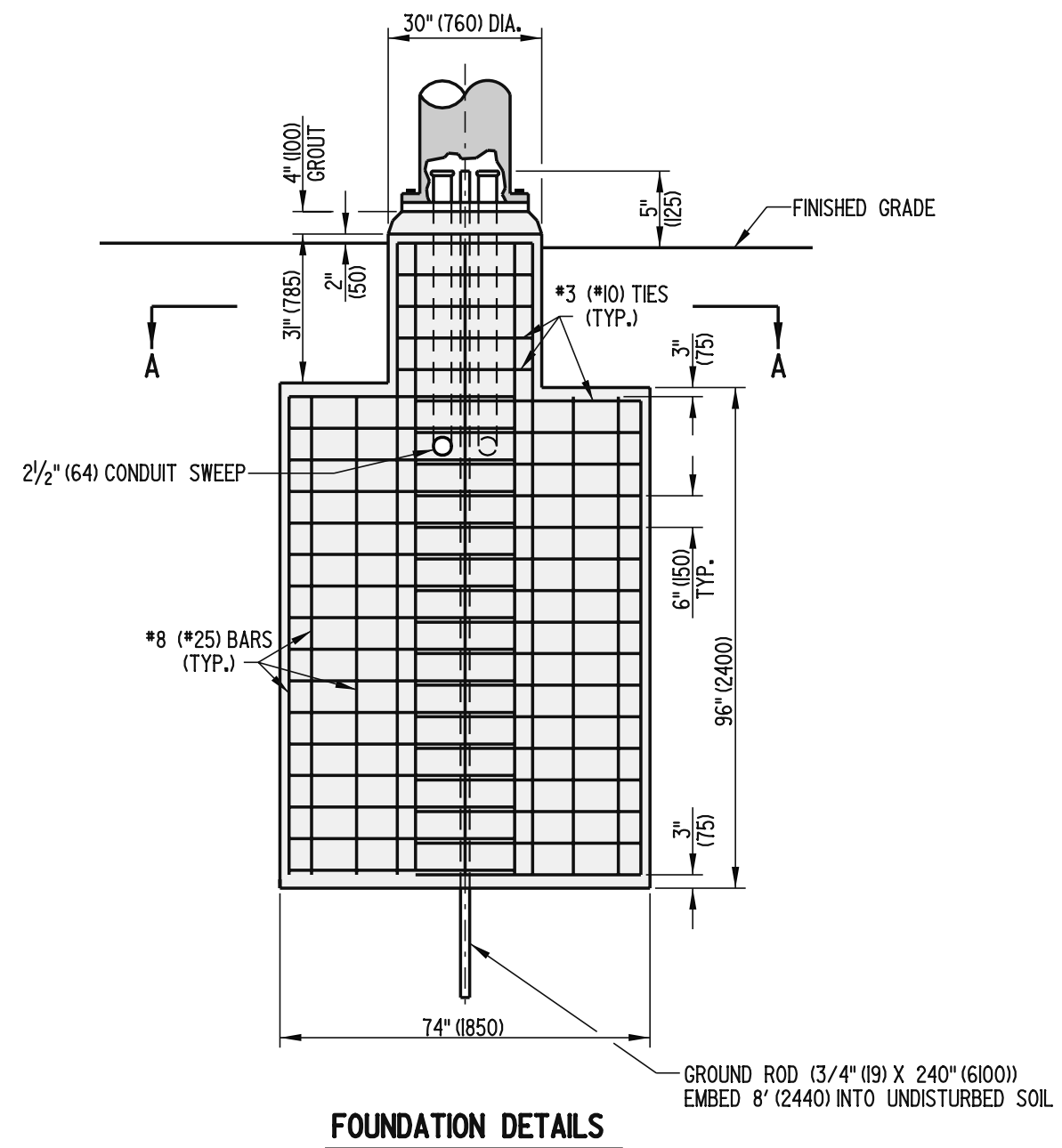


G = GALVANIZED PORTION
T = THREAD LENGTH
L = LENGTH OF ROD
H = HEIGHT OF ROD

NOMINAL BOLT SIZE	L	H	T	G
1" (25) X 40" (1025)	36" (925)	4" (100)	6" (150)	8" (200)
1 1/4" (32) X 48" (1225)	42" (1075)	6" (150)	8" (200)	10" (250)
1 1/2" (38) X 60" (1525)	54" (1375)	6" (150)	10" (250)	12" (305)
1 3/4" (45) X 90" (2285)	84" (2135)	6" (150)	10" (250)	20" (500)
2" (51) X 90" (2285)	82" (2085)	8" (200)	8" (200)	18" (455)

ANCHOR BOLT DATA CHART AND DETAILS

NOTE: ANCHOR BOLTS FOR POLE BASE TYPE 7 SHALL CONFORM TO THE CCTV POLE MANUFACTURER'S SPECIFICATIONS.



SECTION A-A

- NOTES:**
1. UNDERGROUND CONDUIT ENDS SHALL BE CAPPED WITH A GALVANIZED THREADED CONDUIT PLUG UNLESS CONNECTED TO AN EXISTING CONDUIT.
 2. PLACE 2 EACH 6" (150) X 1/2" (13) P.V.C., SCHEDULE 40 (TYP) VENTS IN THE GROUT AS DIRECTED IN THE FIELD BY THE ENGINEER.

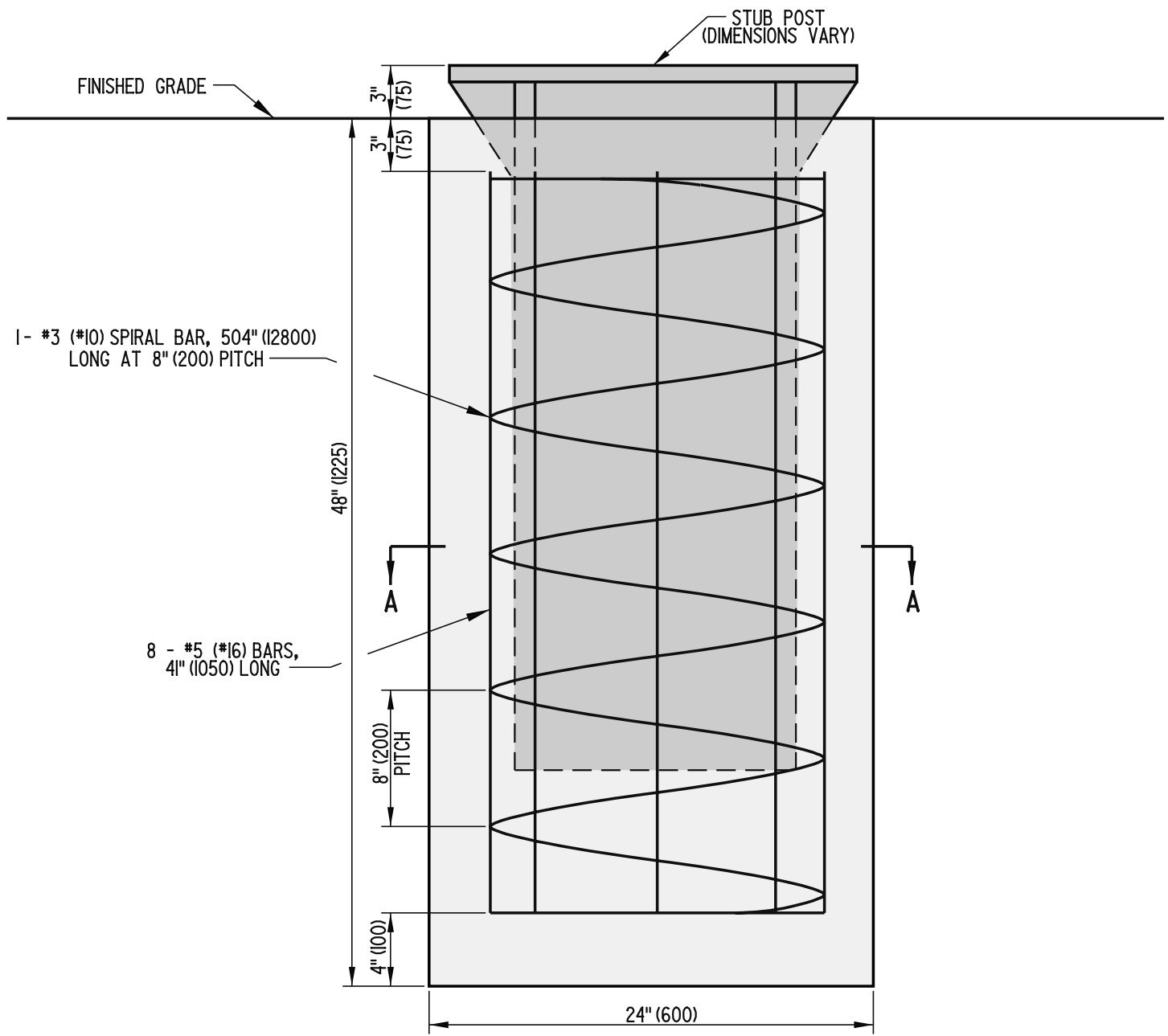


DELAWARE
DEPARTMENT OF TRANSPORTATION

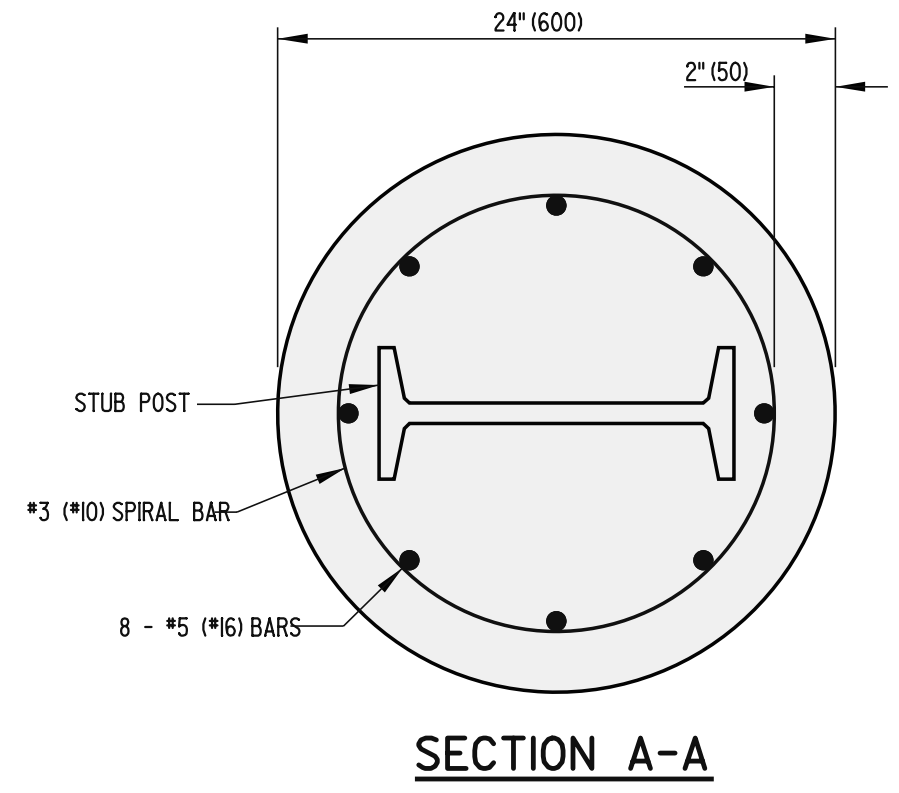
SPECIAL POLE BASE			
STANDARD NO.	T-6 (2005)	SHT.	1 OF 1


APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE

RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE

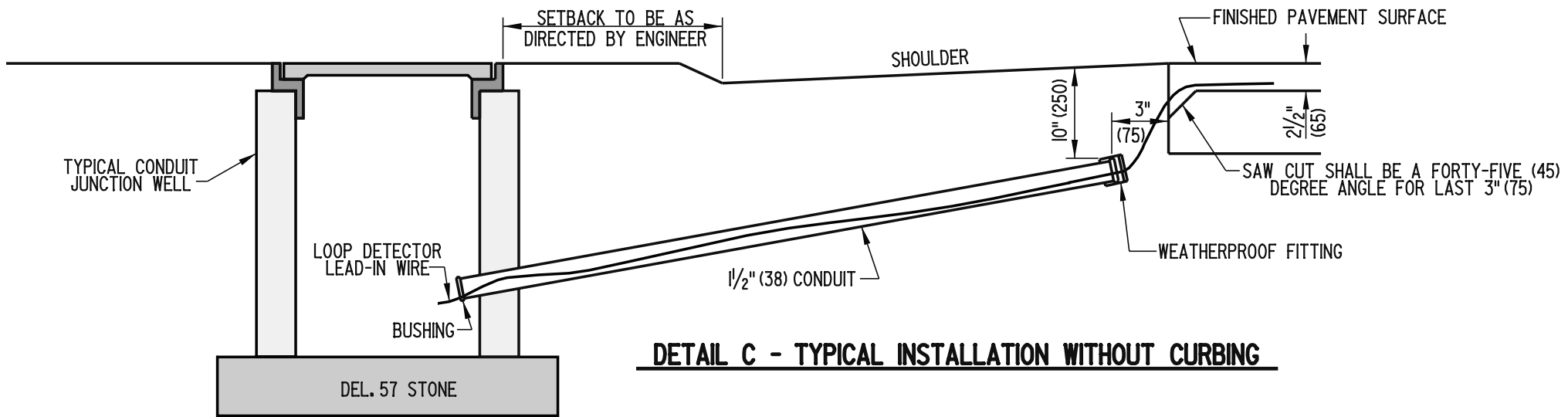
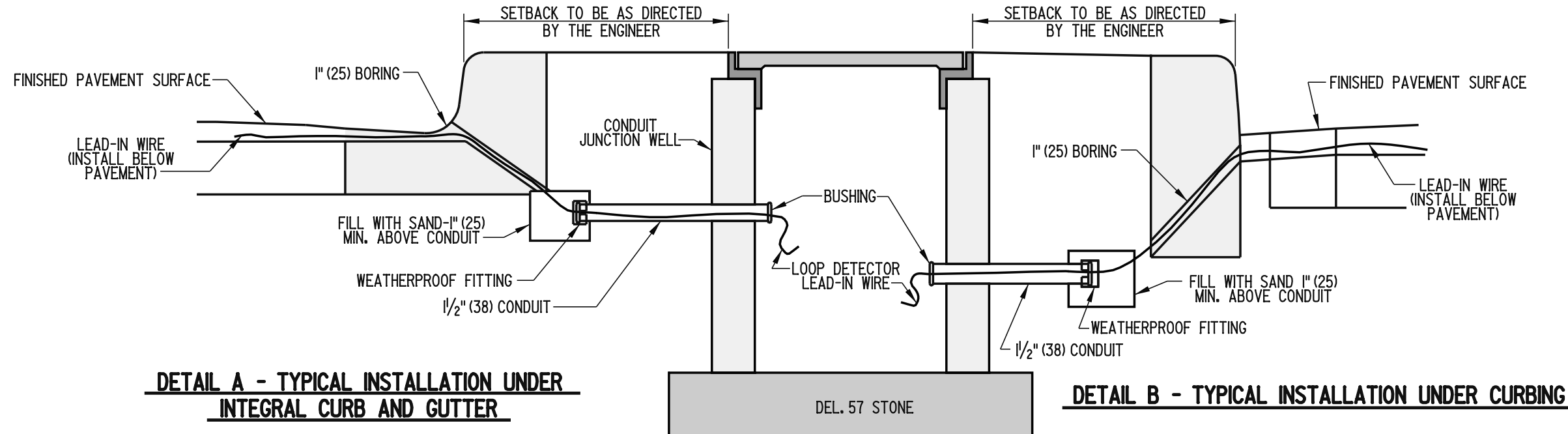



NOTES: 1). STUB POST TO BE SUPPLIED BY THE DEPARTMENTS TRAFFIC, ENGINEERING, AND MANAGEMENT SECTION.

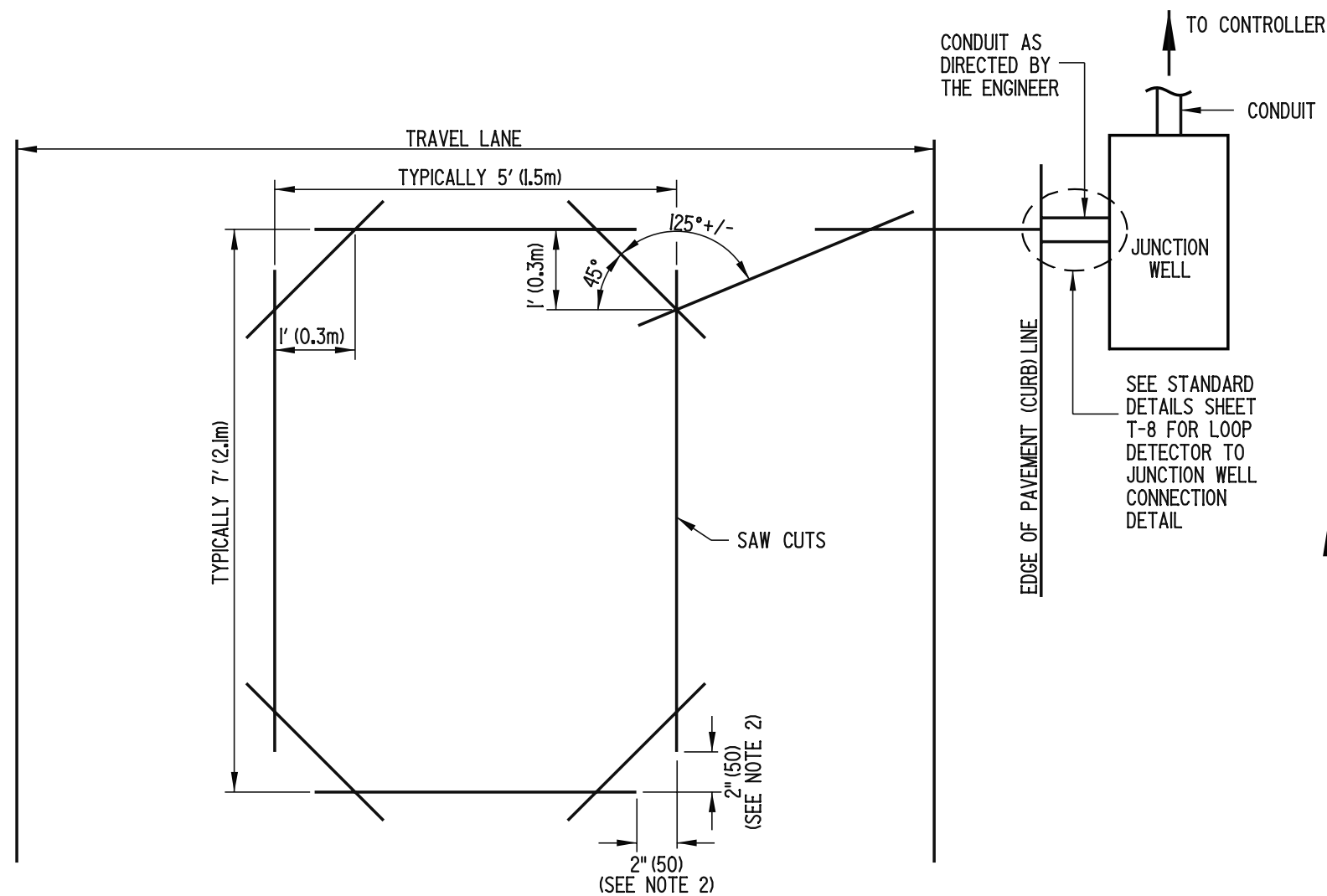


 DELAWARE DEPARTMENT OF TRANSPORTATION	SIGN FOUNDATION			APPROVED <i>Carolann Wick</i> CHIEF ENGINEER	12/5/05 DATE
	STANDARD NO. T-7 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> DESIGN ENGINEER	11/29/05 DATE

- NOTES:** 1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE CONDUIT AGAINST ANY POSSIBLE DAMAGE IN PAVING OPERATIONS.
2. THE WEATHERPROOF FITTING SHALL CONSIST OF A GALVANIZED 1/2" (38) COUPLING CONTAINING A STEEL THREADED REDUCING BUSHING (1/2" (38) TO 3/4" (19)) AND A 3/4" (19) WATERTIGHT CONNECTOR FOR SERVICE ENTRANCE CABLE.
3. THE LEAD-IN WIRE SHALL BE RUN THROUGH THE RUBBER OF THE WEATHERPROOF FITTING.



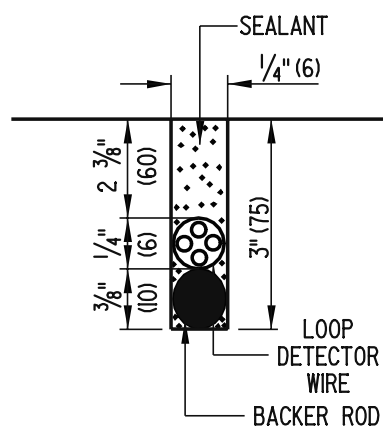
 DELAWARE DEPARTMENT OF TRANSPORTATION	LOOP DETECTOR TO CONDUIT JUNCTION WELL CONNECTION			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-8 (2005)	SHT. 1	OF 1	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



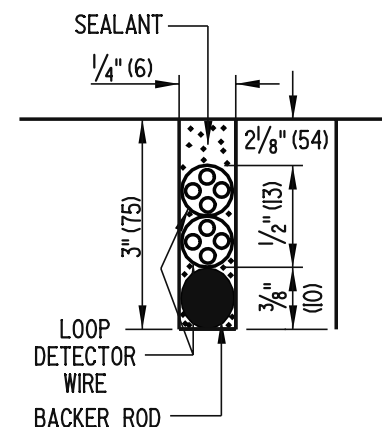
WIRE SLOT CONSTRUCTION

NOTES:

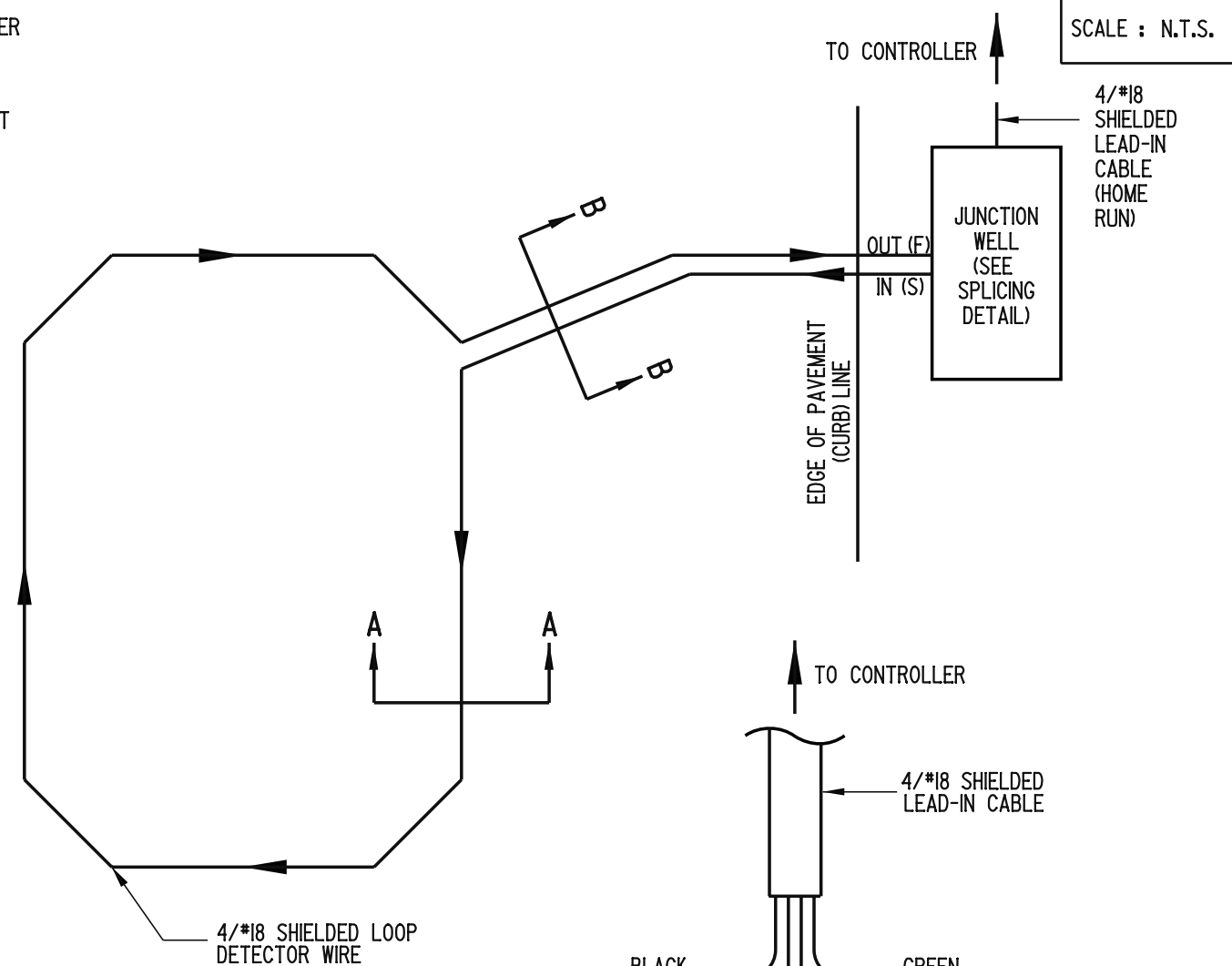
- 1). SAW CUTS FOR WIRE SLOT CONSTRUCTION SHALL BE EXTENDED BEYOND THE CORNERS SO THAT THE SLOT IS FULL DEPTH AT TURN POINTS. A FORTY-FIVE (45) DEGREE ANGLE SHALL BE CUT 12" (300) BACK FROM THE POINT OF THE EXTENDED CORNER.
- 2). THE LONGITUDINAL / TRANSVERSE CUT SHALL BE STOPPED APPROXIMATELY 2" (50) FROM THE CORNER TO PREVENT THE TRIANGULAR PORTION OF THE PAVEMENT FROM BREAKING.
- 3). A MAXIMUM OF TWO LOOP DETECTORS CAN BE SPLICED TO ONE LEAD-IN CABLE, THE DETAIL ILLUSTRATES THE METHOD OF SPLICING TWO LOOP DETECTORS (LOOP #1 AND LOOP #2) TO A LEAD-IN CABLE.
- 4). LOOP DETECTOR SHALL BE CENTERED IN TRAVEL LANE.



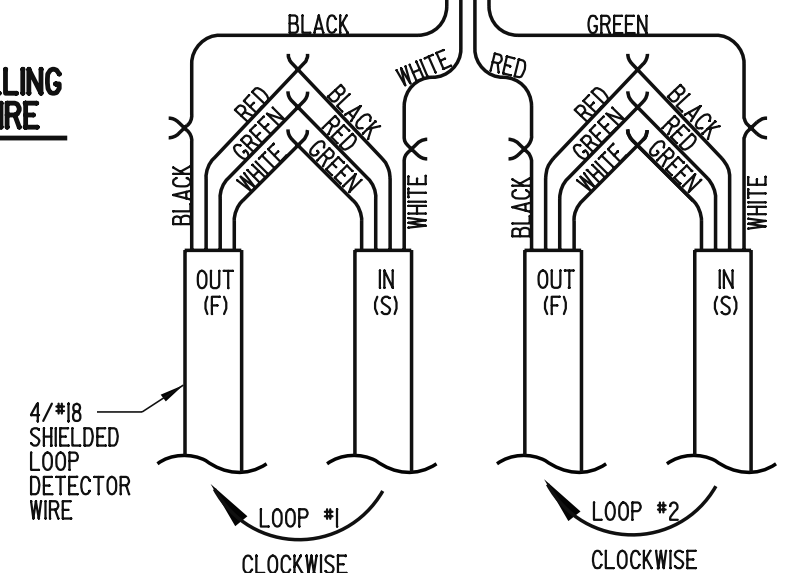
SECTION A - A



SECTION B - B



DETAILS FOR INSTALLING LOOP DETECTOR WIRE (SINGLE WRAP)



SPLICING DETAIL (SEE NOTE 3)



DELAWARE
DEPARTMENT OF TRANSPORTATION

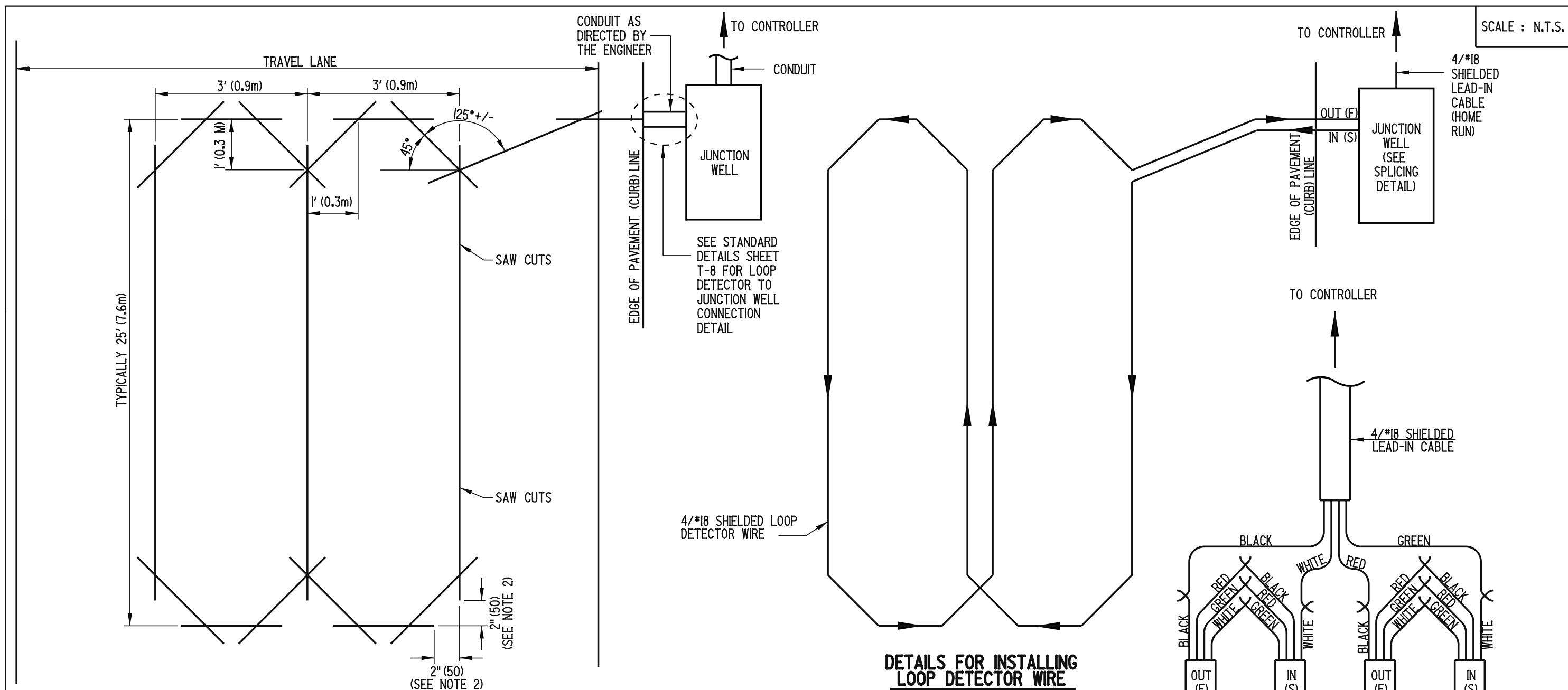
TYPE #1 LOOP DETECTOR

STANDARD NO. T-9 (2005)

SHT. 1 OF 1

APPROVED *Carolann Wick* 12/5/05
CHIEF ENGINEER DATE

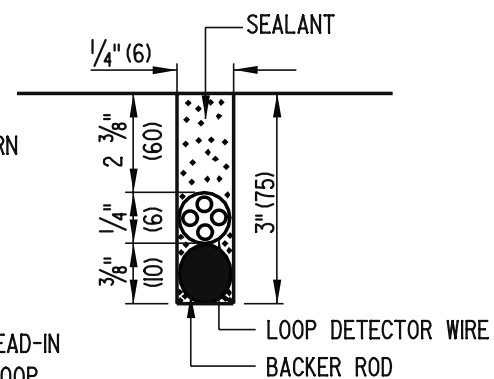
RECOMMENDED *James M. O'Brien* 11/29/05
DESIGN ENGINEER DATE



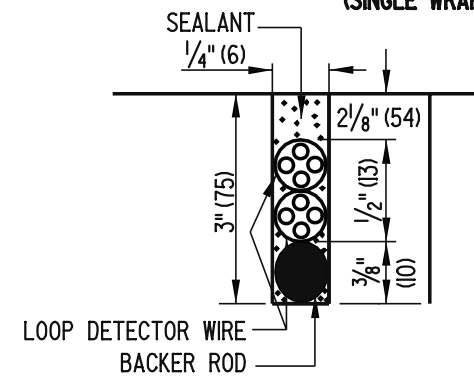
WIRE SLOT CONSTRUCTION

NOTES:

- 1). SAW CUTS FOR WIRE SLOT CONSTRUCTION SHALL BE EXTENDED BEYOND THE CORNERS SO THAT THE SLOT IS FULL DEPTH AT TURN POINTS. A FORTY-FIVE (45) DEGREE ANGLE SHALL BE CUT 1' (0.3m) BACK FROM THE POINT OF THE EXTENDED CORNER.
- 2). THE LONGITUDINAL / TRANSVERSE CUT SHALL BE STOPPED APPROXIMATELY 2" (50) FROM THE CORNER TO PREVENT THE TRIANGULAR PORTION OF THE PAVEMENT FROM BREAKING.
- 3). A MAXIMUM OF TWO LOOP DETECTORS CAN BE SPLICED TO ONE LEAD-IN CABLE. THE DETAIL ILLUSTRATES THE METHOD OF SPLICING TWO LOOP DETECTORS (LOOP #1 AND LOOP #2) TO A LEAD-IN CABLE.
- 4). LOOP DETECTOR SHALL BE CENTERED IN TRAVEL LANE.

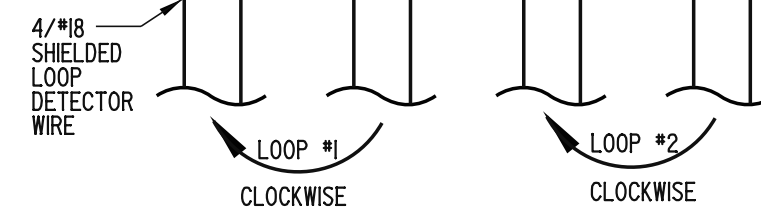


SECTION A - A



SECTION B - B

SPlicing DETAIL (SEE NOTE 3)



DELAWARE
DEPARTMENT OF TRANSPORTATION

TYPE #2 LOOP DETECTOR

STANDARD NO.

T-10 (2005)

SHT. 1

OF 1

APPROVED

Carolann Wick
CHIEF ENGINEER

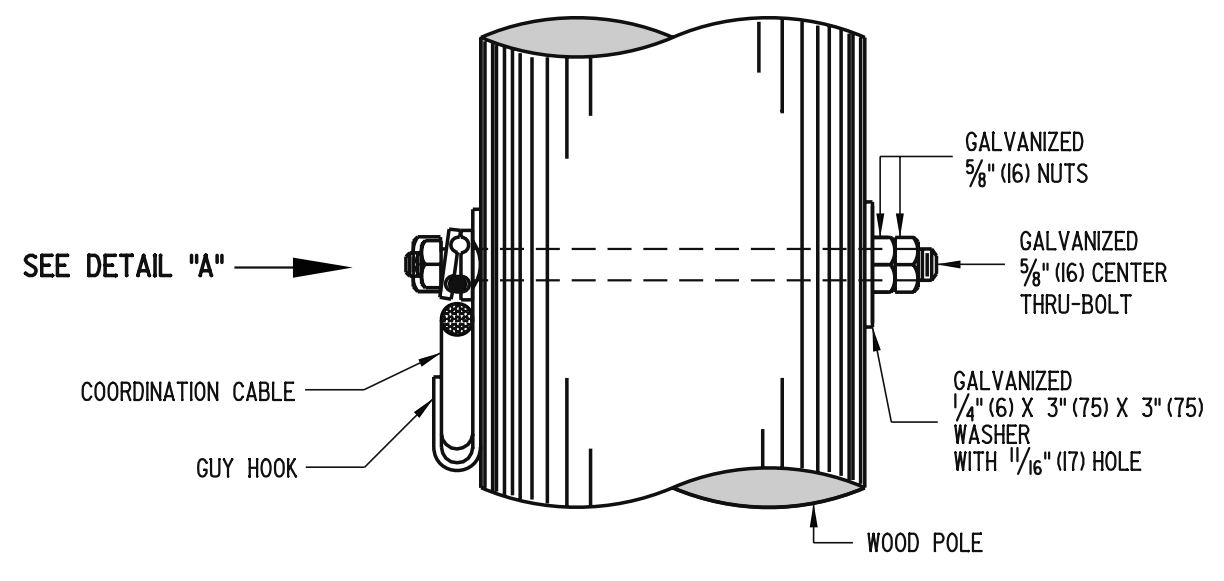
12/5/05
DATE

RECOMMENDED

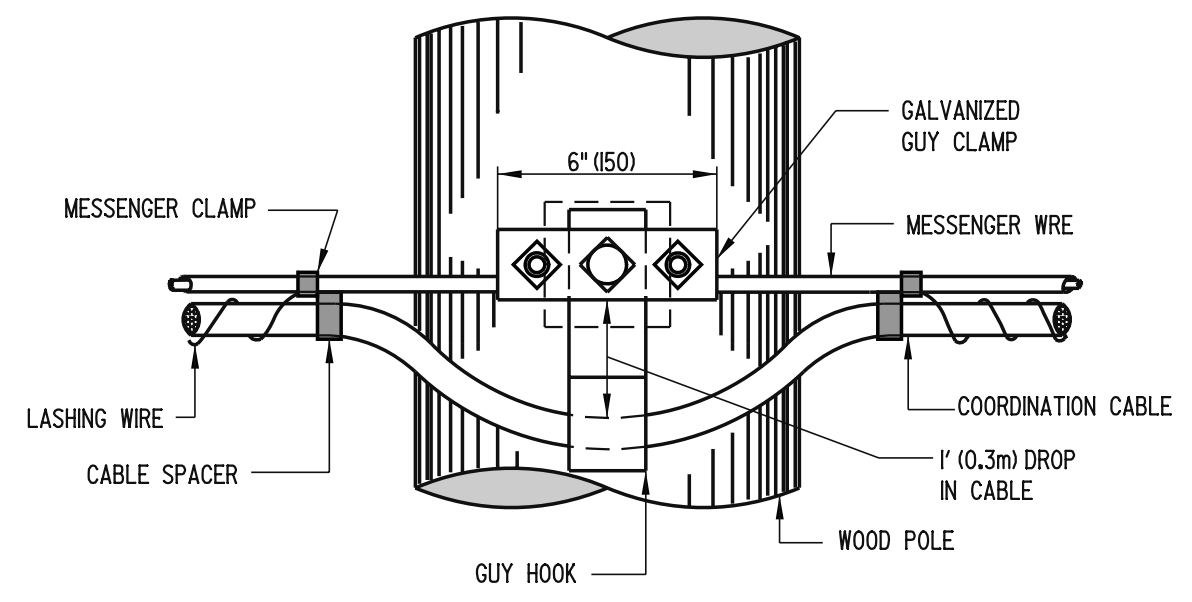
James M. O'Brien
DESIGN ENGINEER

11/29/05
DATE

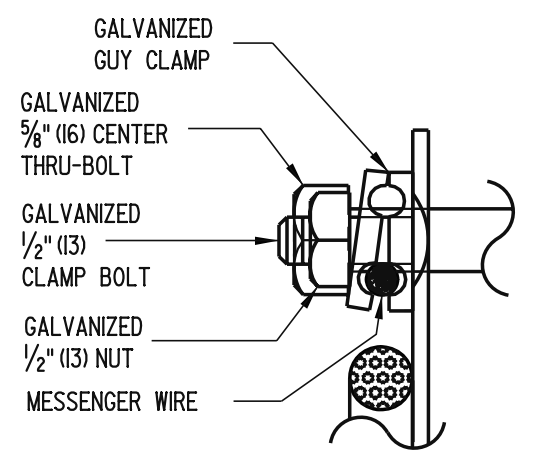
INTERMEDIATE



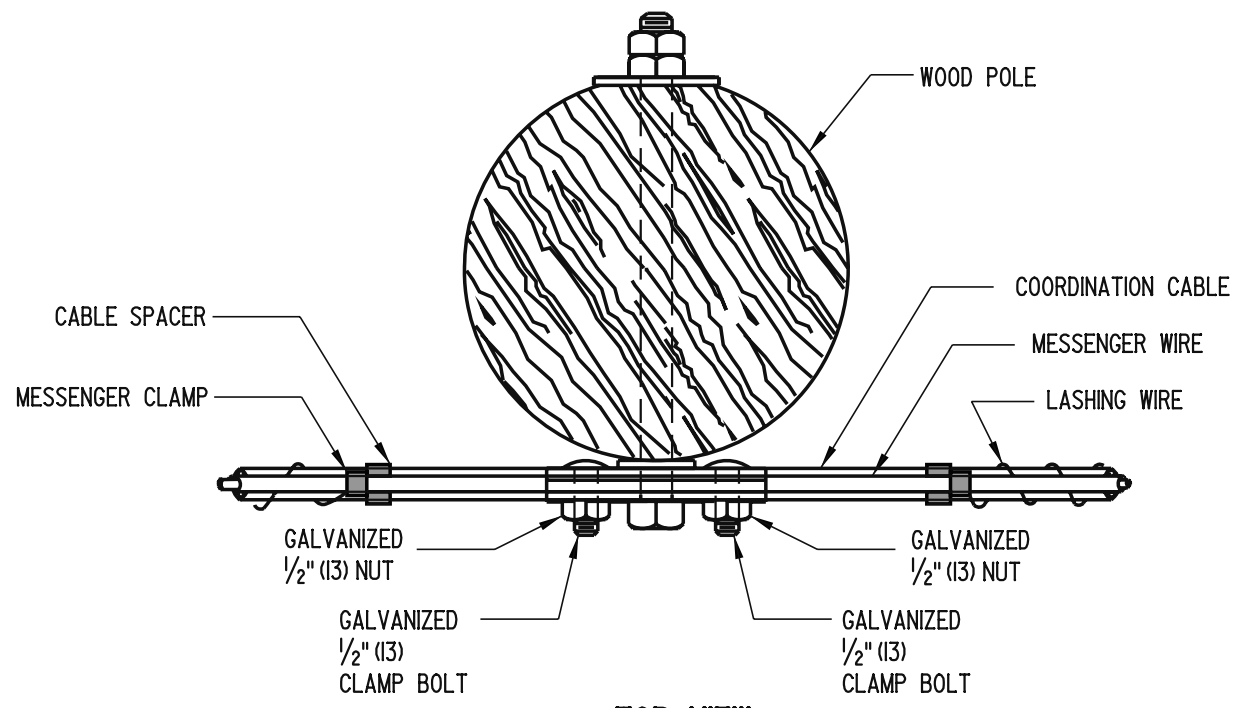
SIDE VIEW




FRONT VIEW

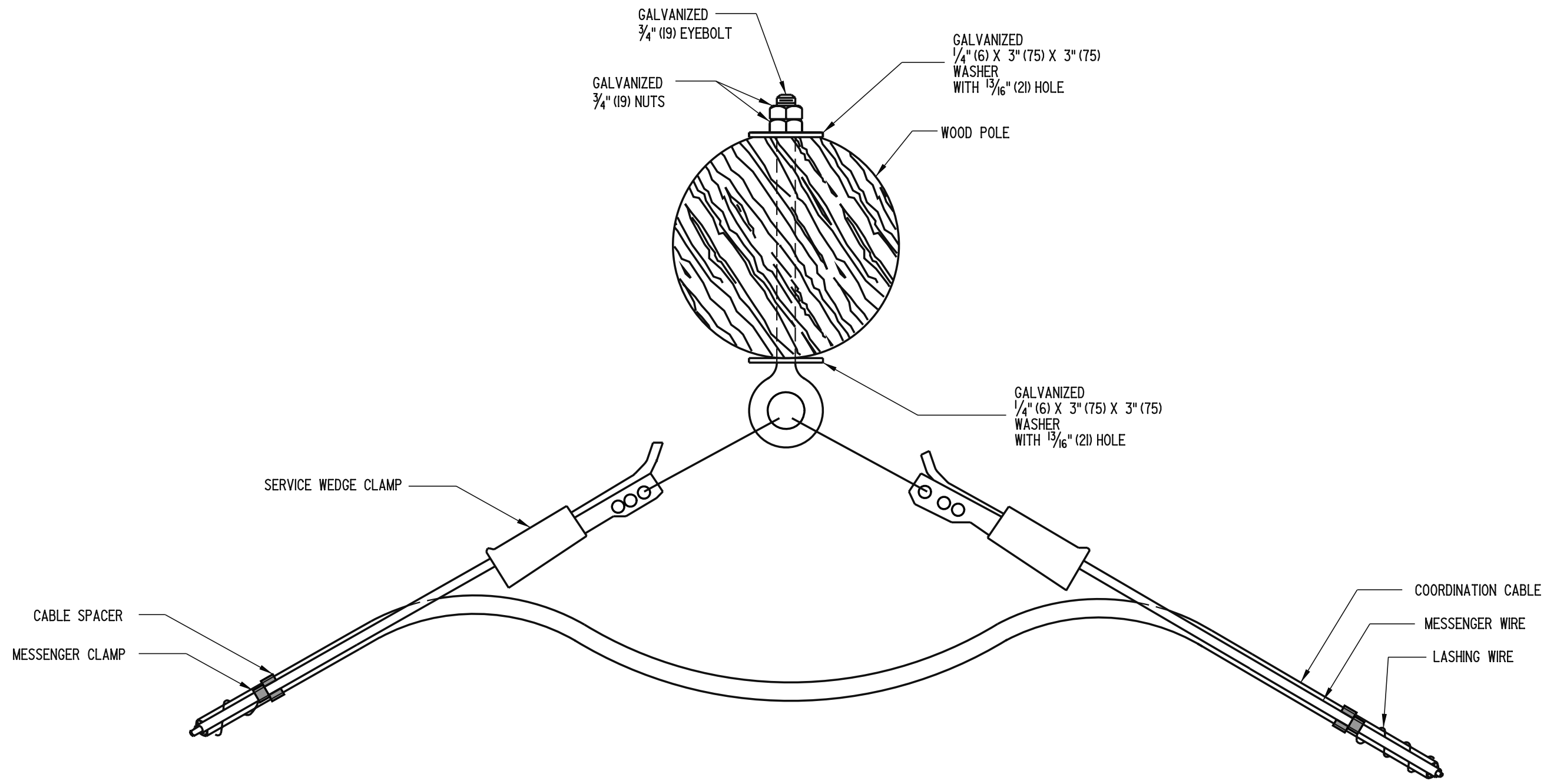


DETAIL "A"




TOP VIEW

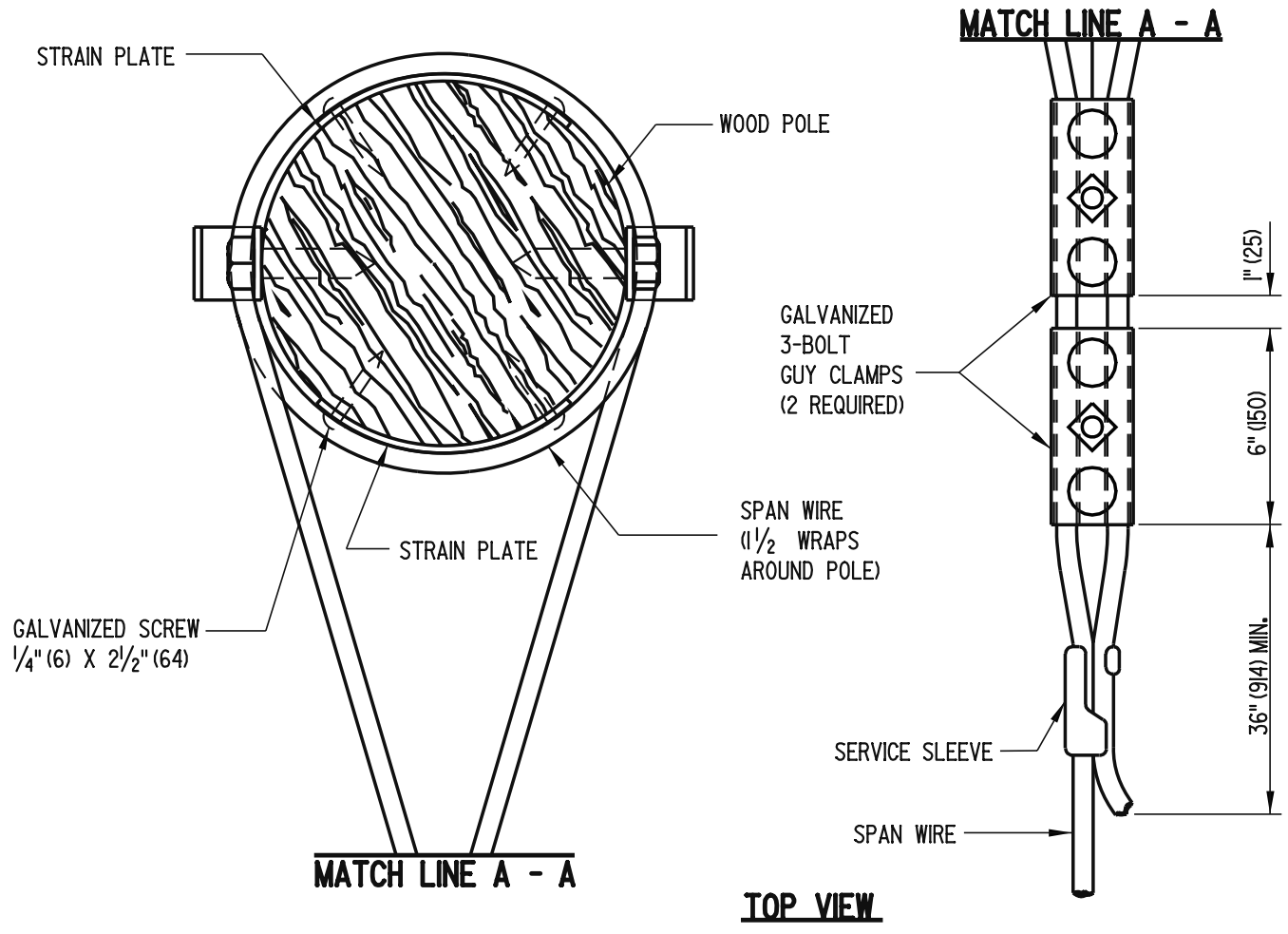
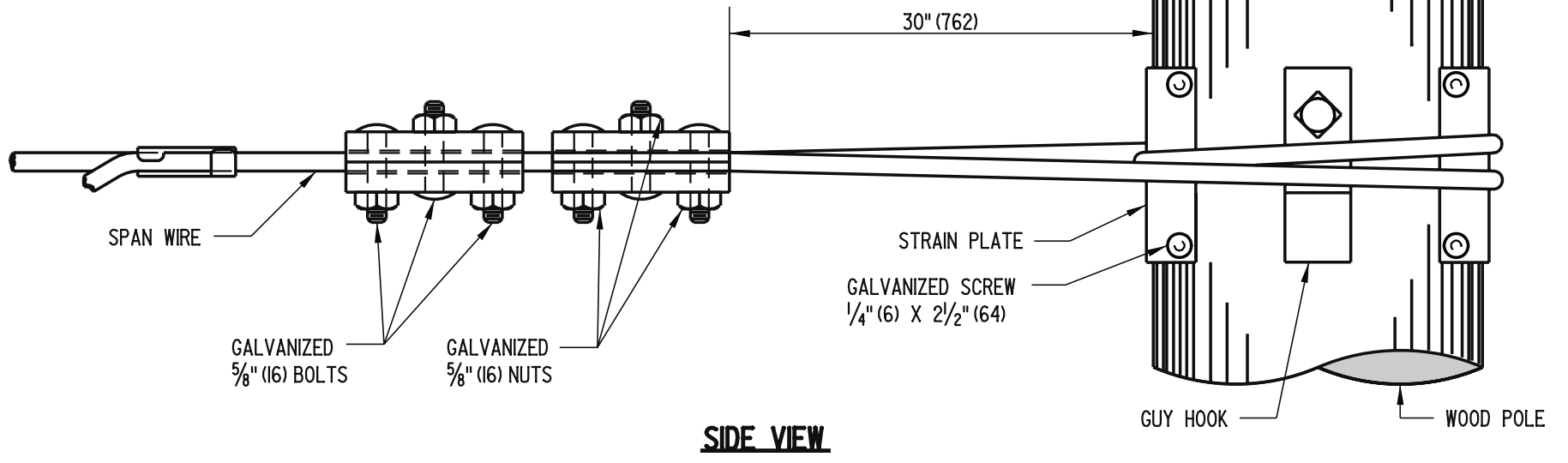
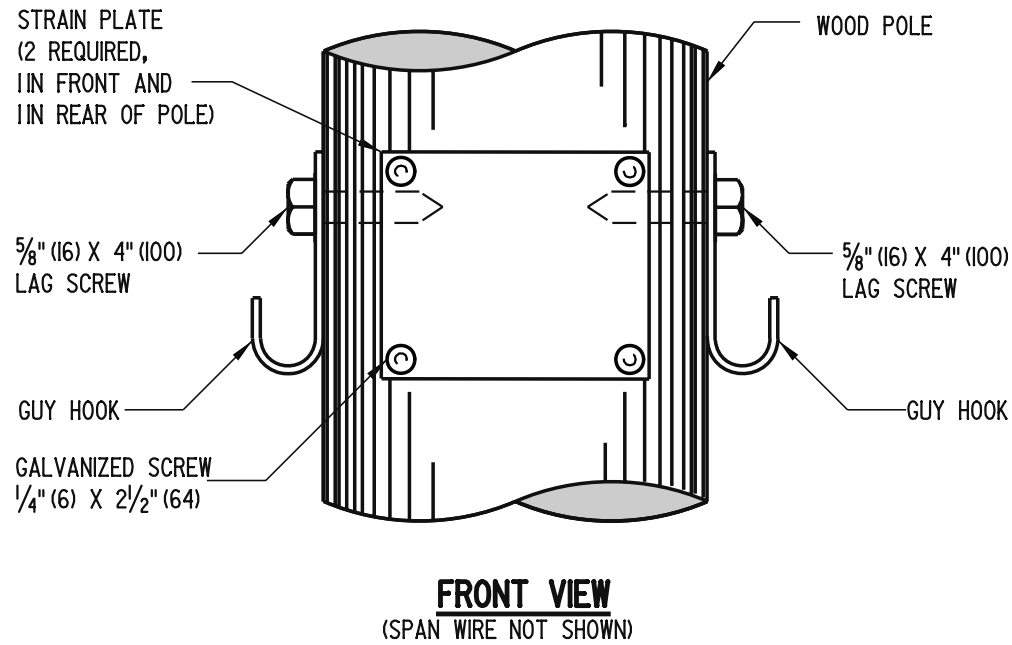
 DELAWARE DEPARTMENT OF TRANSPORTATION	INTERMEDIATE MESSENGER WIRE ATTACHMENT ON WOOD POLES			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-11 (2005)	SHT. 1	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE




TOP VIEW

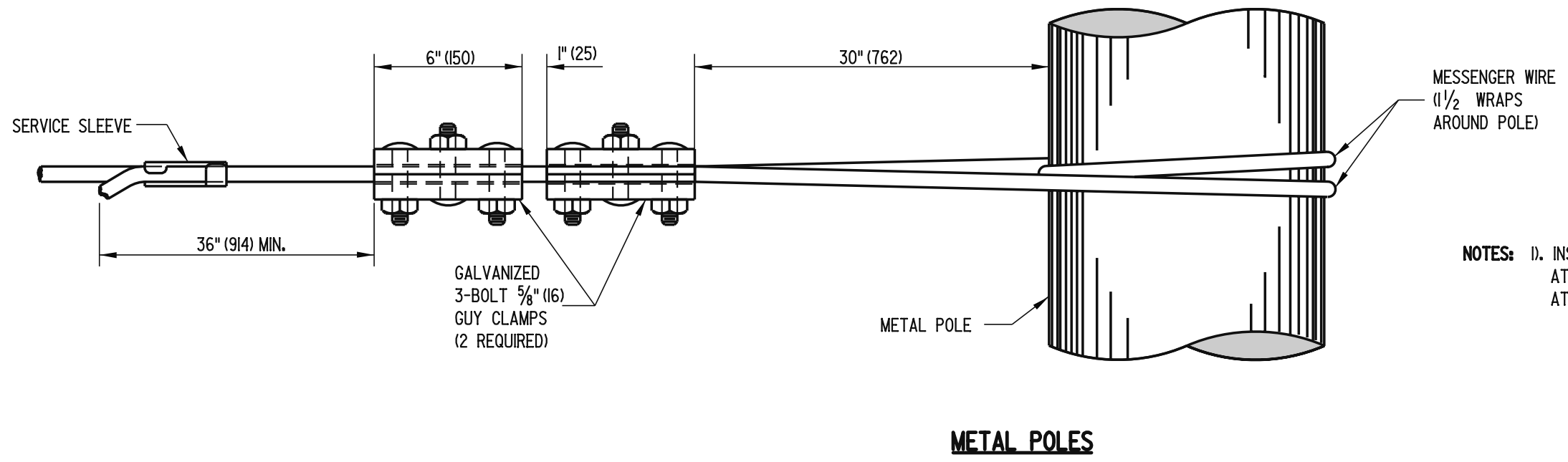
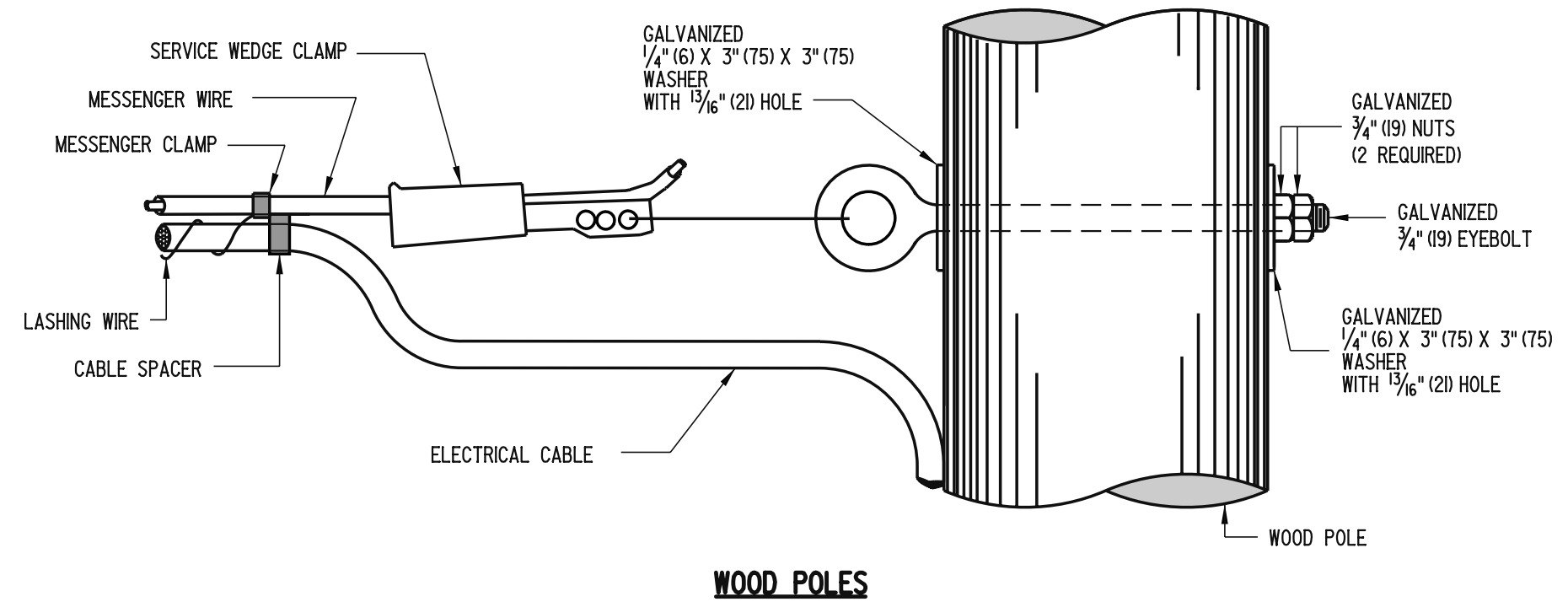
 DELAWARE DEPARTMENT OF TRANSPORTATION	ANGULAR INTERMEDIATE MESSENGER WIRE ATTACHMENT			APPROVED <i>Carolann Wick</i> CHIEF ENGINEER	12/5/05 DATE
	STANDARD NO. T-11 (2005)	SHT. 2	OF 2	RECOMMENDED <i>James M. O'Brien</i> DESIGN ENGINEER	11/29/05 DATE

SCALE : N.T.S.




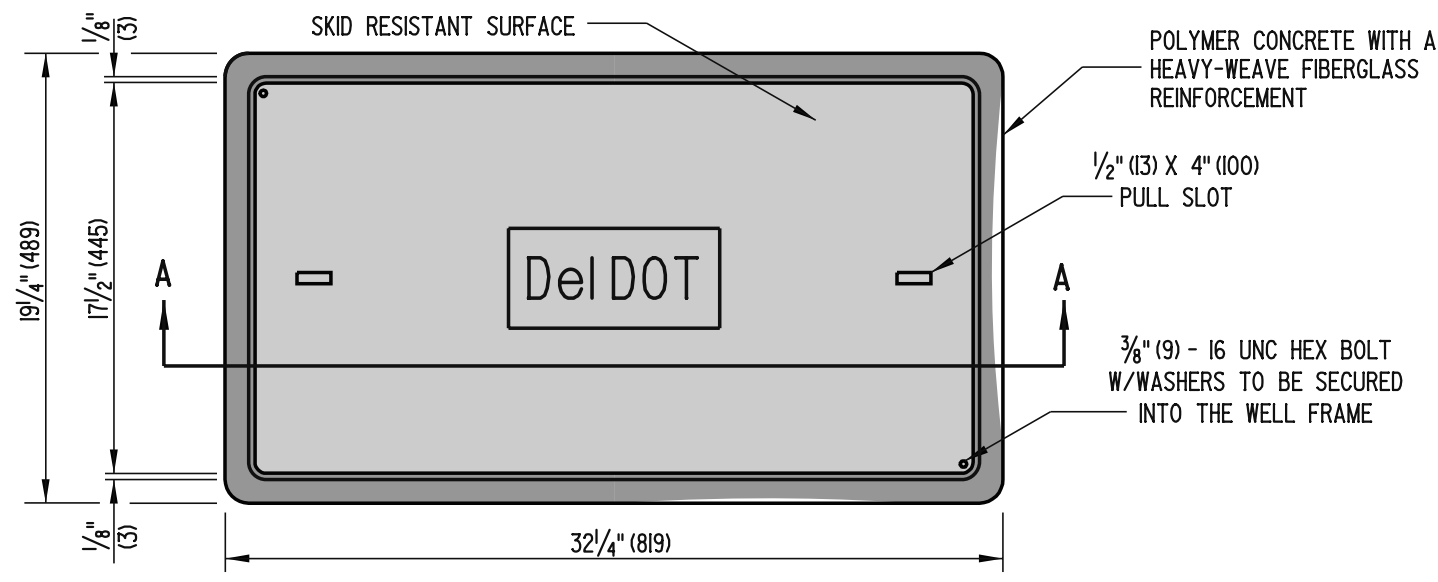
NOTE: SPAN WIRE ATTACHMENT BETWEEN METAL POLES IS THE SAME AS SHOWN FOR WOOD POLES EXCEPT THAT THE STRAIN PLATES AND GUY HOOKS ARE NOT USED. FOR DETAIL SEE T-14 SHEET 2 - "DEAD END MESSENGER WIRE ATTACHMENT, METAL POLES".

 DELAWARE DEPARTMENT OF TRANSPORTATION	SPAN WIRE ATTACHMENT BETWEEN POLES			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-12 (2005)	SHT. 1	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



NOTES: 1). INSTALLATION METHOD SHOWN FOR DEAD END MESSENGER WIRE ATTACHMENT TO METAL POLES SHALL BE USED FOR SPAN WIRE ATTACHMENT BETWEEN METAL POLES.

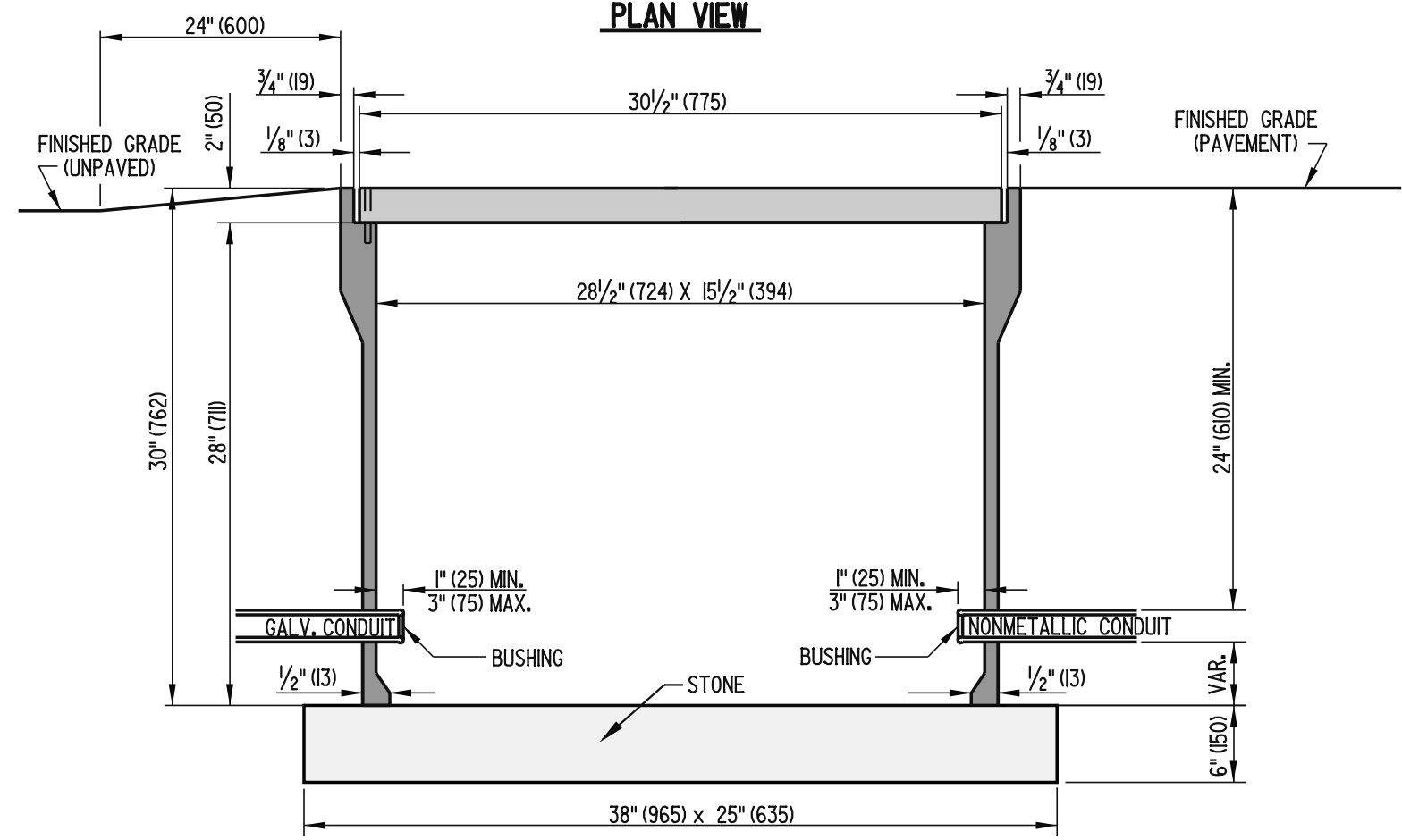
 DELAWARE DEPARTMENT OF TRANSPORTATION	DEAD END MESSENGER WIRE ATTACHMENT			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-12 (2005)	SHT. 2	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE




NOTES:

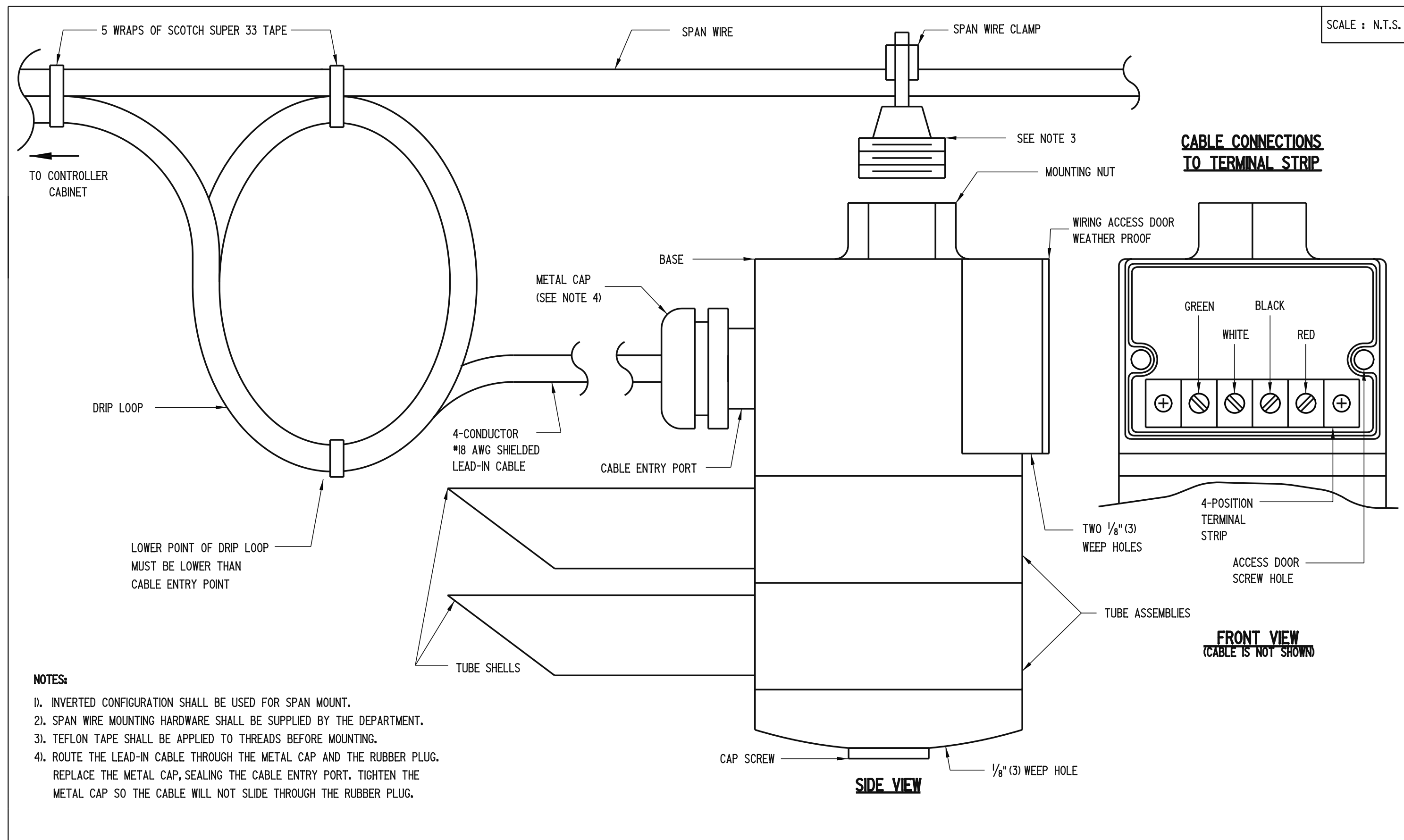
- 1). TYPE 6 CONDUIT JUNCTION WELL SHALL BE PRECAST POLYMER CONCRETE.
- 2). ALL CONDUIT JUNCTION WELLS CONSTRUCTED WITHIN PAVEMENT, SIDEWALKS, ETC. WILL BE CONSTRUCTED FLUSH WITH THE SURFACE OF THE SAME. INSTALLATION IN UNPAVED AREAS WILL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM THE CONDUIT JUNCTION WELL.
- 3). POLYMER CONCRETE COVERS SHALL BE THE HEAVY-DUTY TYPE WITH A DESIGN LOAD OF 15,000 LBS (6800 kg) OVER A 10" (255) SQUARE.


PLAN VIEW



SECTION A-A

 DELAWARE DEPARTMENT OF TRANSPORTATION	CONDUIT JUNCTION WELL, TYPE 6			APPROVED <i>Carolann Wick</i> 12/5/05 CHIEF ENGINEER DATE
	STANDARD NO. T-13 (2005)	SHT. 1	OF 3	RECOMMENDED <i>James M. O'Brien</i> 11/29/05 DESIGN ENGINEER DATE



 DELAWARE DEPARTMENT OF TRANSPORTATION	EMERGENCY PREEMPTION RECEIVER, INVERTED MOUNT			APPROVED <i>Carolann Wick</i> 12/5/05
	STANDARD NO. T-14 (2005)	SHT. 2	OF 2	RECOMMENDED <i>James M. O'Brien</i> 11/29/05