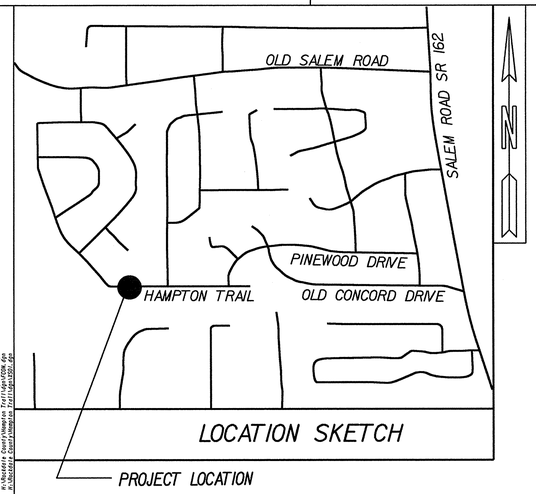
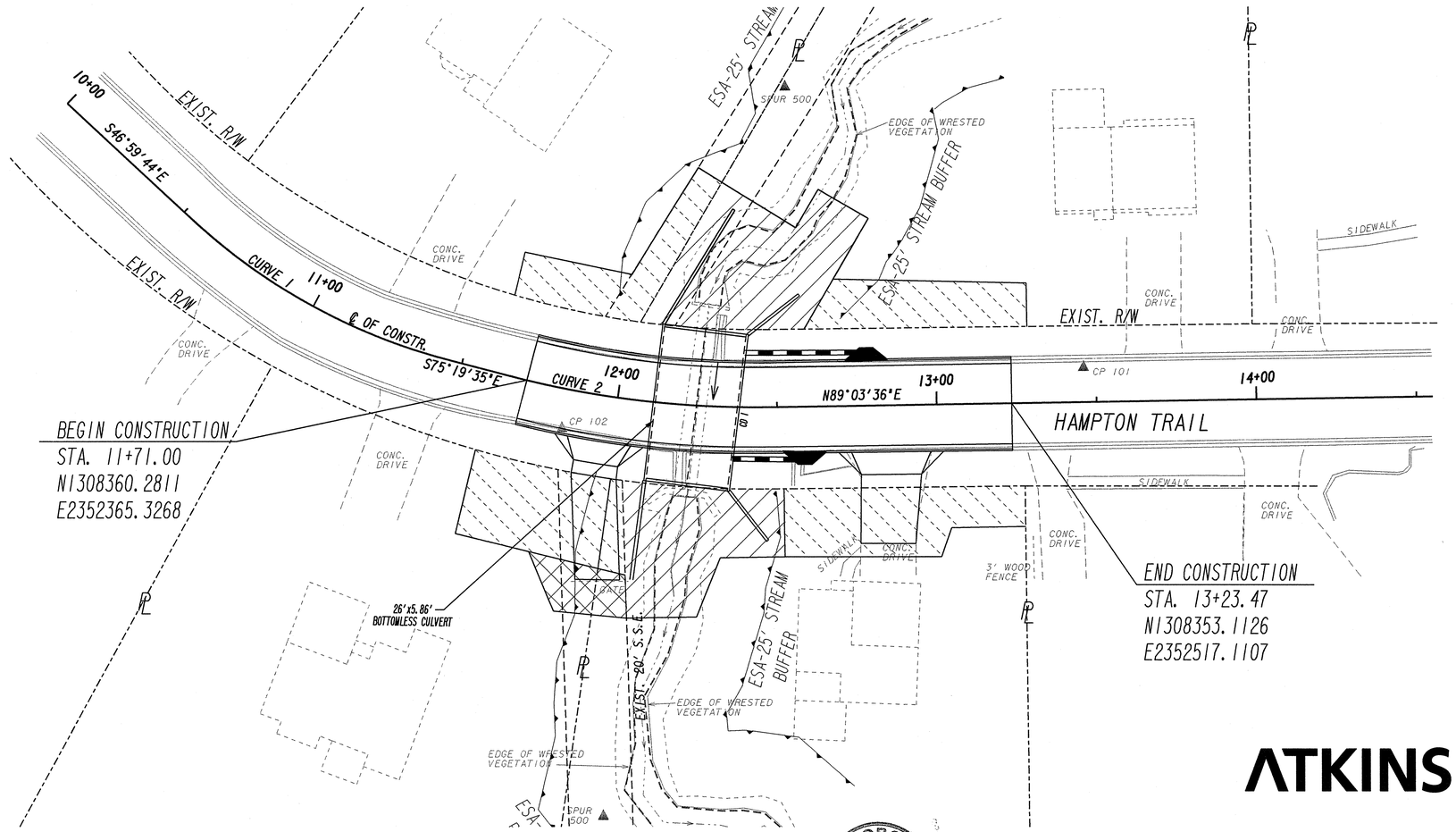
5/28/2013	$PRF8$	H:\Rockdale County\Hampton Trail\dgn\CV01.dgn[0-32356]	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER:14627	w:\TransDesign\Iplot\pentables\Xerox_FS.pen	GRWCOV	GA		1	37

ROCKDALE COUNTY
STORMWATER DIVISION

PLAN AND PROFILE OF PROPOSED
HAMPTON TRAIL DRAINAGE IMPROVEMENTS





ATKINS

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983)/94 WEST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT OF STORMWATER IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

LENGTH OF PROJECT	COUNTY No. 247 Project No.
	MILES
NET LENGTH OF ROADWAY	0.028
NET LENGTH OF BRIDGES	
NET LENGTH OF PROJECT	0.028
NET LENGTH OF EXCEPTIONS	
GROSS LENGTH OF PROJECT	0.028

GEORGIA REGISTERED NO. 19480 PROFESSIONAL ENGINEER RONALD H. MORRIS
6-20-13

SCALE IN FEET
0 20 40 80

PLANS COMPLETED 6-20-2013	
REVISIONS	

DRAWING No. 01-01

COMCOV
5/20/2011

SHEET NO.	DWG NO.	DESCRIPTION
1	01-01	COVER
2	02-01	INDEX
3	04-01	GENERAL NOTES
4	05-01	TYPICAL SECTIONS
5	13-01	MAINLINE PLAN
6	15-01	MAINLINE PROFILE
7	20-01	DETOUR PLAN
8	22-01	DRAINAGE PROFILES
9	23-01	CROSS SECTIONS
10-12	24-01 TO 24-03	UTILITY PLANS
13-18	36-01 TO 36-06	BRIDGE CULVERT PLANS
19	38-01	SPECIAL CONSTRUCTION DETAILS - WATER AND SEWER
		CONSTRUCTION DETAILS
20	40-01	A-1 DRIVEWAYS WITH TAPERED ENTRANCES CONCRETE VALLEY GUTTERS 7-11
21	40-02	D-24A TEMPORARY SILT FENCE 1-11
22	40-03	D-24B TEMPORARY SILT FENCE BERM DITCH, INSTALLATION BRUSH BARRIER 1-11
23	40-04	D-24C TEMPORARY SILT FENCE J-HOOKS, INLET SEDIMENT TRAPS 1-11
24	40-05	D-41 CONSTRUCTION EXIT 1-11
		GA. CONSTRUCTION STANDARDS
25	41-01	1034D PRECAST CATCH BASINS FOR USE WITH 4", 6", 8" OR 10" HT. HEADER OR INTERAL CURBS
		(IN SAGS OR LOW POINTS) 9-82
26	41-02	1040 CIRCULAR BASE UNITS AND RISERS FOR CATCH BASINS AND DROP INLETS 11-99
27	41-03	9032B CONCRETE CURB AND GUTTER, CONCRETE CURBS, CONCRETE MEDIANS 1-11
		EROSION, SEDIMENT AND POLLUTION AND COMPREHENSIVE MONITORING PROGRAM
28-33	52-01 TO 52-06	EC-L1 TO EC-L6 EROSION CONTROL LEGEND AND UNIFORM CODE 2-13
34-35	54-01 TO 54-02	BMP LOCATION DETAILS
		RIGHT-OF-WAY
36-37	RW-01 TO RW-02	RIGHT-OF-WAY PLANS

ATKINS

REVISION DATES

ROCKDALE COUNTY
STORMWATER DIVISION

OFFICE:

INDEX

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 02-01

6/20/2011 GPLN
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PROJECT GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD AND SUPPLEMENTAL SPECIFICATIONS, CURRENT EDITION.

2. THE FOLLOWING UTILITIES HAVE FACILITIES IN THE PROJECT AREA:

UTILITY OWNER	SERVICE
ATLANTA GAS LIGHT	GAS
COMCAST	CABLE
ROCKDALE COUNTY WATER	WATER
ROCKDALE COUNTY WATER	SEWER
AT&T	TELEPHONE
SNAPPING SHOALS EMC	POWER DISTRIBUTION

3. INGRESS AND EGRESS SHALL BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES. REFER TO SUB-SECTION 107.07 OF THE GEORGIA STANDARD SPECIFICATIONS.

4. ALL BORROW AND WASTE SITES FOR THIS PROJECT SHALL BE ENVIRONMENTALLY APPROVED PRIOR TO CONSTRUCTION ACTIVITIES. ALL COMMON FILL OR EXCESS MATERIAL DISPOSED OUTSIDE THE PROJECT RIGHT OF WAY SHALL BE PLACED IN EITHER A PERMITTED SOLID WASTE FACILITY, A PERMITTED INERT WASTE LANDFILL OR IN AN ENGINEERED FILL.

5. THERE IS NO SUITABLE PLACE TO BURY CONSTRUCTION DEBRIS WITHIN THE PROJECT'S LIMITS. THE CONTRACTOR SHALL PROVIDE AN ENVIRONMENTALLY APPROVED SITE TO DISPOSE OF CONSTRUCTION DEBRIS AT NO ADDITIONAL COST TO THE COUNTY.

6. STRUCTURES, TREES, SHRUBS AND OTHER PLANT MATERIAL THAT FALL WITHIN THE RIGHT-OF-WAY AND EASEMENT LIMITS, BUT OUTSIDE THE LIMITS OF CONSTRUCTION, SHALL NOT BE DISTURBED UNLESS DIRECTED BY THE ENGINEER.

7. THE CONTRACTOR SHALL OBSERVE ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS REGARDING PIPE INSTALLATION IN TRENCHES. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COST INCURRED TO COMPLY WITH THIS REQUIREMENT.

8. ALL EXISTING PIPE NO LONGER IN USE SHALL BE REMOVED UNLESS OTHERWISE NOTED ON PLANS OR AS DIRECTED BY THE ENGINEER. REMOVAL OF PIPE SHALL BE INCLUDED IN PRICE BID FOR "GRADING COMPLETE". ALL EXISTING REINFORCED CONCRETE PIPE (RCP) THAT IS TO BE TAKEN OUT OF SERVICE AND ABANDONED IN PLACE, UNDER PAVEMENT, SHALL BE PLUGGED IN ACCORDANCE WITH GDOT CONSTRUCTION DETAIL D-40. THIS WORK SHALL NOT BE MEASURED OR PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE BID PRICE FOR PROVIDED DRAINAGE PAY ITEMS.

9. IN AREAS WHERE NEW PAVEMENT OR PAVEMENT WIDENING IS REQUIRED, SAW CUT OF EXISTING PAVEMENT WILL BE REQUIRED IN ACCORDANCE WITH SECTION 411 OF THE GEORGIA STANDARD SPECIFICATIONS AND WILL BE INCLUDED IN PRICE BID FOR "GRADING COMPLETE".

10. ALL DRIVEWAYS SHALL BE MAINTAINED DURING CONSTRUCTION. ALL DRIVEWAYS TO BE CONSTRUCTED SHALL BE REPLACED IN KIND I.E. ASPHALT FOR ASPHALT, CONCRETE FOR CONCRETE ETC. ANY OTHER DRIVEWAY MATERIAL OR SPECIALIZED DRIVEWAY WILL NOT BE REPLACED IN KIND (I.E. PAVERS) AND WILL BE REPLACED WITH ASPHALT OR CONCRETE. ALL EARTH OR GRAVEL DRIVES SHALL BE PAVED WITH ASPHALT TO THE RIGHT-OF-WAY LIMIT OR TIE-IN POINT. DRIVEWAYS SHALL BE PAVED AS FOLLOWS:

    ASPHALTIC DRIVES
    RESIDENTIAL - RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE 1 135 LB/SY
    - 6" GRADED AGGREGATE BASE

    CONCRETE DRIVES
    RESIDENTIAL - 6" CONCRETE VALLEY GUTTER
    - 4" CONCRETE DRIVEWAY

11. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO OR CONCURRENT WITH LAND DISTURBANCE ACTIVITIES AND SHALL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION OR AS DIRECTED BY THE ENGINEER.

12. SPRINKLER SYSTEMS TO BE HANDLED AS FOLLOWS:

    CASE 1 - SYSTEMS WITHIN THE CONSTRUCTION LIMITS OWNED BY INDIVIDUALS OR PRIVATE COMPANIES ARE TO BE REMOVED TO THE BACK OF THE CONSTRUCTION LIMITS AND PLUGGED.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING, RELOCATING, AND MAINTAINING THE PROPERTY OWNER'S MAILBOX TO AN AREA OUTSIDE CONSTRUCTION LIMITS DURING THE LIFE OF THE CONTRACT. THE LOCATION OF THE BOX SHOULD BE CONVENIENT TO BOTH THE MAIL CARRIER AND THE PATRON. YET NOT INTERFERE WITH PROPOSED WORK. IT MAY BE NECESSARY FOR THE CONTRACTOR TO CONFER WITH THE POST OFFICE SERVING THE AREA. ALL COSTS INCURRED FOR COMPLIANCE WITH THESE REQUIREMENTS SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

14. AN N.O.I. (NOTICE OF INTENT) IS NOT REQUIRED FOR THIS PROJECT.THE DISTURBED AREA IS 0.30 ACRES.

15. THERE IS NO SUITABLE PLACE FOR DISPOSAL OF THE REMOVED CONCRETE CURB, CMP PIPE, AND PAVEMENT WITHIN THE PROJECT LIMITS. THE CONTRACTOR SHALL FIND A SUITABLE PLACE TO DISPOSE OF ANY WASTE MATERIAL AT NO ADDITIONAL COST TO THE DEPARTMENT.

16. POSITIVE DRAINAGE SHALL BE PROVIDED AT ALL TIMES. TEMPORARY DRAINAGE SHALL BE DESIGNED FOR A 10-YEAR STORM EVENT. THE COST FOR DESIGNING, INSTALLING AND REMOVING TEMPORARY DRAINAGE ITEMS SHALL BE INCLUDED IN THE OVERALL BID PRICE SUBMITTED.

17. ALL CONSTRUCTION ACTIVITIES WITHIN THE STREAM SHALL BE PERFORMED UNDER DRY CONDITIONS. CONTRACTOR SHALL SUBMIT DETAIL PLAN FOR DEWATERING/DIVERISON FOR COUNTY'S APPROVAL PRIOR TO CONSTRUCTION ACTIVITIES.

18. THE CONTACTOR WILL BE REQUIRED TO PROVIDE SHOP DRAWINGS FOR ENGINEER'S APPROVAL PRIOR TO CONSTRUCTION ON THE BOTTOMLESS CULVERT.

GEORGIA811
Utilities Protection Center, Inc.
Know what's below.
Call before you dig.

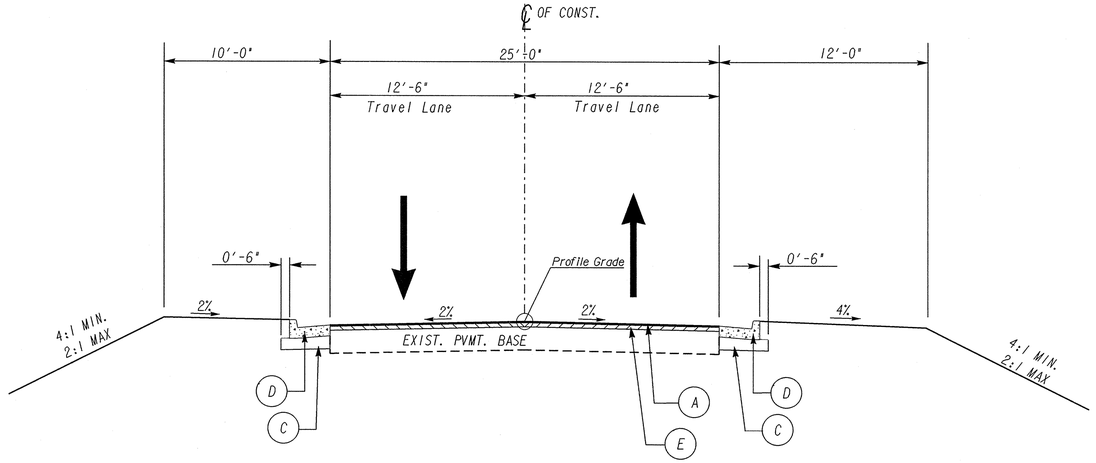
PIPE CULVERT MATERIAL ALTERNATES
FOR PIEDMONT/BLUE RIDGE REGION

TYPE OF PIPE INSTALLATION				CONCRETE	CORRUGATED STEEL AASHTO M-36		CORRUGATED ALUMINUM AASHTO M-196	PLASTIC		
					ALUMINUM COATED (TYPE 2) CORR. STEEL	PLAIN ZINC COATED	PLAIN UNCOATED ALUMINUM	CORR. POLY-ETHYLENE AASHTO M-252	CORR.POLY-ETHYLENE SMOOTHED LINED AASHTO M-294 TYPE "S"	POLY VINYL CHLORIDE (PVC) PROFILE WALL AASHTO M-304
STORM DRAIN	LONGITUDINAL INTERSTATE AND TRAVEL BEARING			X						
STORM DRAIN	LONGITUDINAL NON-INTERSTATE AND NON-TRAVEL BEARING			X	X		X		X	X
STORM DRAIN	CROSS DRAIN	GRADE ≤ 10%	ADT < 250	X	X		X		X	X
STORM DRAIN	CROSS DRAIN	GRADE ≤ 10%	250 < ADT < 1500	X	X		X			
STORM DRAIN	CROSS DRAIN	GRADE ≤ 10%	ADT > 1500	X						
STORM DRAIN	CROSS DRAIN	GRADE > 10%	ADT < 250		X		X		X	X
STORM DRAIN	CROSS DRAIN	GRADE > 10%	ADT > 250				X			
SIDE DRAIN				X	X		X		X	X
PERMANENT SLOPE DRAIN					X	X	X		X	X
PERFORATED UNDERDRAIN					X	X	X	X	X	

NOTE:

1. ALLOWABLE MATERIALS ARE INDICATED BY AN "X".
2. STRUCTURAL REQUIREMENTS OF STORM DRAIN PIPE WILL BE IN ACCORDANCE WITH GEORGIA STANDARD 1030-D OR 1030-P, WHICHEVER IS APPLICABLE, AND THE STANDARD SPECIFICATIONS.
3. THE CONTRACTOR SHALL PROVIDE ADDITIONAL STORM SEWER CAPACITY CALCULATIONS IF A PIPE MATERIAL OTHER THAN CONCRETE IS SELECTED.

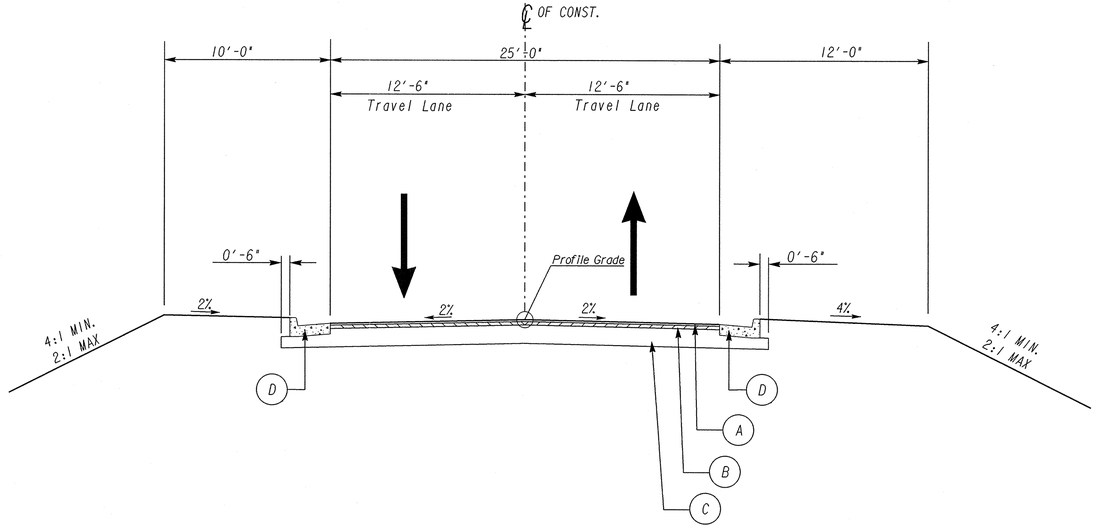
ITEM NO.	DESCRIPTION	UNITS	QUANTITY
	ROADWAY ITEMS		
150-1000	TRAFFIC CONTROL	LS	LUMP
207-0203	FOUND BKFILL MATL, TP II	CY	585
210-0100	GRADING COMPLETE	LS	LUMP
310-5060	GR AGGR BASE CRS, 6 INCH INCL. MAT'L	SY	200
318-3004	AGGREGATE SURFACE COURSE, 4 IN	SY	55
402-1812	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	TN	95
402-3100	RECYCLED ASPH CONC 9.5 MM SUPERPAVE, TYPE I GP I OR BLEND I, INCL BITUM MATL & H LIME	TN	30
402-8012	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP I OR 2, INCL BITUM MATL & H LIME	TN	26
413-1000	BITUM TACK COAT	GL	30
441-0014	DRIVEWAY CONCRETE, 4 IN	SY	45
441-4020	CONC VALLEY GUTTER, 6 IN	SY	40
441-6012	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	LF	320
444-1000	SAWED JOINTS IN EXIST PAVEMENTS - PCC	LF	30
550-1180	STORM DRAIN PIPE, 18 IN, H 1-10	LF	65
603-7000	PLASTIC FILTER FABRIC	SY	190
611-8050	ADJUST MANHOLE TO GRADE	EA	2
620-0100	TEMPORARY BARRIER, METHOD I	LF	40
668-1100	CATCH BASIN, GP I	EA	2
960-0550	PRECAST THREE SIDED CULVERT, SINGLE BARREL - 26' X 5.86'	LF	50
	PERMANENT EROSION CONTROL		
603-2182	STN DUMPED RIP RAP, TP 3, 24 IN	SY	190
700-6910	PERMANENT GRASSING	AC	1
700-7000	AGRICUTURAL LIME	TN	6
700-8000	FERTILIZER MIXED GRADE	TN	1
700-8100	FERTILIZER NITROGEN CONTENT	LB	100
	TEMPORARY EROSION CONTROL		
163-0232	TEMPORARY GRASSING	AC	1
163-0240	MULCH	TN	10
163-0300	CONSTRUCTION EXIT	EA	2
163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	EA	2
165-0030	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	LF	625
165-0105	MAINTENANCE OF INLET SEDIMENT TRAP	EA	2
165-0101	MAINTENANCE OF CONSTRUCTION EXIT	EA	2
171-0030	TEMPORARY SILT FENCE, TYPE C	LF	1250
	WATER ITEMS		
670-1060	WATER MAIN, 6 IN	LF	75
670-2060	GATE VALVE, 6 IN	EA	2
670-5640	WATER SERVICE LINE, 1½ IN	LF	106
670-7000	STEEL CASING - 16 IN	LF	35
670-8062	DBL STRAP SADDLE, 6 IN X 1 IN	EA	2
670-9730	RELOCATE EXIST WATER METER, INCL BOX	EA	2



TYPICAL SECTION NO. 1

TANGENT SECTION

STA. 11+71.00 TO STA. 11+85.00
STA. 12+61.00 TO STA. 13+23.47



TYPICAL SECTION NO. 2

TANGENT SECTION

STA. 11+85.00 TO STA. 12+61.00

PAVEMENT MATERIAL SCHEDULE
(A) RECYCLED ASPH. CONC. 1 1/4", 9.5MM SUPERPAVE, TYPE I, 135 LBS/SY
(B) RECYCLED ASPH. CONC. 2 1/4", 19MM SUPERPAVE, GP 1 OR GP 2, 247 LBS/SY
(C) 6" GRADED AGGREGATE BASE COURSE
(D) CONC. CURB & GUTTER, 8"x24", TP 2, GA STD 9032 B
(E) RECYCLED ASPH. CONC LEVELING, INCL BIT MATL & H LIME, AS REQ'D

ATKINS

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT

OFFICE:

TYPICAL SECTIONS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 05-01

6/20/2011 GPLN

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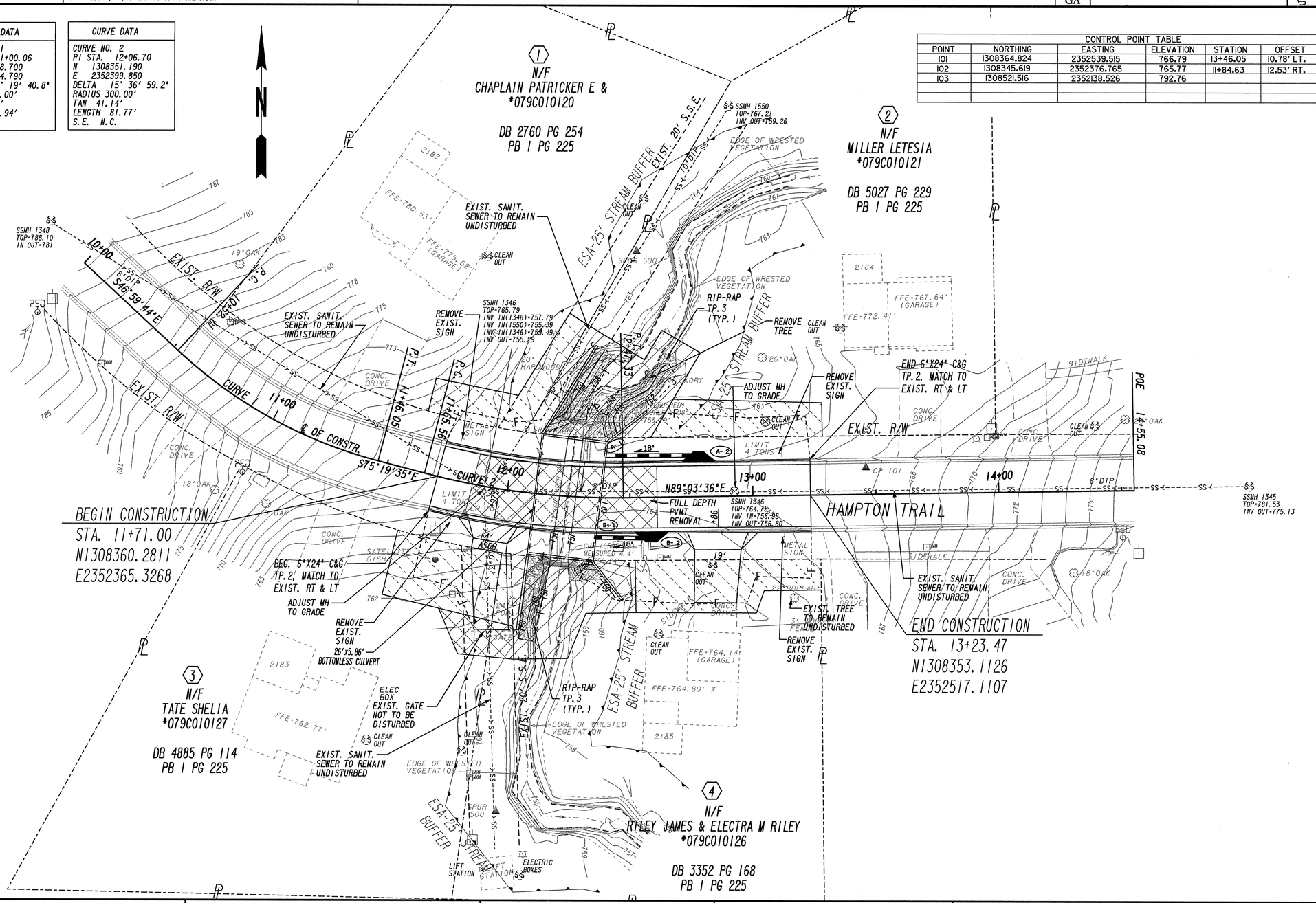
CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1308378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
TAN 47.95'
LENGTH 93.94'
S.E. N.C.

CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
N 1308351.190
E 2352399.850
DELTA 15° 36' 59.2"
RADIUS 300.00'
TAN 41.14'
LENGTH 81.77'
S.E. N.C.

CONTROL POINT TABLE						
POINT	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESCRIPTION
101	1308364.824	2352539.515	766.79	13+46.05	10.78' LT.	60D NAIL SET
102	1308345.619	2352376.765	765.77	11+84.63	12.53' RT.	60D NAIL SET
103	1308521.516	2352138.526	792.76			60D NAIL SET



PROPERTY AND EXISTING R/W LINE	-----E-----
REQUIRED R/W LINE	———
CONSTRUCTION LIMITS	--C--F--
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS	BLA
END LIMIT OF ACCESS	ELA
LIMIT OF ACCESS	
REQ'D R/W & LIMIT OF ACCESS	

ATKINS

SCALE IN FEET
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REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT

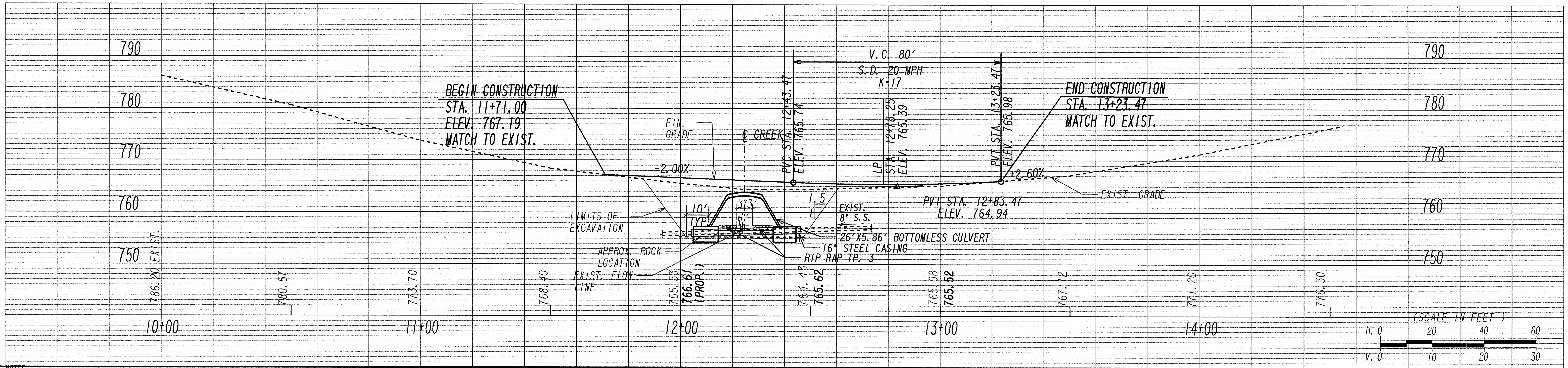
OFFICE:

MAINLINE PLAN

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

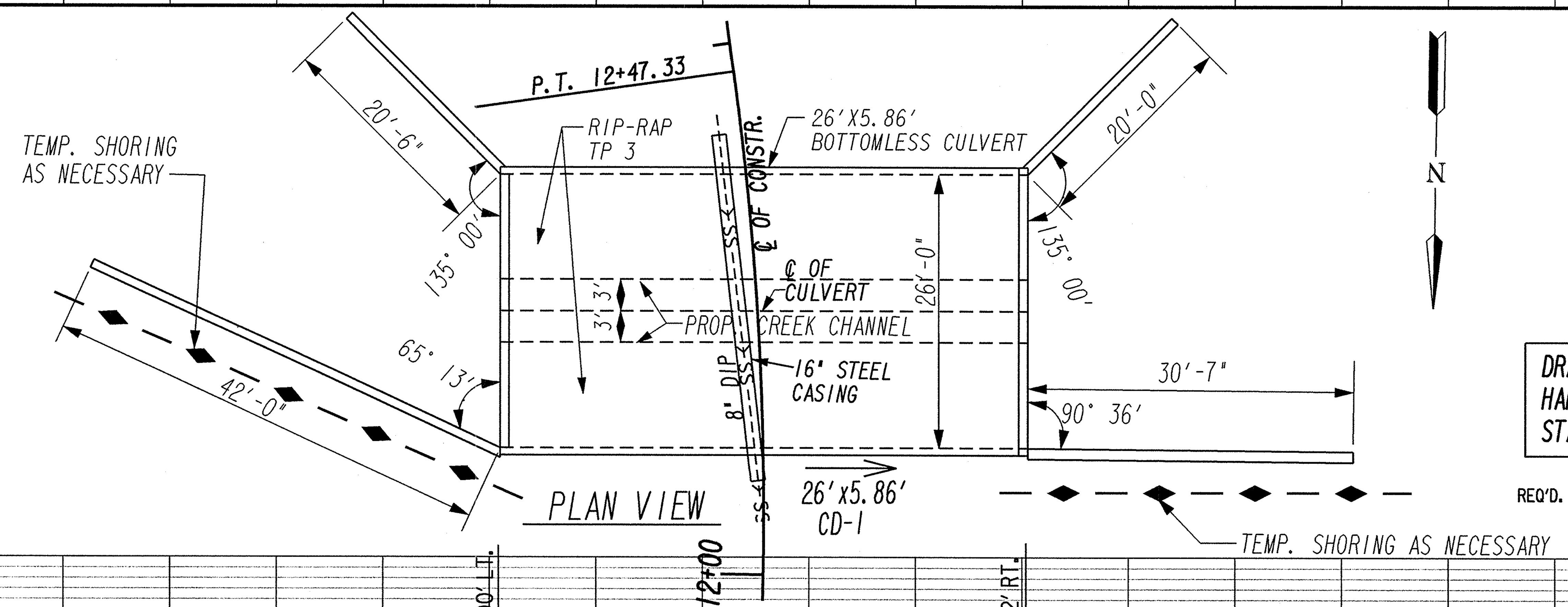
DRAWING No. 13-01

6/20/2011 GPLN



NOTES:

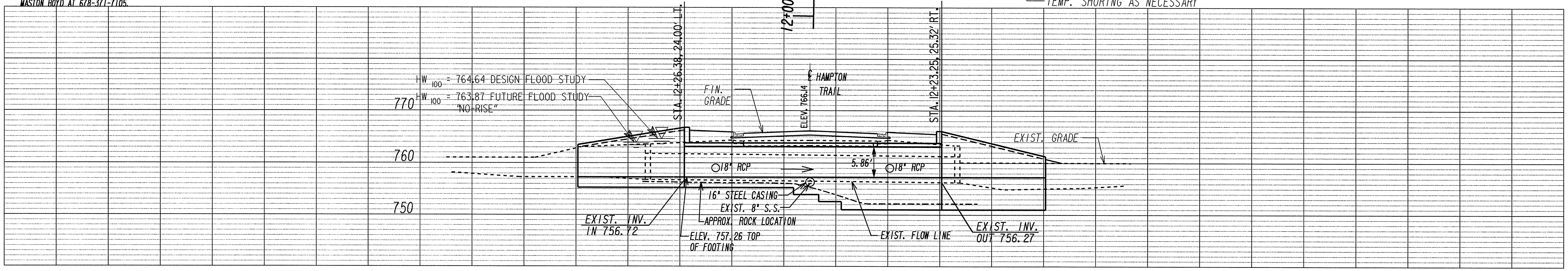
DETAILS OF THE THREE-SIDED BOTTOMLESS CULVERT AS SHOWN IN THESE PLANS ARE BASED ON THE "CONTECH O-SERIES (O-426) CULVERT". THE CONTRACTOR MAY PROPOSE AN EQUIVALENT CULVERT FROM A DIFFERENT MANUFACTURER MEETING REQUIREMENTS OF THE SPECIAL PROVISIONS. IF THE OPENING OF THE CULVERT (SPAN & RISE) ARE CHANGED FROM THOSE SHOWN ON THE PLANS THE CONTRACTOR SHALL SUBMIT A HYDROLOGY & HYDRAULIC REPORT FOR REVIEW AND APPROVAL DEMONSTRATING THE REVISED OPENING IS ACCEPTABLE. THE FOLLOWING REQUIREMENTS MUST BE MET: HW 100 YR ELEV. 763.87 OR BELOW; HW 50 YR ELEV. 763.47 OR BELOW. THE PROPOSED ROADWAY PROFILE CAN'T BE RAISED TO ACCOMMODATE AN ALTERNATE STRUCTURE TYPE HEIGHT AND THE MAXIMUM WIDTH OF THE ALTERNATE STRUCTURE CANNOT EXCEED 27'-0".
KEY PROPOSE FOOTINGS 1'-0" MINIMUM INTO EXISTING ROCK.
THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE SHOP DRAWINGS FOR ENGINEER'S APPROVAL ON THE BOTTOMLESS CULVERT.
DESIGN SUBMITTIALS FOR ALTERNATIVE STRUCTURES MEETING THE REQUIREMENTS IN THE PLANS MUST BE SUBMITTED 14 DAYS PRIOR TO ORIGINAL BID DATE FOR REVIEW AND CONSIDERATION BY THE ENGINEER.
FOR INFORMATION REGARDING BRIDGE LOGISTICS, PRECAST WEIGHTS, ETC., CALL MASTON BOYD AT 678-371-7105.



PLAN VIEW

DRAINAGE CROSS SECTION CD 1
HAMPTON TRAIL
STA. 12+24.70, 94°23' RT.

REQ'D. : 49.50 LIN. FT.- 26'x5.86' BOTTOMLESS CULVERT
190 SQ. YD. STONE DUMPED RIP-RAP TP. 3, 24 IN.



SCALE 1 inch = 10 feet Vert.
SCALE 1 inch = 10 feet Horiz.

ELEVATION

ATKINS

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DIVISION

MAINLINE PROFILE

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 15-01

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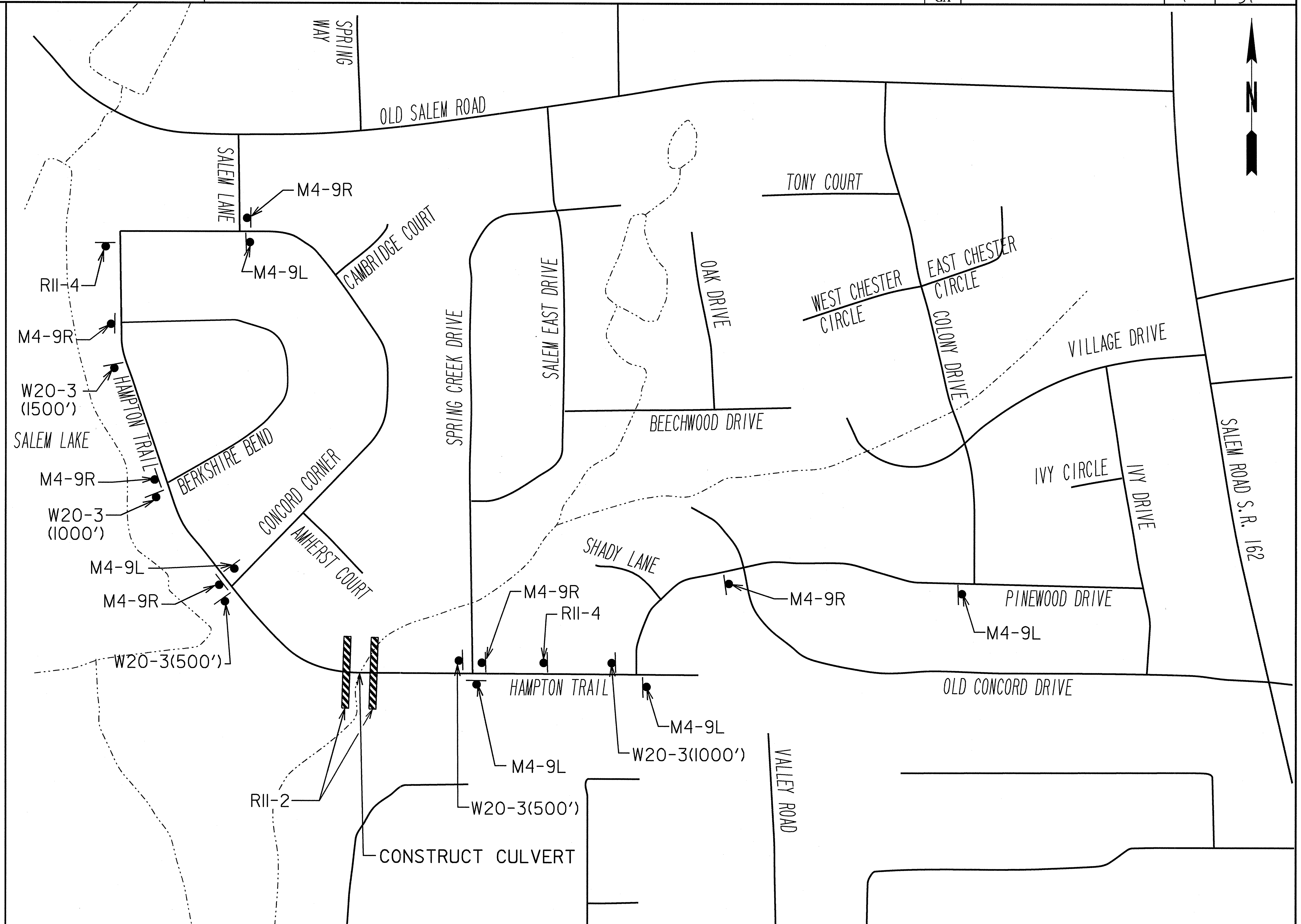
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA		7	37

SIGN LEGEND

- ROAD CLOSED 500 FT — W20-3(500')
- ROAD CLOSED 1000 FT — W20-3(1000')
- ROAD CLOSED 1500 FT — W20-3(1500')
- ROAD CLOSED — R11-2 ON TYPE III BARRICADE
- ROAD CLOSED TO THRU TRAFFIC — R11-4
- DETOUR (left arrow) — M4-9L(30)
- DETOUR (right arrow) — M4-9R(30)
- HAMPTON TRAIL — D-III

• ADD HAMPTON TRAIL ADVISORY STREET NAME BLADE (D-III) TO ALL M4-DETOUR SIGNS



4/27/2012 GPLN

ATKINS

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REVISION DATES

ROCKDALE COUNTY
STORMWATER DIVISION

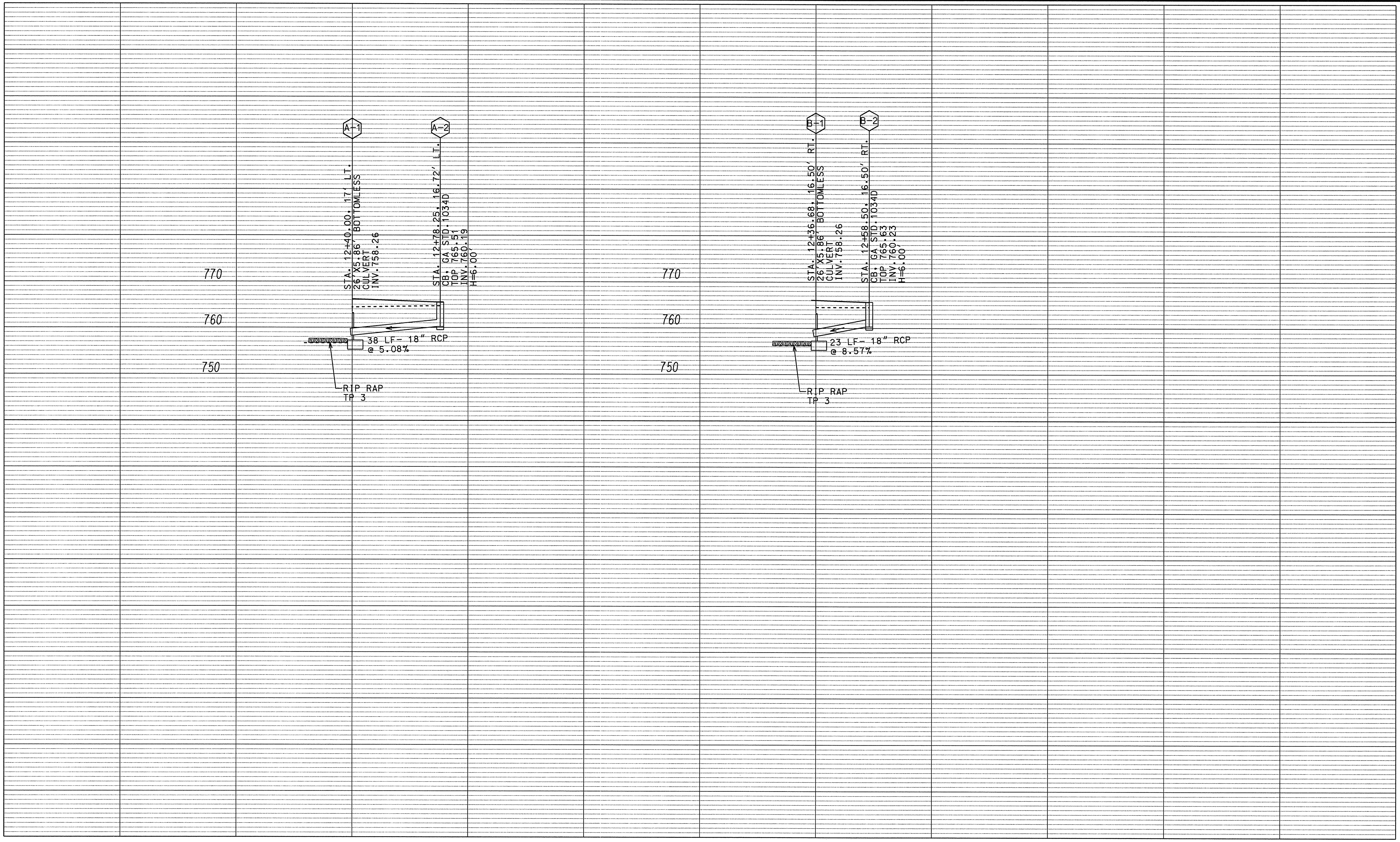
OFFICE:

STAGING DETAILS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 20-01

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA	S013572-PRC	8	37



SCALE 1 inch = 10 feet Vert.
SCALE 1 inch = 20 feet Horiz.

REVISION DATES

ROCKDALE COUNTY
STORMWATER DIVISION

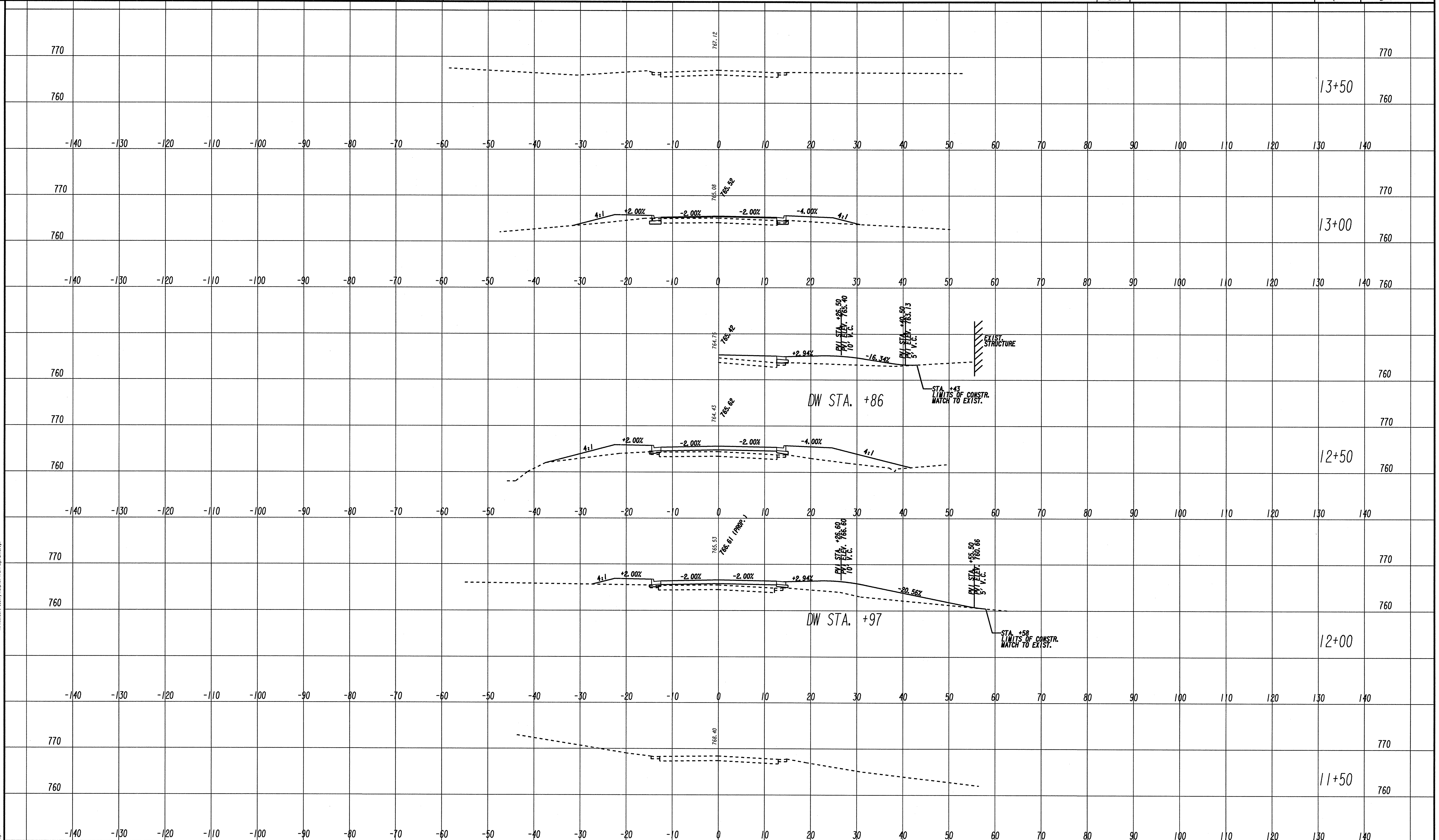
OFFICE:

DRAINAGE PROFILE

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No.
22-01

5/20/2011 G20EDG



ATKINS

(SCALE IN FEET)
H. 0 10 20 30
V. 0 10 20 30

REVISION DATES

ROCKDALE COUNTY
STORMWATER DIVISION

OFFICE:

CROSS SECTIONS

HAMPTON TRAIL
STA. 11+50 TO STA. 13+50

DRAWING No. 23-01

5/20/2011 SUXSEW

28-MAY-2013 09:42	9:42:30 AM	w:\TransDesign\Iplot\colortables\XeroxGREY.tbl	H:\Rockdale County\Hampton Trail\dgn\UT00.dgn[0, 24-28056]	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER:14627		w:\TransDesign\Iplot\pentables\Xerox_FS.pen		GEORGIA		10	37

UTILITY LEGEND

EXISTING OH	OH TO BE REMOVED	PROPOSED OH	
			ELECTRIC
			ELECTRIC/TELECOMMUNICATIONS
			ELECTRIC/CABLE TV
			ELECTRIC/TRAFFIC CONTROL
			ELECTRIC/TELECOMMUNICATIONS/CABLE TV
			ELECTRIC/TELECOMMUNICATIONS/CABLE TV/TRAFFIC CONTROL
			ELECTRIC/CABLE TV/TRAFFIC CONTROL
			ELECTRIC/TELECOMMUNICATIONS/TRAFFIC CONTROL
			GUY WIRE
			TELECOMMUNICATIONS
			TELECOMMUNICATIONS/TRAFFIC CONTROL
			TELECOMMUNICATIONS/CABLE TV/TRAFFIC CONTROL
			TELECOMMUNICATIONS/CABLE TV
			CABLE TV
			CABLE TV/TRAFFIC CONTROL
			TRAFFIC CONTROL

EXISTING UG	UG TO BE REMOVED	PROPOSED UG	
			ELECTRIC
			ELECTRIC OL-B
			ELECTRIC OL-C
			TELECOMMUNICATIONS
			TELECOMMUNICATIONS OL-B
			TELECOMMUNICATIONS OL-C
			CABLE TV
			CABLE TV OL-B
			CABLE TV OL-C
			WATER
			WATER SHOWN FOR 24" AND ABOVE
			WATER SHOWN FOR 24" AND ABOVE, QL-B
			WATER SHOWN FOR 24" AND ABOVE, QL-C
			NON-POTABLE WATER
			NON-POTABLE WATER SHOWN FOR 24" AND ABOVE
			NON-POTABLE WATER SHOWN FOR 24" AND ABOVE, QL-B
			NON-POTABLE WATER SHOWN FOR 24" AND ABOVE, QL-C
			STEAM
			STEAM SHOWN FOR 24" AND ABOVE
			STEAM SHOWN FOR 24" AND ABOVE, QL-B
			STEAM SHOWN FOR 24" AND ABOVE, QL-C
			SANITARY SEWER WITH FLOW DIRECTION
			SANITARY SEWER WITH FLOW DIRECTION SHOWN FOR 24" AND ABOVE
			SANITARY SEWER WITH FLOW DIRECTION SHOWN FOR 24" AND ABOVE, QL-B
			SANITARY SEWER WITH FLOW DIRECTION SHOWN FOR 24" AND ABOVE, QL-C
			SANITARY SEWER FORCE MAIN WITH FLOW DIRECTION
			SANITARY SEWER FORCE MAIN WITH FLOW DIRECTION, QL-B
			SANITARY SEWER FORCE MAIN WITH FLOW DIRECTION, QL-C
			GAS
			GAS SHOWN FOR 24" AND ABOVE
			GAS SHOWN FOR 24" AND ABOVE, QL-B
			GAS SHOWN FOR 24" AND ABOVE, QL-C
			PETROLEUM
			PETROLEUM SHOWN FOR 24" AND ABOVE
			PETROLEUM SHOWN FOR 24" AND ABOVE, QL-B
			PETROLEUM SHOWN FOR 24" AND ABOVE, QL-C
			TRAFFIC CONTROL
			TRAFFIC CONTROL QL-B
			TRAFFIC CONTROL QL-C
			UNKNOWN UTILITY FOUND IN SUE INVESTIGATION, QL-B

EXISTING	PROPOSED	TEMPORARY	
			ELECTRIC MANHOLE
			HAND HOLE
			TRANSFORMER
			ELECTRIC METER
			UTILITY POLE/GUY POLE
			LIGHT POLE
			GUY WIRE
			ELECTRIC BOX
			MARKER
			TELECOMMUNICATIONS MANHOLE
			TELECOMMUNICATIONS PEDESTAL
			SPLICE BOX
			SUBCRIBER LOOP CARRIER (GK-a "SLICK")
			CABINET
			PHONE BOOTH
			CABLE TV PEDESTAL
			CABLE TV MANHOLE
			WATER VALVE
			WATER METER
			WATER MANHOLE
			FIRE HYDRANT
			BACKFLOW PREVENTER
			PRESSURE INDICATOR VALVE
			AIR RELEASE VALVE

EXISTING	PROPOSED	TEMPORARY	
			WELL
			WATER VAULT
			WATER VALVE MARKER
			STAND PIPE
			CLEANOUT
			SANITARY SEWER MANHOLE
			AIR RELEASE VALVE
			GREASE TRAP
			SANITARY SEWER FORCE MAIN VALVE
			VENT
			GAS VALVE
			GAS METER
			GAS MANHOLE
			GAS PRESSURE REGULATOR
			GAS VAULT
			PETROLEUM VALVE

MISC.

- LOS — LIMITS OF OVERHEAD AND SUBSURFACE UTILITY INVESTIGATION
- TH — TEST HOLE
- QUALITY LEVEL (QL) DELINEATION
- 123 — POLE ID
- A01 — SANITARY SEWER MANHOLE (SSMH) ID

GEORGIA 811
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Know what's **below.**
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GPLN

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REVISION DATES		

ROCKDALE COUNTY
STORMWATER DIVISION

UTILITY PLANS

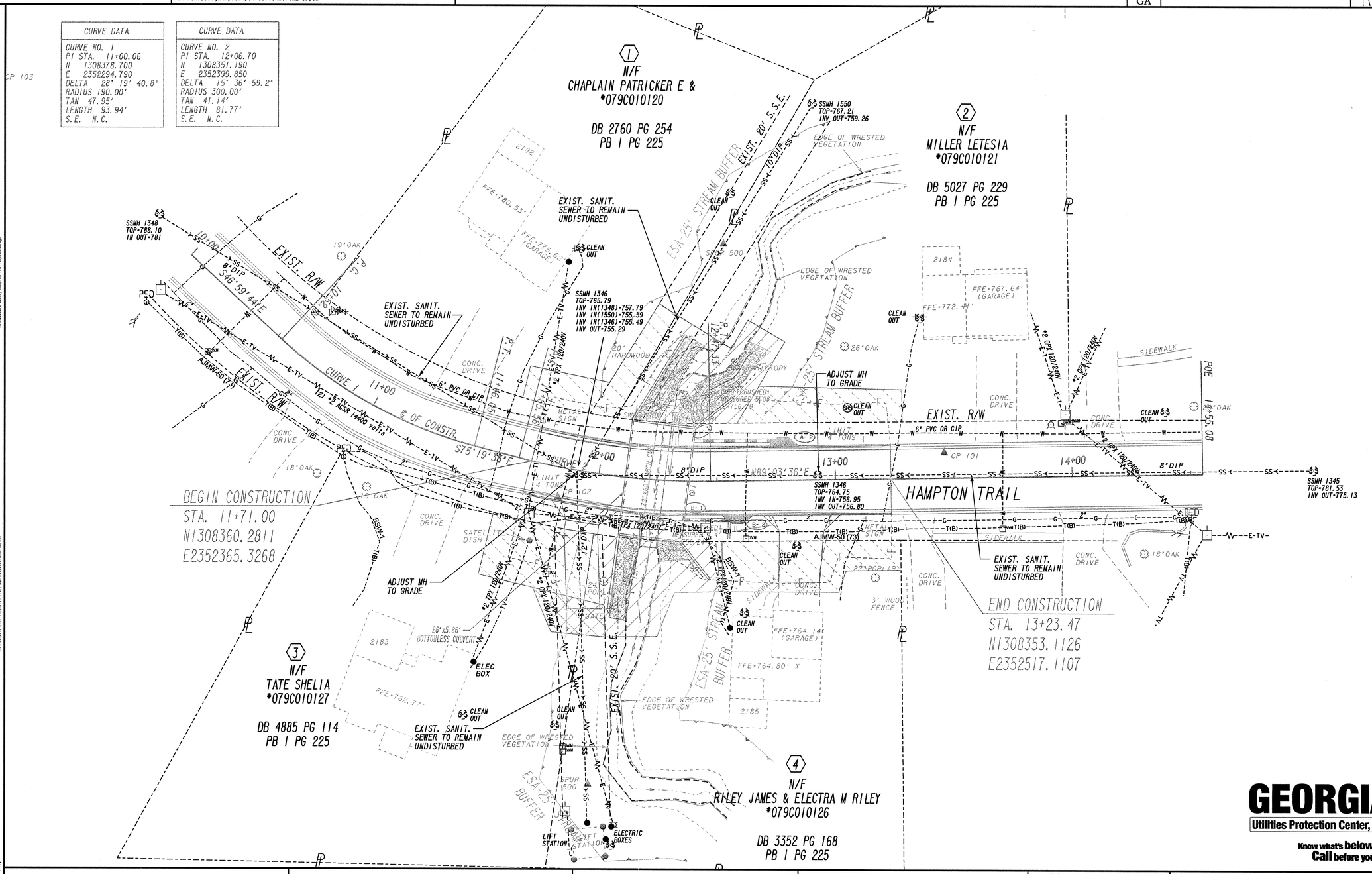
HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No.
24-01

6/11/2013 7:57:45 AM USER:14627	$PRF8$ w:\TransDesign\lplot\pentables\Xerox_FS.pen	H:\Rockdale County\Hampton Trail\dgn\UTO1.dgn[0-46, 28024, 28056-28073, 28085-34009]	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
			GA		11	37

CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1308378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
TAN 47.95'
LENGTH 93.94'
S.E. N.C.

CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
N 1308351.190
E 2352399.850
DELTA 15° 36' 59.2"
RADIUS 300.00'
TAN 41.14'
LENGTH 81.77'
S.E. N.C.



GEORGIA811
Utilities Protection Center, Inc.
Know what's **below.** **Call** before you dig.

PROPERTY AND EXISTING R/W LINE	-----℄-----
REQUIRED R/W LINE	———
CONSTRUCTION LIMITS	--C--F--
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS	BLA
END LIMIT OF ACCESS	ELA
LIMIT OF ACCESS	
REQ'D R/W & LIMIT OF ACCESS	

ATKINS

SCALE IN FEET
0 20 40 80

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT
OFFICE:

EXISTING UTILITY PLANS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 24-02

6/20/2011 GPLN

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USER:14627	w:\TransDesign\lplot\pentables\Xerox_FS.pen		GA		12	37

CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1306378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
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CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
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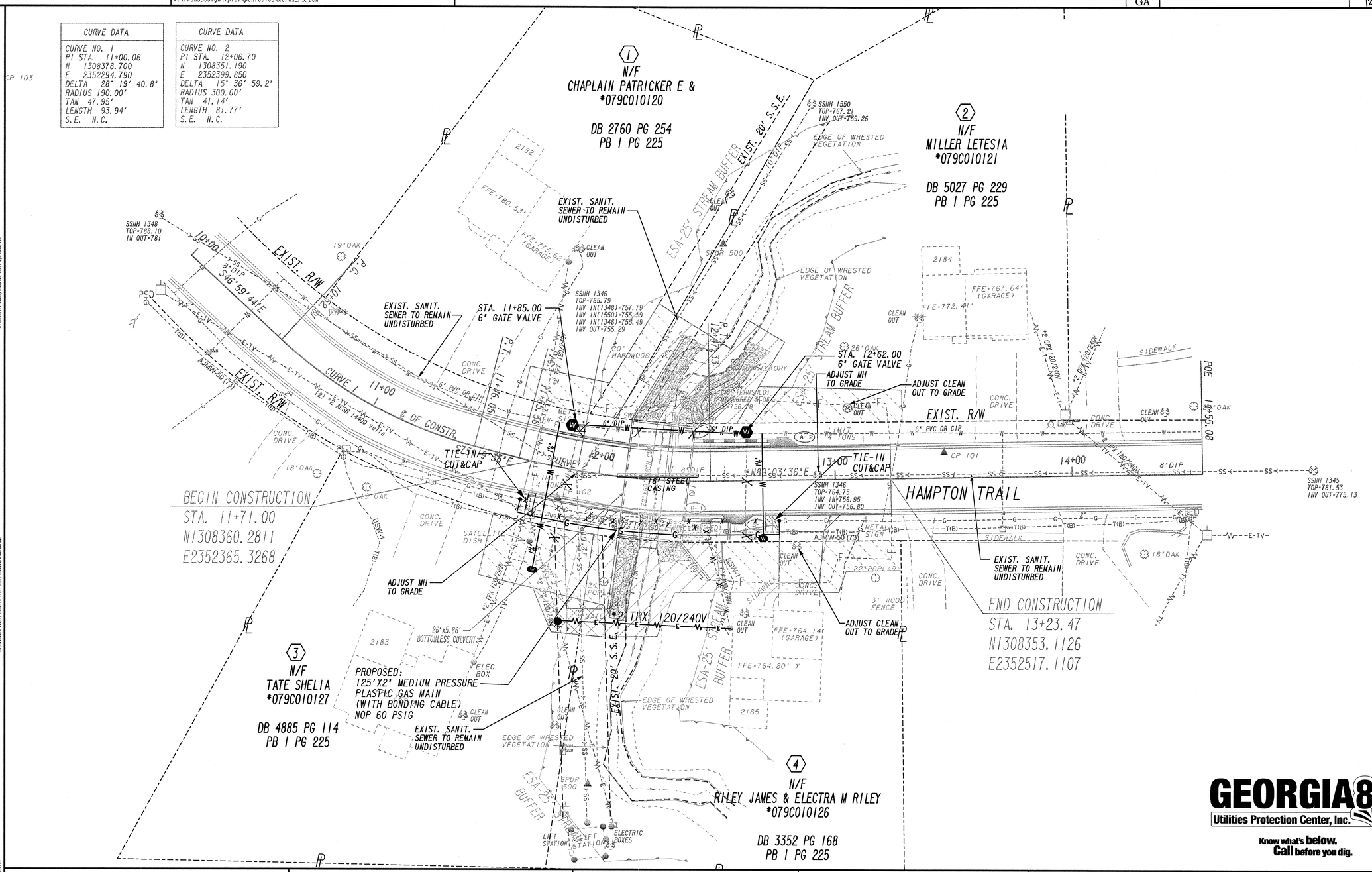
S.E. N.C.



PROPERTY AND EXISTING R/W LINE	-----℄-----
REQUIRED R/W LINE	———
CONSTRUCTION LIMITS	--C--F--
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS	BLA
END LIMIT OF ACCESS	ELA
LIMIT OF ACCESS	—ooo—ooo—
REQ'D R/W & LIMIT OF ACCESS	—|||—|||—

ATKINS

SCALE IN FEET
0 20 40 80

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT
OFFICE:

PROPOSE UTILITY PLANS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. 24-03

6/20/2011 GPLN

"FOR BIDDING PURPOSES ONLY"

NOTES

GENERAL NOTES:

1. THIS BRIDGE HAS BEEN DESIGNED FOR GENERAL SITE CONDITIONS. THE PROJECT ENGINEER SHALL BE RESPONSIBLE FOR THE STRUCTURE'S SUITABILITY TO THE EXISTING SITE CONDITIONS AND FOR THE HYDRAULIC EVALUATION – INCLUDING SCOUR AND CONFIRMATION OF SOIL CONDITIONS.

2. PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH THE ENGINEER.

3. ONLY CONTECH BRIDGE SOLUTIONS INC. THE CON/SPAN® APPROVED PRECASTER IN GEORGIA MAY PROVIDE THE STRUCTURE DESIGNED IN ACCORDANCE WITH THESE PLANS.

4. THE USE OF ANOTHER PRECAST STRUCTURE WITH THE DESIGN ASSUMPTIONS USED FOR THE CON/SPAN® STRUCTURE MAY LEAD TO SERIOUS DESIGN ERRORS. USE OF ANY OTHER PRECAST STRUCTURE WITH THIS DESIGN AND DRAWINGS VOIDS ANY CERTIFICATION OF THIS DESIGN AND WARRANTY. CONTECH BRIDGE SOLUTIONS INC. ASSUMES NO LIABILITY FOR DESIGN OF ANY ALTERNATE OR SIMILAR TYPE STRUCTURES.

5. ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT SIGNED AND SEALED DESIGN DRAWINGS (AND CALCULATIONS) ARE SUBMITTED TO THE ENGINEER 2 WEEKS PRIOR TO THE BID DATE FOR REVIEW AND APPROVAL.

6. PROPOSED ALTERNATES TO A CON/SPAN® BRIDGE SYSTEM MUST SUBMIT AT LEAST TWO (2) INDEPENDENTLY VERIFIED FULL SCALE LOAD TESTS THAT CONFIRM THE PROPOSED DESIGN METHODOLOGY OF THE THREE SIDED/ARCH STRUCTURE(S). THE PROPOSED ALTERNATE, UPON SATISFACTORY CONFIRMATION OF DESIGN METHODOLOGY, MAY BE CONSIDERED AN ACCEPTABLE ALTERNATE.

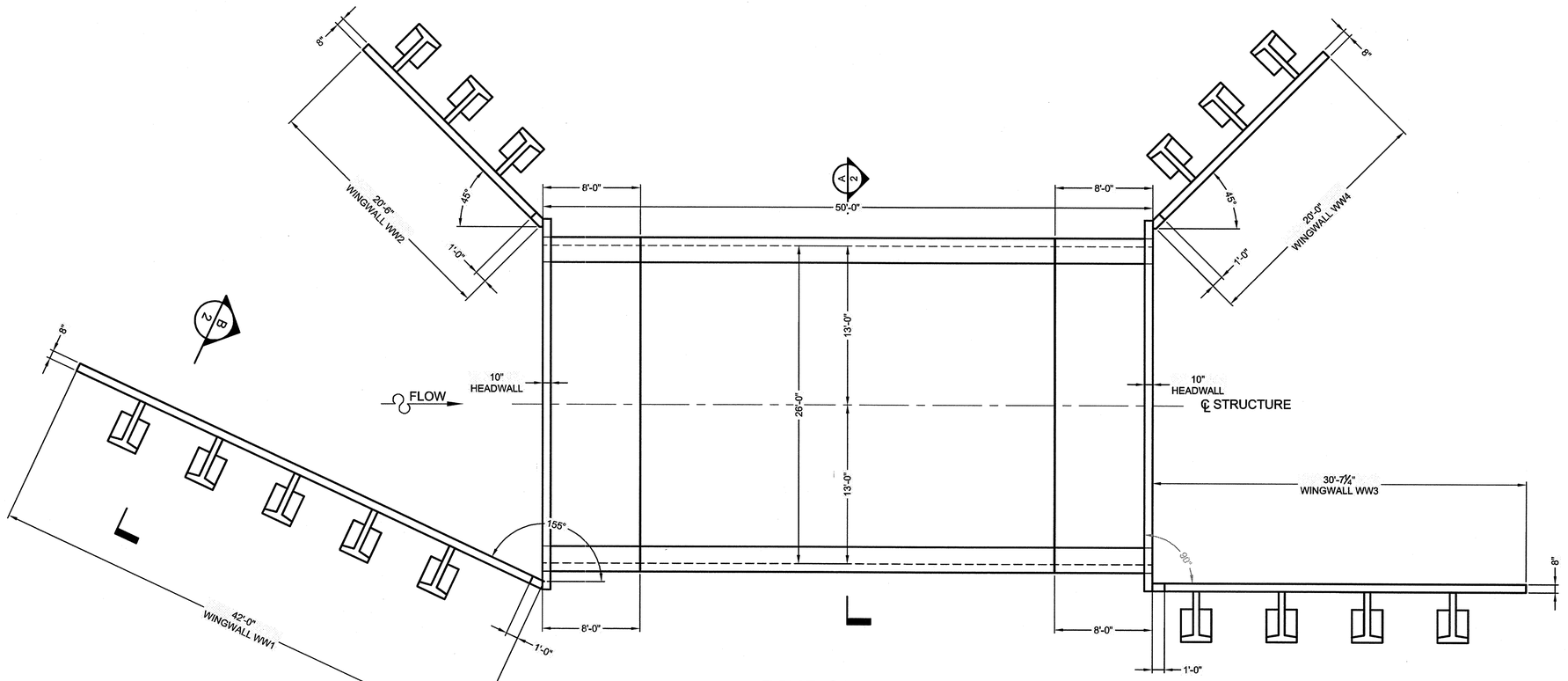
DESIGN DATA

DESIGN LOADING:
BRIDGE UNITS: HS20-44
HEADWALLS: EARTH PRESSURE ONLY
WINGWALLS: EARTH PRESSURE ONLY
DESIGN FILL HEIGHT: 1'-0" MIN. TO 2'-0" MAX.
FROM TOP OF CROWN TO TOP OF PAVEMENT.
DESIGN METHOD: LOAD FACTOR PER AASHTO SPECIFICATION
NET ALLOWABLE SOIL BEARING PRESSURE: 2000 PSF *
GROSS ALLOWABLE SOIL BEARING PRESSURE: 2240 PSF *

*FOUNDATION EXCAVATION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT FOR THIS PROJECT PREPARED BY CONSTRUCTION MATERIALS SERVICES, INC. DATED 3/15/13.

MATERIALS

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.



BRIDGE PLAN

MARK	DATE	REVISION DESCRIPTION	BY
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CON/SPAN® E-SERIES EXPRESS™ Foundations
PROPOSAL DRAWING

HAMPTON TRAIL DRAINAGE IMPROVEMENTS

CONYERS, GEORGIA

PROJECT No.:	SEQ. No.:	DATE:
483309	010	6/12/2013
DESIGNED: MRP		DRAWN: SP
CHECKED: XXX		APPROVED: XXX
SHEET NO.: 1 OF 6		

DRAWING NO. 36-01

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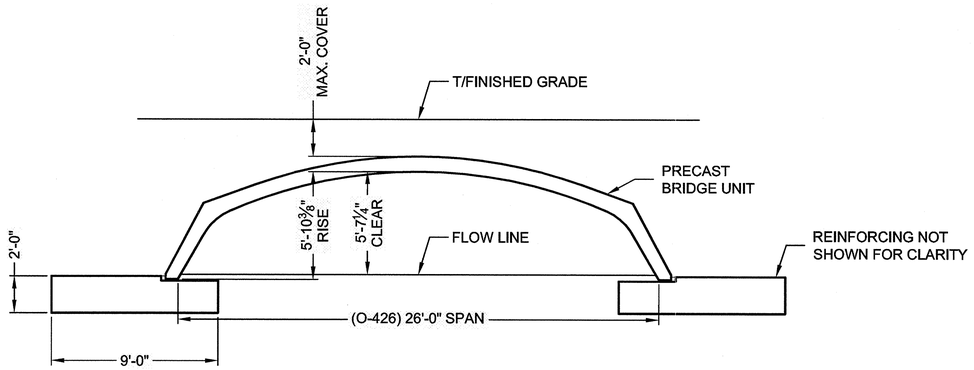
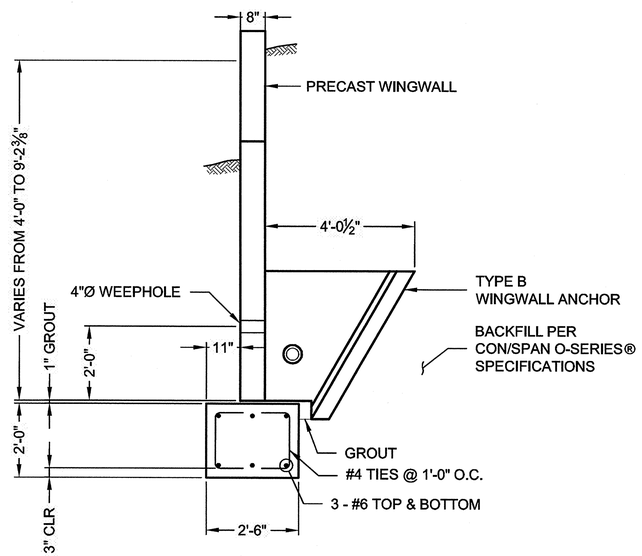
"FOR BIDDING PURPOSES ONLY"



SECTION A/1

0 1' 2' 4'



SECTION B/1

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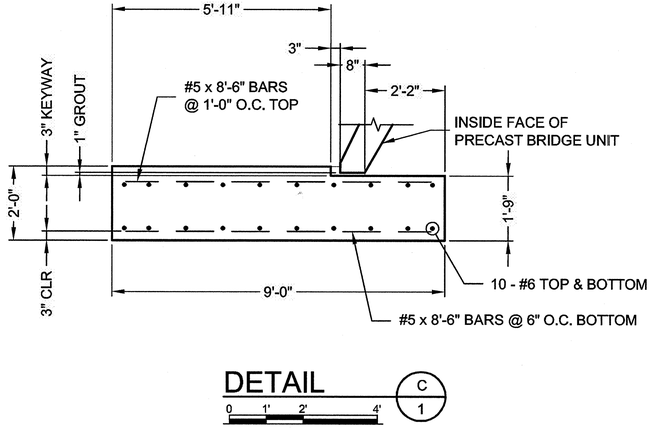

DETAIL C/1

0 1' 2' 4'

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CONYERS, GEORGIA

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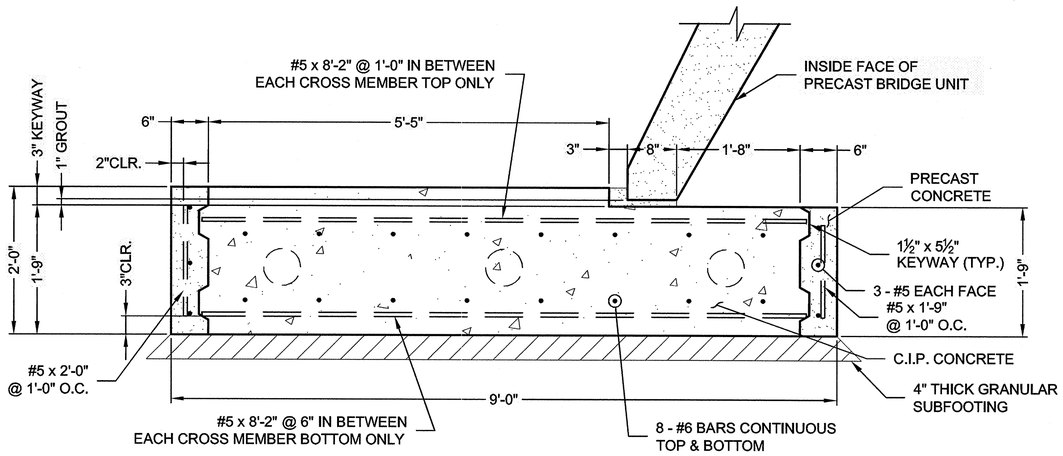
SHEET NO.: 2 OF 6		

DRAWING NO. 36-02

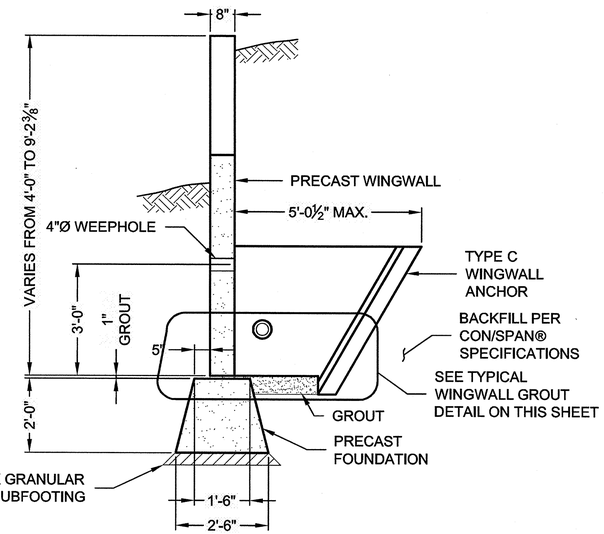
"FOR BIDDING PURPOSES ONLY"

PRECAST REINFORCED CONCRETE EXPRESS ™ FOUNDATION NOTES:

1. PRECAST FOUNDATION UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN BRIDGE SYSTEMS.
2. PRECAST AND CAST-IN-PLACE CONCRETE FOR EXPRESS FOUNDATIONS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOUNDATIONS SHALL CONFORM TO ASTM A615 OR A996, GRADE 60.
3. PRECAST FOUNDATION UNITS SHALL BE SET ON A MINIMUM 4-INCH THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOUNDATION.
4. COMPACTED BACKFILL MATERIAL MUST BE PLACED UP TO THE TOP OF THE PRECAST FOUNDATION UNITS ON BOTH SIDES PRIOR TO PLACING CAST-IN-PLACE CONCRETE PORTION OF FOUNDATIONS.
5. CONCRETE SURFACES WHICH CAST-IN-PLACE CONCRETE WILL BE PLACED AGAINST SHALL BE CLEAN, FREE OF LAITANCE, DIRT, STANDING WATER AND ANY OTHER MATERIAL THAT MAY IMPAIR THE BOND BETWEEN THE PRECAST CONCRETE AND CAST-IN-PLACE CONCRETE.
6. CAST-IN-PLACE CONCRETE MIX USED TO FILL FOUNDATION SHALL BE ABLE TO FLOW INTO ARCH SHIM SPACE OR NON-SHRINK GROUT SHALL BE PLACED UNDER ARCH UNIT LEG AT FOUNDATION CROSS MEMBERS PRIOR TO PLACEMENT OF CAST-IN-PLACE PORTION OF FOUNDATION.
7. IF THE AMBIENT TEMPERATURE AT THE TIME OF PLACEMENT OF CAST-IN-PLACE CONCRETE IS ABOVE 90°F OR EXPECTED TO GO BELOW 35°F DURING THE CURE PERIOD, THE CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS, SECTION 8.6.2 HOT WEATHER PROTECTION OR SECTION 8.6.4 COLD WEATHER PROTECTION.
8. IF PRECAST ARCH UNITS ARE TO BE ERECTED ON PRECAST FOUNDATION UNITS PRIOR TO PLACEMENT OF CAST-IN-PLACE CONCRETE, THE CABLE TIES/RODS (SHIPPED WITH LONG-SPAN STRUCTURES) MUST REMAIN IN PLACE AND MAY NOT BE REMOVED UNTIL CAST-IN-PLACE CONCRETE HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
9. IF CABLE TIES/RODS (SHIPPED WITH LONG-SPAN STRUCTURES) MUST BE REMOVED PRIOR TO SETTING OF ARCH UNITS, CAST-IN-PLACE CONCRETE PORTION OF FOUNDATIONS MUST BE PLACED AND ALLOWED TO REACH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI BEFORE PLACEMENT OF PRECAST ARCH UNITS, HEADWALLS AND WINGWALLS. CONTRACTOR MUST FOLLOW SPECIFICATION SECTION 13.4 AND NOTIFY CONTECH ENGINEER PRIOR TO REMOVING CABLES TIES/RODS.
10. IF CAST-IN-PLACE CONCRETE PORTION OF FOUNDATION IS TO BE PLACED PRIOR TO SETTING OF ARCH UNITS, HEADWALLS OR WINGWALLS, CAST-IN-PLACE CONCRETE SHALL REACH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI BEFORE PRECAST ARCH UNITS, HEADWALLS AND WINGWALLS ARE SET.
11. FOUNDATION CONCRETE SHALL REACH ITS FULL DESIGN STRENGTH BEFORE BACKFILLING OF ARCH UNITS MAY COMMENCE.

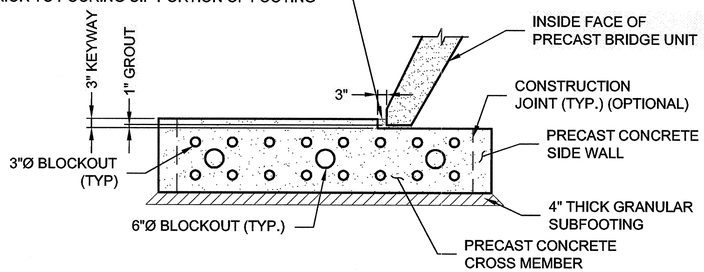


DETAIL 1 CT4



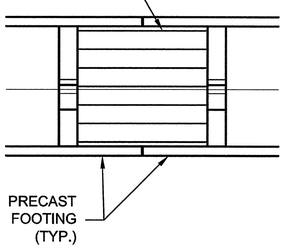
SECTION B CT2

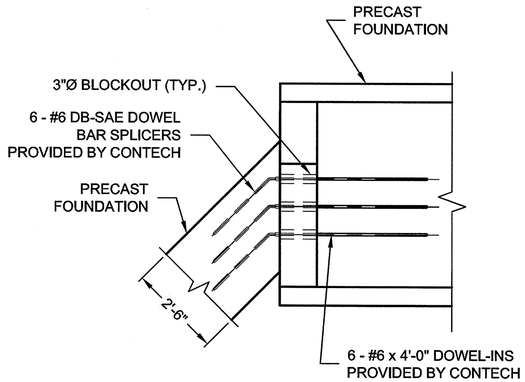
CONCRETE MIX USED TO FILL FOOTING MUST BE ABLE TO BE WORKED UNDER ARCH SHIM SPACE, OR NON SHRINK GROUT USED UNDER ARCH LEG PRIOR TO POURING CIP PORTION OF FOOTING



SECTION C CT3

PROVIDE 3'-5" LAP SPLICE (#6 x 6'-10") TOP & BOTTOM EITHER SIDE OF JOINT FOR LONGITUDINAL #6 BAR IN C.I.P. PORTION OF FOOTING (TYP. 2 LOCATIONS)





DETAIL 2 CT3
NOT TO SCALE

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PROJECT No.:	SEQ. No.:	DATE:
483309	010	6/12/2013
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SHEET NO.: 3 OF 6		

DRAWING NO. 36-03

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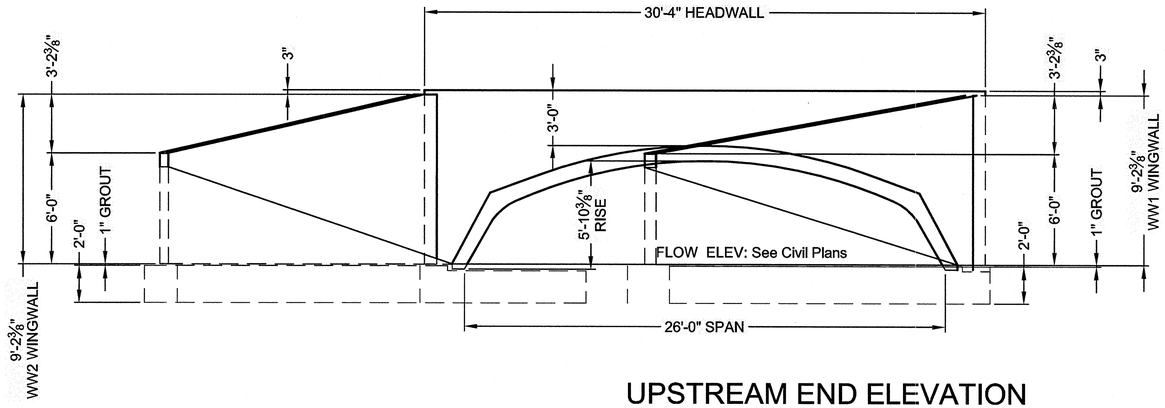
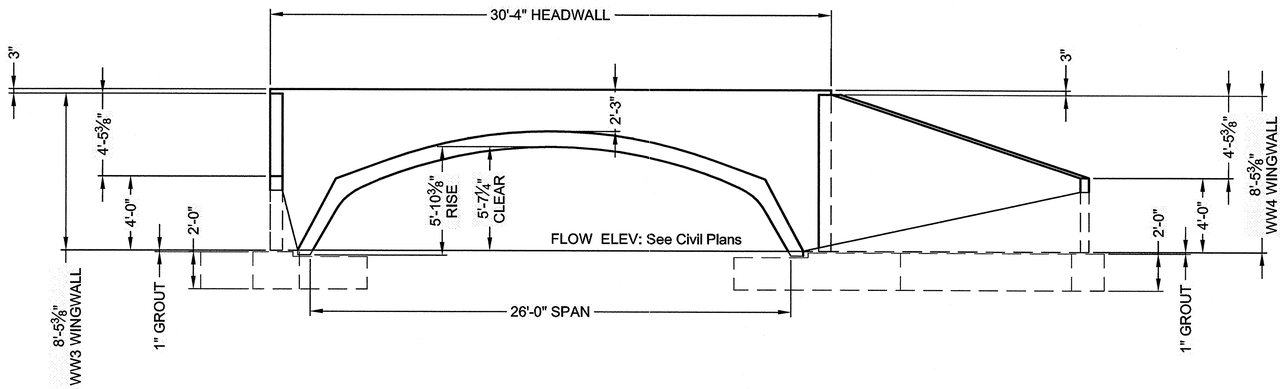


UPSTREAM END ELEVATION



DOWNSTREAM END ELEVATION

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PROPOSAL DRAWING

HAMPTON TRAIL DRAINAGE IMPROVEMENTS

CONYERS, GEORGIA

PROJECT No.:	SEQ. No.:	DATE:
483309	010	6/12/2013
DESIGNED: MRP		DRAWN: SP
CHECKED: XXX		APPROVED: XXX
SHEET NO.: 4 OF 6		

DRAWING NO. 36-04

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS

"FOR BIDDING PURPOSES ONLY"

1. DESCRIPTION
   - 1.1. TYPE - THIS WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTING A CON/SPAN® BRIDGE SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS OR AS ESTABLISHED BY THE ENGINEER. IN SITUATIONS WHERE TWO OR MORE SPECIFICATIONS APPLY TO THIS WORK, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
   - 1.2. DESIGNATION - PRECAST REINFORCED CONCRETE CON/SPAN® BRIDGE UNITS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY SPAN AND RISE. PRECAST REINFORCED CONCRETE WINGWALLS AND HEADWALLS MANUFACTURED IN ACCORDANCE WITH THIS SPECIFICATION SHALL BE DESIGNATED BY LENGTH, HEIGHT, AND DEFLECTION ANGLE.

2. DESIGN
   - 2.1. SPECIFICATIONS - THE PRECAST ELEMENTS ARE DESIGNED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 17TH EDITION, ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002. A MINIMUM OF ONE FOOT OF COVER ABOVE THE CROWN OF THE BRIDGE UNITS IS REQUIRED IN THE INSTALLED CONDITION. (UNLESS NOTED OTHERWISE ON THE SHOP DRAWINGS AND DESIGNED ACCORDINGLY.)

3. MATERIALS
   - 3.1. CONCRETE - THE CONCRETE FOR THE PRECAST ELEMENTS SHALL BE AIR-ENTRAINED WHEN INSTALLED IN AREAS SUBJECT TO FREEZE-THAW CONDITIONS, COMPOSED OF PORTLAND CEMENT, FINE AND COARSE AGGREGATES, ADMIXTURES AND WATER. AIR-ENTRAINED CONCRETE SHALL CONTAIN 6 ± 2 PERCENT AIR. THE AIR- ENTRAINING ADMIXTURE SHALL CONFORM TO AASHT0 M154. THE MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE AS SHOWN ON THE SHOP DRAWINGS.
     - 3.1.1. PORTLAND CEMENT - SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATIONS C150-TYPE I, TYPE II, OR TYPE III CEMENT.
     - 3.1.2. COARSE AGGREGATE - SHALL CONSIST OF STONE HAVING A MAXIMUM SIZE OF 1 INCH. AGGREGATE SHALL MEET REQUIREMENTS FOR ASTM C33.
     - 3.1.3. WATER REDUCING ADMIXTURE - THE MANUFACTURER MAY SUBMIT, FOR APPROVAL BY THE ENGINEER, A WATER-REDUCING ADMIXTURE FOR THE PURPOSE OF INCREASING WORKABILITY AND REDUCING THE WATER REQUIREMENT FOR THE CONCRETE.
     - 3.1.4. CALCIUM CHLORIDE - THE ADDITION TO THE MIX OF CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE WILL NOT BE PERMITTED.
     - 3.1.5. MIXTURE - THE AGGREGATES, CEMENT AND WATER SHALL BE PROPORTIONED AND MIXED IN A BATCH MIXER TO PRODUCE A HOMOGENEOUS CONCRETE MEETING THE STRENGTH REQUIREMENTS OF THIS SPECIFICATION. THE PROPORTION OF PORTLAND CEMENT IN THE MIXTURE SHALL NOT BE LESS THAN 564 POUNDS (6 SACKS) PER CUBIC YARD OF CONCRETE.
   - 3.2. STEEL REINFORCEMENT
     - 3.2.1. THE MINIMUM STEEL YIELD STRENGTH SHALL BE 60,000 PSI, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS.
     - 3.2.2. ALL REINFORCING STEEL FOR THE PRECAST ELEMENTS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE DETAILED SHOP DRAWINGS SUBMITTED BY THE MANUFACTURER.
     - 3.2.3. REINFORCEMENT SHALL CONSIST OF WELDED WIRE FABRIC CONFORMING TO ASTM SPECIFICATION A 185 OR A 497, OR DEFORMED BILLET STEEL BARS CONFORMING TO ASTM SPECIFICATION A 615, GRADE 60. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY CONSIST OF WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS.
   - 3.3. STEEL HARDWARE
     - 3.3.1. BOLTS AND THREADED RODS FOR WINGWALL CONNECTIONS SHALL CONFORM TO ASTM A 307. NUTS SHALL CONFORM TO AASHTO M292 (ASTM A194) GRADE 2H. ALL BOLTS, THREADED RODS AND NUTS USED IN WINGWALL CONNECTIONS SHALL BE MECHANICALLY ZINC COATED IN ACCORDANCE WITH ASTM B695 CLASS 50.
     - 3.3.2. STRUCTURAL STEEL FOR WINGWALL CONNECTION PLATES AND PLATE WASHERS SHALL CONFORM TO AASHTO M 270 (ASTM A 709) GRADE 36 AND SHALL BE HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
     - 3.3.3. INSERTS FOR WINGWALLS SHALL BE 1" DIAMETER TWO-BOLT PRESET WINGWALL ANCHORS AS MANUFACTURED BY DAYTON/RICHMOND CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700.
     - 3.3.4. FERRULE LOOP INSERTS SHALL BE F-64 FERRULE LOOP INSERTS AS MANUFACTURED BY DAYTON/RICHMOND CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700.
     - 3.3.5. HOOK BOLTS USED IN ATTACHED HEADWALL CONNECTIONS SHALL BE ASTM A307.
     - 3.3.6. INSERTS FOR DETACHED HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL, F-58 EXPANDED COIL INSERTS AS MANUFACTURED BY DAYTON/RICHMOND CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700. COIL RODS AND NUTS USED IN HEADWALL CONNECTIONS SHALL BE AISI TYPE 304 STAINLESS STEEL. WASHERS USED IN HEADWALL CONNECTIONS SHALL BE EITHER AISI TYPE 304 STAINLESS STEEL PLATE WASHERS OR AASHTO M270 (ASTM A709) GRADE 36 PLATE WASHERS HOT DIP GALVANIZED AS PER AASHTO M111 (ASTM A123).
     - 3.3.7. REINFORCING BAR SPLICES SHALL BE MADE USING THE DOWEL BAR SPLICER SYSTEM AS MANUFACTURED BY DAYTON/RICHMOND CONCRETE ACCESSORIES, MIAMISBURG, OHIO, (800) 745-3700, AND SHALL CONSIST OF THE DOWEL BAR SPLICER (DB-SAE) AND DOWEL-IN (DI).

4. MANUFACTURE OF PRECAST ELEMENTS - SUBJECT TO THE PROVISIONS OF SECTION 5, BELOW, THE PRECAST ELEMENT DIMENSION AND REINFORCEMENT DETAILS SHALL BE AS PRESCRIBED IN THE PLAN AND SHOP DRAWINGS PROVIDED BY THE MANUFACTURER.
   - 4.1. FORMS - THE FORMS USED IN MANUFACTURE SHALL BE SUFFICIENTLY RIGID AND ACCURATE TO MAINTAIN THE REQUIRED PRECAST ELEMENT DIMENSIONS WITHIN THE PERMISSIBLE VARIATIONS GIVEN IN SECTION 5 OF THESE SPECIFICATIONS. ALL CASTING SURFACES SHALL BE OF A SMOOTH MATERIAL.
   - 4.2. PLACEMENT OF REINFORCEMENT
     - 4.2.1. PLACEMENT OF REINFORCEMENT IN PRECAST BRIDGE UNITS - THE COVER OF CONCRETE OVER THE OUTSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 2" MINIMUM. THE COVER OF CONCRETE OVER THE INSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 1½" MINIMUM, UNLESS OTHERWISE NOTED ON THE SHOP DRAWINGS. THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACH SECTION. REINFORCEMENT SHALL BE ASSEMBLED UTILIZING SINGLE OR MULTIPLE LAYERS OF WELDED WIRE FABRIC (NOT TO EXCEED 3 LAYERS), SUPPLEMENTED WITH A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS, WHEN NECESSARY. WELDED WIRE FABRIC SHALL BE COMPOSED OF CIRCUMFERENTIAL AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE BRIDGE UNIT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL DISTRIBUTION REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW. THE ENDS OF THE LONGITUDINAL DISTRIBUTION REINFORCEMENT SHALL BE NOT MORE THAN 3" AND NOT LESS THAN 1½" FROM THE ENDS OF THE BRIDGE UNIT.
     - 4.2.2. BENDING OF REINFORCEMENT FOR PRECAST BRIDGE UNITS - THE OUTSIDE AND INSIDE CIRCUMFERENTIAL REINFORCING STEEL FOR THE CORNERS OF THE BRIDGE SHALL BE BENT TO SUCH AN ANGLE THAT IS APPROXIMATELY EQUAL TO THE CONFIGURATION OF THE BRIDGE'S OUTSIDE CORNER.
     - 4.2.3. PLACEMENT OF REINFORCEMENT FOR PRECAST WINGWALLS AND HEADWALLS - THE COVER OF CONCRETE OVER THE LONGITUDINAL AND TRANSVERSE REINFORCEMENT SHALL BE 2" MINIMUM. THE CLEAR DISTANCE FROM THE END OF EACH PRECAST ELEMENT TO THE END OF REINFORCING STEEL SHALL NOT BE LESS THAN 1½" NOR MORE THAN 3". REINFORCEMENT SHALL BE ASSEMBLED UTILIZING A SINGLE LAYER OF WELDED WIRE FABRIC, OR A SINGLE LAYER OF DEFORMED BILLET-STEEL BARS. WELDED WIRE FABRIC SHALL BE COMPOSED OF TRANSVERSE AND LONGITUDINAL WIRES MEETING THE SPACING REQUIREMENTS OF 4.3, BELOW, AND SHALL CONTAIN SUFFICIENT LONGITUDINAL WIRES EXTENDING THROUGH THE ELEMENT TO MAINTAIN THE SHAPE AND POSITION OF THE REINFORCEMENT. LONGITUDINAL REINFORCEMENT MAY BE WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS, AND SHALL MEET THE SPACING REQUIREMENTS OF 4.3, BELOW.
   - 4.3. LAPS, WELDS, SPACING
     - 4.3.1. LAPS, WELDS, AND SPACING FOR PRECAST BRIDGE UNITS - TENSION SPLICES IN THE CIRCUMFERENTIAL REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.30.2 AND 8.32.6. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.30.1 AND 8.32.5. THE OVERLAP OF WELDED WIRE FABRIC SHALL BE MEASURED BETWEEN THE OUTER-MOST LONGITUDINAL WIRES OF EACH FABRIC SHEET. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.25. FOR SPLICES OTHER THAN TENSION SPLICES, THE OVERLAP SHALL BE A MINIMUM OF 1'-0" FOR WELDED WIRE FABRIC OR DEFORMED BILLET-STEEL BARS. THE SPACING CENTER TO CENTER OF THE CIRCUMFERENTIAL WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL DISTRIBUTION STEEL FOR EITHER LINE OF REINFORCING IN THE TOP SLAB SHALL BE NOT MORE THAN 1'-4".
     - 4.3.2. LAPS, WELDS, AND SPACING FOR PRECAST WINGWALLS AND HEADWALLS - SPLICES IN THE REINFORCEMENT SHALL BE MADE BY LAPPING. LAPS MAY BE TACK WELDED TOGETHER FOR ASSEMBLY PURPOSES. FOR SMOOTH WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.30.2 AND 8.32.6. FOR DEFORMED WELDED WIRE FABRIC, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.30.1 AND 8.32.5. FOR DEFORMED BILLET-STEEL BARS, THE OVERLAP SHALL MEET THE REQUIREMENTS OF AASHTO 8.25. THE SPACING CENTER-TO-CENTER OF THE WIRES IN A WIRE FABRIC SHEET SHALL BE NOT LESS THAN 2" NOR MORE THAN 8".
   - 4.4. CURING - THE PRECAST CONCRETE ELEMENTS SHALL BE CURED FOR A SUFFICIENT LENGTH OF TIME SO THAT THE CONCRETE WILL DEVELOP THE SPECIFIED COMPRESSIVE STRENGTH IN 28 DAYS OR LESS. ANY ONE OF THE FOLLOWING METHODS OF CURING OR COMBINATIONS THERE OF SHALL BE USED:
     - 4.4.1. STEAM CURING - THE PRECAST ELEMENTS MAY BE LOW-PRESSURE STEAM CURED BY A SYSTEM THAT WILL MAINTAIN A MOIST ATMOSPHERE.
     - 4.4.2. WATER CURING - THE PRECAST ELEMENTS MAY BE WATER CURED BY ANY METHOD THAT WILL KEEP THE SECTIONS MOIST.
     - 4.4.3. MEMBRANE CURING - A SEALING MEMBRANE CONFORMING TO THE REQUIREMENTS OF ASTM SPECIFICATION C309 MAY BE APPLIED AND SHALL BE LEFT INTACT UNTIL THE REQUIRED CONCRETE COMPRESSIVE STRENGTH IS ATTAINED. THE CONCRETE TEMPERATURE AT THE TIME OF STRENGTH IS ATTAINED. THE CONCRETE TEMPERATURE AT THE TIME OF APPLICATION SHALL BE WITHIN +/- 10 DEGREES F OF THE ATMOSPHERIC TEMPERATURE. ALL SURFACES SHALL BE KEPT MOIST PRIOR TO THE APPLICATION OF THE COMPOUNDS AND SHALL BE DAMP WHEN THE COMPOUND IS APPLIED.
   - 4.5. STORAGE, HANDLING & DELIVERY
     - 4.5.1. STORAGE - PRECAST CONCRETE BRIDGE ELEMENTS SHALL BE LIFTED AND STORED IN "AS-CAST" POSITION. PRECAST CONCRETE HEADWALL AND WINGWALL UNITS ARE CAST, STORED AND SHIPPED IN A FLAT POSITION. THE PRECAST ELEMENTS SHALL BE STORED IN SUCH A MANNER TO PREVENT CRACKING OR DAMAGE. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE. THE UNITS SHALL NOT BE MOVED UNTIL THE CONCRETE COMPRESSIVE STRENGTH HAS REACHED A MINIMUM OF 2500 PSI, AND THEY SHALL NOT BE STORED IN AN UPRIGHT POSITION.
     - 4.5.2. HANDLING - HANDLING DEVICES SHALL BE PERMITTED IN EACH PRECAST ELEMENT FOR THE PURPOSE OF HANDLING AND SETTING. SPREADER BEAMS MAY BE REQUIRED FOR THE LIFTING OF PRECAST CONCRETE BRIDGE ELEMENTS TO PRECLUDE DAMAGE FROM BENDING OR TORSION FORCES.
     - 4.5.3. DELIVERY - PRECAST CONCRETE ELEMENTS MUST NOT BE SHIPPED UNTIL THE CONCRETE HAS ATTAINED THE SPECIFIED DESIGN COMPRESSIVE STRENGTH, OR AS DIRECTED BY THE DESIGN ENGINEER. PRECAST CONCRETE ELEMENTS MAY BE UNLOADED AND PLACED ON THE GROUND AT THE SITE UNTIL INSTALLED. STORE ELEMENTS USING TIMBER SUPPORTS AS APPROPRIATE.
   - 4.6. QUALITY ASSURANCE - THE PRECASTER SHALL DEMONSTRATE ADHERENCE TO THE STANDARDS SET FORTH IN THE NPCA QUALITY CONTROL MANUAL. THE PRECASTER SHALL MEET EITHER SECTION 4.6.1 OR 4.6.2
     - 4.6.1. CERTIFICATION - THE PRECASTER SHALL BE CERTIFIED BY THE PRECAST/PRESTRESSED CONCRETE INSTITUTE PLANT CERTIFICATION PROGRAM OR THE NATIONAL PRECAST CONCRETE ASSOCIATION'S PLANT CERTIFICATION PROGRAM PRIOR TO AND DURING PRODUCTION OF THE PRODUCTS COVERED BY THIS SPECIFICATION.
     - 4.6.2. QUALIFICATIONS, TESTING AND INSPECTION
       - 4.6.2.1. THE PRECASTER SHALL HAVE BEEN IN THE BUSINESS OF PRODUCING PRECAST CONCRETE PRODUCTS SIMILAR TO THOSE SPECIFIED FOR A MINIMUM OF THREE YEARS. HE SHALL MAINTAIN A PERMANENT QUALITY CONTROL DEPARTMENT OR RETAIN AN INDEPENDENT TESTING AGENCY ON A CONTINUING BASIS. THE AGENCY SHALL ISSUE A REPORT, CERTIFIED BY A LICENSED ENGINEER, DETAILING THE ABILITY OF THE PRECASTER TO PRODUCE QUALITY PRODUCTS CONSISTENT WITH INDUSTRY STANDARDS.
       - 4.6.2.2. THE PRECASTER SHALL SHOW THAT THE FOLLOWING TESTS ARE PERFORMED IN ACCORDANCE WITH THE ASTM STANDARDS INDICATED. TESTS SHALL BE PERFORMED AS INDICATED IN SECTION 6 OF THESE SPECIFICATIONS.
         - 4.6.2.2.1. AIR CONTENT: C231 OR C173
         - 4.6.2.2.2. COMPRESSIVE STRENGTH: C31,C39,C497
       - 4.6.2.3. THE PRECASTER SHALL PROVIDE DOCUMENTATION DEMONSTRATING COMPLIANCE WITH THIS SECTION TO CONTECH® BRIDGE SOLUTIONS AT REGULAR INTERVALS OR UPON REQUEST.
       - 4.6.2.4. THE OWNER MAY PLACE AN INSPECTOR IN THE PLANT WHEN THE PRODUCTS COVERED BY THIS SPECIFICATION ARE BEING MANUFACTURED.
     - 4.6.3. DOCUMENTATION - THE PRECASTER SHALL SUBMIT PRECAST PRODUCTION REPORTS TO CONTECH® BRIDGE SOLUTIONS AS REQUIRED.

5. PERMISSIBLE VARIATIONS
   - 5.1. BRIDGE UNITS
     - 5.1.1. INTERNAL DIMENSIONS - THE INTERNAL DIMENSION SHALL VARY NOT MORE THAN 1% FROM THE DESIGN DIMENSIONS NOR MORE THAN 1½" WHICHEVER IS LESS.
     - 5.1.2. SLAB AND WALL THICKNESS - THE SLAB AND WALL THICKNESS SHALL NOT BE LESS THAN THAT SHOWN IN THE DESIGN BY MORE THAN ¼". A THICKNESS MORE THAN THAT REQUIRED IN THE DESIGN SHALL NOT BE CAUSE FOR REJECTION.
     - 5.1.3. LENGTH OF OPPOSITE SURFACES - VARIATIONS IN LAYING LENGTHS OF TWO OPPOSITE SURFACES OF THE BRIDGE UNIT SHALL NOT BE MORE THAN ½" IN ANY SECTION, EXCEPT WHERE BEVELED ENDS FOR LAYING OF CURVES ARE SPECIFIED BY THE PURCHASER.
     - 5.1.4. LENGTH OF SECTION - THE UNDERRUN IN LENGTH OF A SECTION SHALL NOT BE MORE THAN ½" IN ANY BRIDGE UNIT.
     - 5.1.5. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN POSITION OF THE REINFORCEMENT SHALL BE ± ½". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN 1½" FOR THE OUTSIDE CIRCUMFERENTIAL STEEL OR BE LESS THAN 1" FOR THE INSIDE CIRCUMFERENTIAL STEEL AS MEASURED TO THE EXTERNAL OR INTERNAL SURFACE OF THE BRIDGE. THESE TOLERANCES OR COVER REQUIREMENTS DO NOT APPLY TO MATING SURFACES OF THE JOINTS.
     - 5.1.6. AREA OF REINFORCEMENT - THE AREAS OF STEEL REINFORCEMENT SHALL BE THE DESIGN STEEL AREAS AS SHOWN IN THE MANUFACTURER'S SHOP DRAWINGS. STEEL AREAS GREATER THAN THOSE REQUIRED SHALL NOT BE CAUSE FOR REJECTION. THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCEMENT SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCEMENT.
   - 5.2. WINGWALLS & HEADWALLS
     - 5.2.1. WALL THICKNESS - THE WALL THICKNESS SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
     - 5.2.2. LENGTH/HEIGHT OF WALL SECTIONS - THE LENGTH AND HEIGHT OF THE WALL SHALL NOT VARY FROM THAT SHOWN IN THE DESIGN BY MORE THAN ½".
     - 5.2.3. POSITION OF REINFORCEMENT - THE MAXIMUM VARIATION IN THE POSITION OF THE REINFORCEMENT SHALL BE ± ½". IN NO CASE SHALL THE COVER OVER THE REINFORCEMENT BE LESS THAN ½".
     - 5.2.4. SIZE OF REINFORCEMENT - THE PERMISSIBLE VARIATION IN DIAMETER OF ANY REINFORCING SHALL CONFORM TO THE TOLERANCES PRESCRIBED IN THE ASTM SPECIFICATION FOR THAT TYPE OF REINFORCING. STEEL AREA GREATER THAN THAT REQUIRED SHALL NOT BE CAUSE FOR REJECTION.

6. TESTING/ INSPECTION
   - 6.1. TESTING
     - 6.1.1. TYPE OF TEST SPECIMEN - CONCRETE COMPRESSIVE STRENGTH SHALL BE DETERMINED FROM COMPRESSION TESTS MADE ON CYLINDERS OR CORES. FOR CYLINDER TESTING, A MINIMUM OF 4 CYLINDERS SHALL BE TAKEN FOR EACH BRIDGE ELEMENT. EACH ELEMENT SHALL BE CONSIDERED SEPARATELY FOR THE PURPOSE OF TESTING AND ACCEPTANCE.
     - 6.1.2. COMPRESSION TESTING - CYLINDERS SHALL BE MADE AND TESTED AS PRESCRIBED BY THE ASTM C39 SPECIFICATION. CYLINDERS SHALL BE CURED IN THE SAME ENVIRONMENT AS THE BRIDGE ELEMENTS. CORES SHALL BE OBTAINED AND TESTED FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH THE PROVISIONS OF THE ASTM C42 SPECIFICATION.
     - 6.1.3. ACCEPTABILITY OF CYLINDER TESTS - WHEN THE AVERAGE COMPRESSIVE STRENGTH OF ALL CYLINDERS TESTED IS EQUAL TO OR GREATER THAN THE DESIGN COMPRESSIVE STRENGTH, AND NOT MORE THAN 10% OF THE CYLINDERS TESTED HAVE A COMPRESSIVE STRENGTH LESS THAN THE DESIGN CONCRETE STRENGTH, AND NO CYLINDER TESTED HAS A COMPRESSIVE STRENGTH LESS THAN 80% OF THE DESIGN COMPRESSIVE STRENGTH, THEN THE ELEMENT SHALL BE ACCEPTED. WHEN THE COMPRESSIVE STRENGTH OF THE CYLINDERS TESTED DOES NOT CONFORM TO THESE ACCEPTANCE CRITERIA, THE ACCEPTABILITY OF THE ELEMENT MAY BE DETERMINED AS DESCRIBED IN SECTION 6.1.4, BELOW.
     - 6.1.4. ACCEPTABILITY OF CORE TESTS - THE COMPRESSIVE STRENGTH OF THE CONCRETE IN A BRIDGE ELEMENT IS ACCEPTABLE WHEN THE AVERAGE CORE TEST STRENGTH IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH. WHEN THE COMPRESSIVE STRENGTH OF A CORE TESTED IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN MAY BE RE-CORED. WHEN THE COMPRESSIVE STRENGTH OF THE RE-CORE IS EQUAL TO OR GREATER THAN THE DESIGN CONCRETE STRENGTH, THE COMPRESSIVE STRENGTH OF THE CONCRETE IN THAT BRIDGE ELEMENT IS ACCEPTABLE.
       - 6.1.4.1. WHEN THE COMPRESSIVE STRENGTH OF ANY RECORE IS LESS THAN THE DESIGN CONCRETE STRENGTH, THE PRECAST ELEMENT FROM WHICH THAT CORE WAS TAKEN SHALL BE REJECTED.
       - 6.1.4.2. PLUGGING CORE HOLES - THE CORE HOLES SHALL BE PLUGGED AND SEALED BY THE MANUFACTURER IN A MANNER SUCH THAT THE ELEMENTS WILL MEET ALL OF THE TEST REQUIREMENTS OF THIS SPECIFICATION. PRECAST ELEMENTS SO SEALED SHALL BE CONSIDERED SATISFACTORY FOR USE.
       - 6.1.4.3. TEST EQUIPMENT - EVERY MANUFACTURER FURNISHING PRECAST ELEMENTS UNDER THIS SPECIFICATION SHALL FURNISH ALL FACILITIES AND PERSONNEL NECESSARY TO CARRY OUT THE TEST REQUIRED.
   - 6.2. INSPECTION - THE QUALITY OF MATERIALS, THE PROCESS OF MANUFACTURE, AND THE FINISHED PRECAST ELEMENTS SHALL BE SUBJECT TO INSPECTION BY THE PURCHASER.

7. JOINTS
   THE BRIDGE UNITS SHALL BE PRODUCED WITH FLAT BUTT ENDS. THE ENDS OF THE BRIDGE UNITS SHALL BE SUCH THAT WHEN THE SECTIONS ARE LAID TOGETHER THEY WILL MAKE A CONTINUOUS LINE WITH A SMOOTH INTERIOR FREE OF APPRECIABLE IRREGULARITIES, ALL COMPATIBLE WITH THE PERMISSIBLE VARIATIONS IN SECTION 5, ABOVE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED ¾".

8. WORKMANSHIP/ FINISH
   THE BRIDGE UNITS, WINGWALLS, AND HEADWALLS SHALL BE SUBSTANTIALLY FREE OF FRACTURES. THE ENDS OF THE BRIDGE UNITS SHALL BE NORMAL TO THE WALLS AND CENTERLINE OF THE BRIDGE SECTION, WITHIN THE LIMITS OF THE VARIATIONS GIVEN IN SECTION 5, ABOVE, EXCEPT WHERE BEVELED ENDS ARE SPECIFIED. THE FACES OF THE WINGWALLS AND HEADWALLS SHALL BE PARALLEL TO EACH OTHER, WITHIN THE LIMITS OF VARIATIONS GIVEN IN SECTION 5, ABOVE. THE SURFACE OF THE PRECAST ELEMENTS SHALL BE A SMOOTH STEEL FORM OR TROWELED SURFACE. TRAPPED AIR POCKETS CAUSING SURFACE DEFECTS SHALL BE CONSIDERED AS PART OF A SMOOTH, STEEL FORM FINISH.

9. REPAIRS
   PRECAST ELEMENTS MAY BE REPAIRED, IF NECESSARY, BECAUSE OF IMPERFECTIONS IN MANUFACTURE OR HANDLING DAMAGE AND WILL BE ACCEPTABLE IF, IN THE OPINION OF THE PURCHASER, THE REPAIRS ARE SOUND, PROPERLY FINISHED AND CURED, AND THE REPAIRED SECTION CONFORMS TO THE REQUIREMENTS OF THIS SPECIFICATION.

10. REJECTION
    THE PRECAST ELEMENTS SHALL BE SUBJECT TO REJECTION ON ACCOUNT OF ANY OF THE SPECIFICATION REQUIREMENTS. INDIVIDUAL PRECAST ELEMENTS MAY BE REJECTED BECAUSE OF ANY OF THE FOLLOWING:
    - 10.1. FRACTURES OR CRACKS PASSING THROUGH THE WALL, EXCEPT FOR A SINGLE END CRACK THAT DOES NOT EXCEED ONE HALF THE THICKNESS OF THE WALL.
    - 10.2. DEFECTS THAT INDICATE PROPORTIONING, MIXING, AND MOLDING NOT IN COMPLIANCE WITH SECTION 4 OF THESE SPECIFICATIONS.
    - 10.3. HONEYCOMBED OR OPEN TEXTURE.
    - 10.4. DAMAGED ENDS, WHERE SUCH DAMAGE WOULD PREVENT MAKING A SATISFACTORY JOINT.

11. MARKING
    EACH BRIDGE UNIT SHALL BE CLEARLY MARKED BY WATERPROOF PAINT. THE FOLLOWING SHALL BE SHOWN ON THE INSIDE OF THE VERTICAL LEG OF THE BRIDGE SECTION:
    BRIDGE SPAN x BRIDGE RISE
    DATE OF MANUFACTURE
    NAME OR TRADEMARK OF THE MANUFACTURER

MARK	DATE	REVISION DESCRIPTION	BY
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DRAWING NO. 36-05

SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN® BRIDGE SYSTEMS (CONT'D) "FOR BIDDING PURPOSES ONLY"

12. INSTALLATION PREPARATION
TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALL, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.

12.1. FOOTINGS
DO NOT OVER EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.

THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE FOOTINGS.

THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING AS SPECIFIED ON THE PLANS. NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

THE FOOTINGS SHALL BE GIVEN A SMOOTH FLOAT FINISH AND SHALL REACH A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL ELEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.

THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10'-0" STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN ¼" IN 10'-0".

IF A PRECAST CONCRETE FOOTING IS USED, THE CONTRACTOR SHALL PREPARE A 4" THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO PLACING THE PRECAST FOOTING.

THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE CONNECTED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE USED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

13. INSTALLATION
13.1. GENERAL - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS EXPLAINED IN THE PUBLICATION CON/SPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.

13.1.1. LIFTING - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING REACH FOR EACH CRANE UNIT. SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH® BRIDGE SOLUTIONS.

13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HS20 OR HS25) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® BRIDGE SOLUTIONS.

13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY:

- NO CONSTRUCTION EQUIPMENT SHALL CROSS THE BARE PRECAST CONCRETE BRIDGE UNIT.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 4" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.
- AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITHIN THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.

13.2. LEVELING PAD/SHIMS - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON MASONITE OR STEEL SHIMS MEASURING 5" x 5", MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF ½" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF ¼", ½" & ½" THICK STEEL OR MASONITE SHIMS FOR VARIOUS SHIMMING PURPOSES SHOULD BE ON SITE.

13.3. PLACEMENT OF BRIDGE UNITS - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED ¾".

13.4. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE BRIDGE ELEMENTS TO PREVENT THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTIL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IF, HOWEVER, DUE TO SITE RESTRICTIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.

IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:

1) FIND "MEASURED SPAN" UPON ARCH UNIT'S DELIVERY TO SITE, PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS. "MEASURED SPAN" SHALL BE THE AVERAGE OF (3) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.

2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION, VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF
A) THE NOMINAL SPAN +½" OR
B) THE "MEASURED SPAN".

IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.

13.5. PLACEMENT OF WINGWALLS & HEADWALLS - THE WINGWALLS AND HEADWALLS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE.

13.6. WATERPROOFING/JOINT PROTECTION AND SUBSURFACE DRAINAGE

13.6.1. EXTERNAL PROTECTION OF JOINTS - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 7/8" x 1⅜" PREFORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE EXTERNAL WRAP SHALL BE EITHER EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAR MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE AND TO THE OPPOSITE BRIDGE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG WITH THE OVERLAP RUNNING DOWNHILL.

13.6.2. IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9" x 9" SQUARE OF JOINT WRAP.

13.6.3. DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE JOINT.

13.6.4. SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.

13.7. GROUTING

13.7.1. GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT, SAND AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THAT THE ENTIRE KEY AROUND THE BRIDGE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY TIES (CABLES, BARS, ETC.) GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.

13.7.2. ALL GROUT SHALL HAVE A MAXIMUM AGGREGATE SIZE OF ¼".

13.7.3. LIFTING AND ERECTION ANCHOR RECESSES SHALL BE FILLED WITH GROUT.

13.8. BACKFILL

13.8.1. DO NOT PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.

13.8.2. NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.

13.8.3. BACKFILL SHALL BE CONSIDERED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONCRETE ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT CONSTRUCTION, SHALL APPLY EXCEPT AS MODIFIED IN THIS SECTION.

13.8.4. BACKFILL ZONES:
IN-SITU SOIL
- ZONE A: CONSTRUCTED EMBANKMENT OR OVERFILL.
- ZONE B: FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE INSTALLATION.
ZONE C: ROAD STRUCTURE.

13.8.5. REQUIRED BACKFILL PROPERTIES

13.8.5.1. IN-SITU SOIL - NATURAL GROUND IS TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE BRIDGE UNITS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO ZONE B MATERIAL FOR MINIMUM LATERAL DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.

13.8.5.2. ZONE A - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.

13.8.5.3. ZONE B - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER SEE CHARTS FOR DETAILED DESCRIPTIONS OF ACCEPTABLE SOILS.

13.8.5.4. ZONE C - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE BUILT IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.

13.8.5.5. GEOTECHNICAL ENGINEER SHALL REVIEW GRADATIONS OF ALL INTERFACING MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR)

13.8.6. PLACING AND COMPACTING BACKFILL
DUMPING FOR BACKFILLING IS NOT ALLOWED ANY NEARER THAN 3'-0" FROM THE BRIDGE LEG.

THE FILL MUST BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE MAXIMUM DIFFERENCE IN THE SURFACE LEVELS OF THE FILL ON OPPOSITE SIDES OF THE BRIDGE MUST NOT EXCEED 2'-0".

THE FILL BEHIND WINGWALLS MUST BE PLACED AT THE SAME TIME AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN PROGRESSIVELY PLACED HORIZONTAL LAYERS NOT EXCEEDING 8" PER LAYER.

THE BACKFILL OF ZONE B SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE STANDARD PROCTOR, AS REQUIRED BY AASHTO T-99.

SOIL WITHIN 1'-0" OF CONCRETE SURFACES SHOULD BE HAND-COMPACTED. ELSEWHERE, USE OF ROLLERS IS ACCEPTABLE. IF VIBRATING ROLLER-COMPACTORS ARE USED, THEY SHOULD NOT BE STARTED OR STOPPED WITHIN ZONE B AND THE VIBRATION FREQUENCY SHOULD BE AT LEAST 30 REVOLUTIONS PER SECOND.

THE BACKFILL MATERIAL AND COMPACTING BEHIND WINGWALLS SHOULD SATISFY THE CRITERIA FOR THE BRIDGE BACKFILL, ZONE B.

BACKFILL AGAINST A WATERPROOFED SURFACE SHALL BE PLACED CAREFULLY TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL.

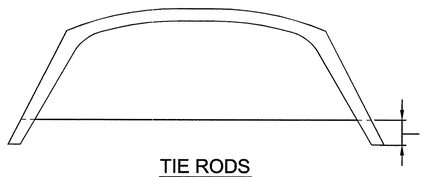
13.8.7. BRIDGE UNITS
FOR FILL HEIGHTS OVER 12'-0", NO BACKFILLING MAY BEGIN UNTIL A BACKFILL COMPACTION TESTING PLAN HAS BEEN COORDINATED WITH AND APPROVED BY CONTECH® BRIDGE SOLUTIONS. COST OF THE BACKFILL COMPACTION TESTING SHALL BE INCLUDED IN THE COST OF THE PRECAST UNITS. THIS INCLUDED COST APPLIES ONLY TO PROJECTS WITH FILL HEIGHTS OVER 12'-0" (AS MEASURED FROM TOP CROWN OF BRIDGE TO FINISHED GRADE).

13.8.8. WINGWALLS
BACKFILL IN FRONT OF WINGWALLS SHALL BE CARRIED TO GROUND LINES SHOWN IN THE PLANS.

13.8.9. MONITORING
THE CONTRACTOR SHALL CHECK SETTLEMENTS AND HORIZONTAL DISPLACEMENT OF FOUNDATION TO ENSURE THAT THEY ARE WITHIN THE ALLOWABLE LIMIT PROVIDED BY THE ENGINEER. THESE MEASUREMENTS SHOULD GIVE AN INDICATION OF THE SETTLEMENTS AND DEFORMATIONS ALONG THE LENGTH OF THE FOUNDATIONS.

THE FIRST MEASUREMENT ROW SHOULD TAKE PLACE AFTER THE ERECTION OF ALL PRECAST BRIDGE SYSTEM ELEMENTS, A SECOND AFTER COMPLETION OF BACKFILLING, AND A THIRD BEFORE OPENING OF THE BRIDGE TO TRAFFIC. FURTHER MEASUREMENTS MAY BE MADE ACCORDING TO LOCAL CONDITIONS.

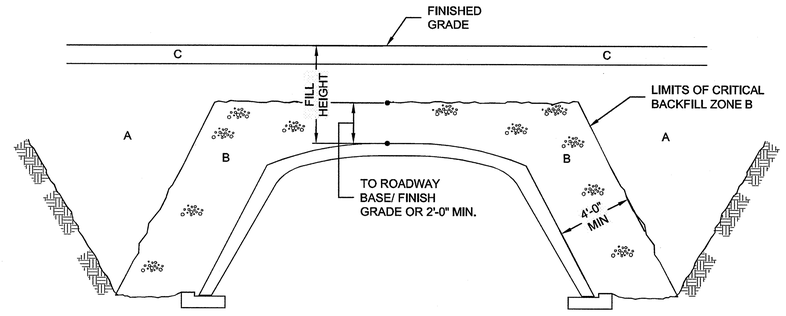
THE MAXIMUM DIFFERENCE IN VERTICAL DISPLACEMENTS 'V' SHOULD NOT EXCEED 1" ALONG THE LENGTH OF ONE FOUNDATION.



TIE RODS

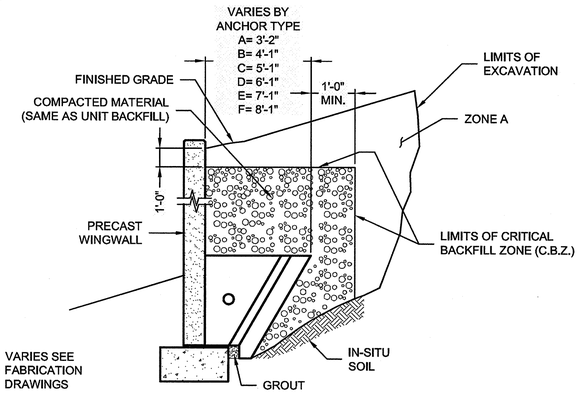
ACCEPTABLE SOILS FOR USE IN ZONE B BACKFILL

TYPICAL USCS MATERIALS	AASHTO GROUP	AASHTO SUBGROUP	PERCENT PASSING US SIEVE NO.			CHARACTER OF FRACTION PASSING NO. 40 SIEVE		SOIL DESRIPTION
			#10	#40	#200	LIQUID LIMIT	PLASTICITY INDEX	
GW, GP, SP	A1	A-1a	50 MAX	30 MAX	15 MAX		6 MAX	LARGELY GRAVEL BUT CAN INCLUDE SAND AND FINES
GM, SW, SP, SM		A-1b		50 MAX	25 MAX		6 MAX	GRAVELLY SAND OR GRADED SAND, MAY INCLUDE FINES
GM, SM, ML, SP, GP	A2	A-2-4			35 MAX	40 MAX	10 MAX	SANDS, GRAVELS WITH LOW-PLASTICITY SILT FINES
SC, GC, GM		A-2-5			35 MAX	41 MIN	10 MAX	SANDS, GRAVELS WITH PLASTIC SILT FINES
SP, SM, SW	A3			51 MIN	10 MAX		NON-PLASTIC	FINE SANDS
ML, SM, SC	A4				36 MIN	40 MAX	10 MAX	LOW-COMPRESSIBILTY SILTS



SPAN	FILL HEIGHT	ACCEPTABLE MATERIAL INSIDE ZONE B
≤ 24'-0"	≥ 12'-0"	A1, A3
≤ 24'-0"	< 12'-0"	A1, A2, A3, A4
> 24'-0"	ALL	A1, A3

BACKFILL REQUIREMENTS



WALL BACKFILL REQUIREMENTS

MARK	DATE	REVISION DESCRIPTION	BY
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CONTECH® ENGINEERED SOLUTIONS LLC
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PROPOSAL DRAWING

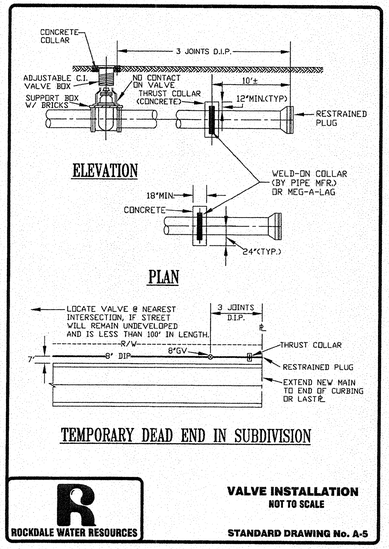
HAMPTON TRAIL DRAINAGE IMPROVEMENTS

CONYERS, GEORGIA

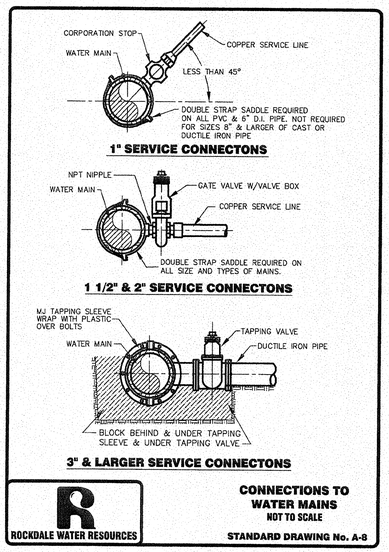
PROJECT No.:	SEQ. No.:	DATE:
483309	010	6/12/2013
DESIGNED: MRP		DRAWN: SP
CHECKED: XXX		APPROVED: XXX
SHEET NO.: 6 OF 6		

DRAWING NO. 36-06

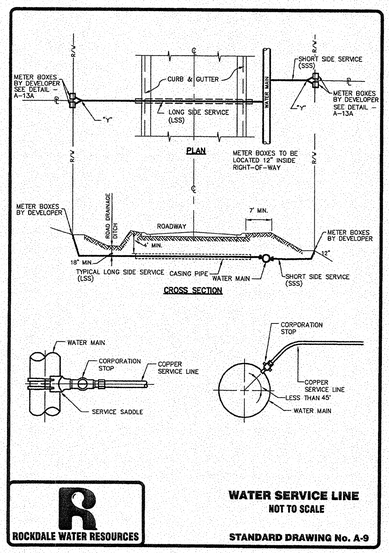
C:\USERS\JOHNSM\DESKTOP\HAMPTON TRAIL PROPOSAL DRAWING 6-19-13.DWG 6/19/2013 2:23 PM



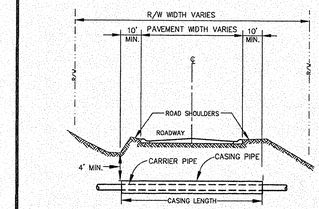
VALVE INSTALLATION
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-5



CONNECTIONS TO WATER MAINS
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-8



WATER SERVICE LINE
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-9



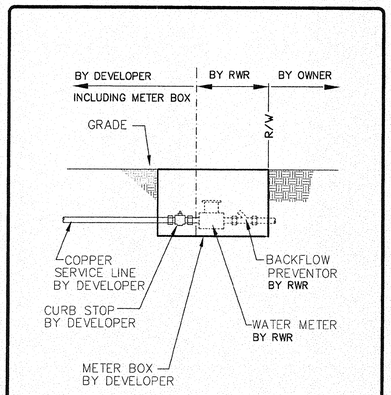
CASING REQUIREMENTS @ ROADWAY CROSSINGS

CARRIER LINE	MATL.	O.D.	MAX. O.D. @ JOINTS	MIN. CASING SIZE	MATL.	I.D.	MAX. O.D. @ JOINTS
3/4"	CT	0.88"	N/A	1 1/4"	PVC	1.36"	2.00"±
1"	CT	1.13"	N/A	1 1/2"	PVC	1.59"	2.25"±
1 1/2"	CT	1.63"	1.70"**	2"	PVC	2.05"	2.75"±
2"	CT	2.13"	2.20"**	2 1/2"	PVC	2.44"	3.50"±
3"	DI	3.96"	6.08"	8"	STL	8.00"	8.63"±
4"	DI	4.80"	7.00"	8"	STL	8.00"	8.63"±
6"	DI	6.90"	9.13"	12"	STL	12.00"	12.75"±
8"	DI	9.05"	11.50"	16"	STL	15.50"	16.00"±
10"	DI	11.10"	13.63"	16"	STL	15.50"	16.00"±
12"	DI	13.20"	15.75"	18"	STL	17.50"	18.00"±

N/A : NOT APPLICABLE
** : SOLDER COUPLING

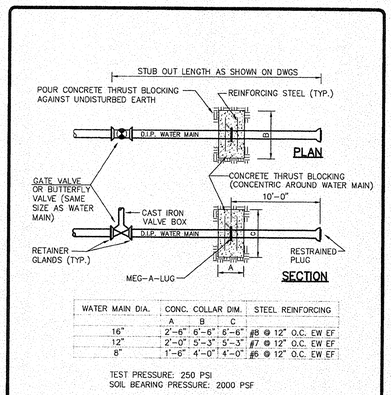
CT : COPPER TUBING
DI : DUCTILE IRON
STL : STEEL

CASING REQUIREMENTS
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-10



METER BOX:
NDS AMR BOX D1200-B/O
COVER WITH 2 1/8" DIA. TOUCH TONE HOLE.

RESIDENTIAL WATER METER AND BOX
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-11

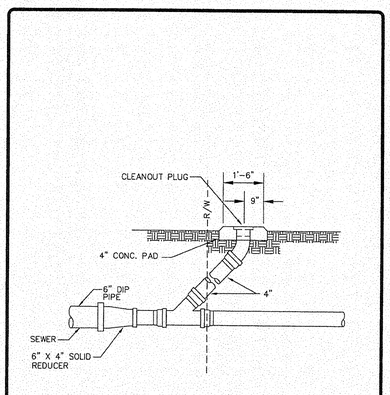


WATER MAIN DIA.	CONC. COLLAR DIM.			STEEL REINFORCING
	A	B	C	
16"	2'-6"	6'-6"	6'-6"	#8 @ 12" O.C. EW EF
12"	2'-0"	5'-3"	5'-3"	#7 @ 12" O.C. EW EF
8"	1'-6"	4'-0"	4'-0"	#6 @ 12" O.C. EW EF

TEST PRESSURE: 250 PSI
SOIL BEARING PRESSURE: 2000 PSF

THRUST COLLARS

THRUST COLLARS
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. A-17



CLEANOUT TO BE INSTALLED BY THE DEVELOPER

CLEANOUT DETAIL
NOT TO SCALE
ROCKDALE WATER RESOURCES
STANDARD DRAWING No. B-15

ATKINS

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT

OFFICE:

SPECIAL CONSTRUCTION DETAIL

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

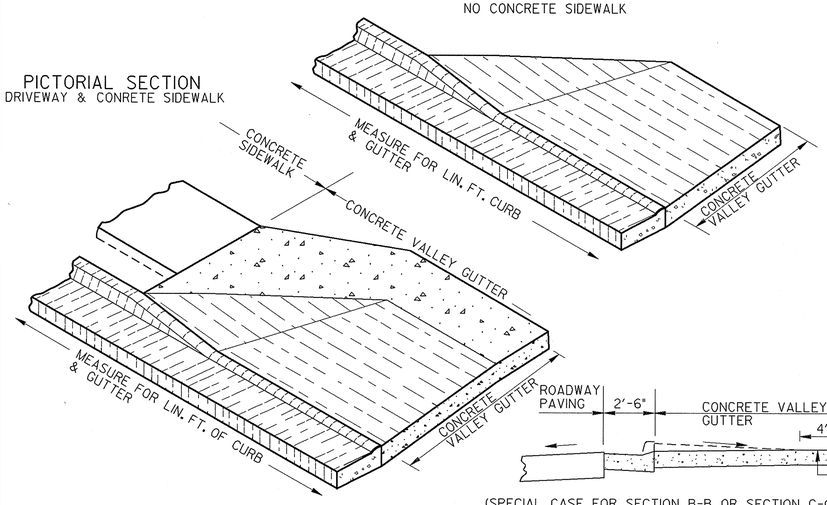
DRAWING No. 38-01

4/27/2012 GPLN

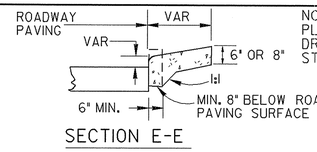
H:\Rockdale County\Hampton Trail\dgn\DS_01.dgn

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		20	37

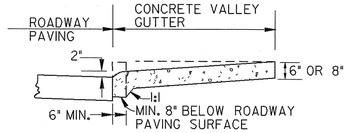
PICTORIAL SECTION
NO CONCRETE SIDEWALK



PICTORIAL SECTION
DRIVEWAY & CONRETE SIDEWALK

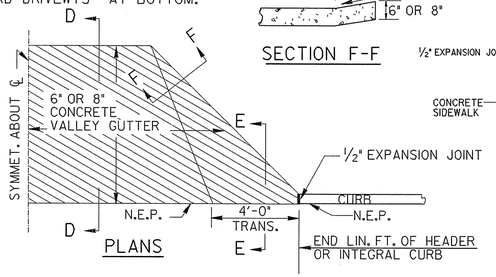


SECTION E-E

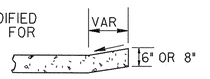


SECTION D-D

NOTE:
PLAN VIEW DETAILS NOT SHOWN FOR MODIFIED DRIVES WILL BE SIMILAR TO THAT SHOWN FOR STANDARD DRIVEWYS AT BOTTOM.

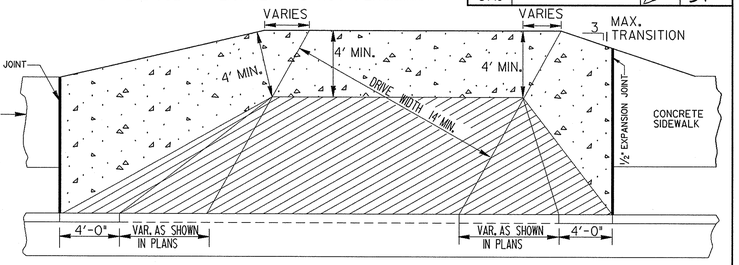


PLANS



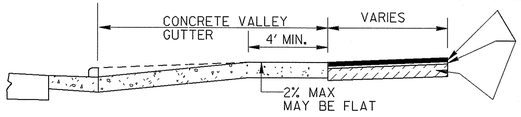
SECTION F-F

NOTE: DRIVEWAYS WILL NOT BE SKEWED EXCEPT WHERE PERPENDICULAR ALIGNMENT IS NOT FEASIBLE.



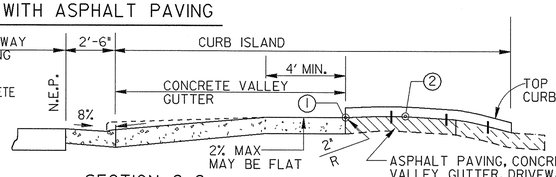
DRIVE ENTRANCE MODIFIED FOR SKEW

DRIVE MODIFIED FOR HEADER OR INTEGRAL CURB ALONG ROADWAY

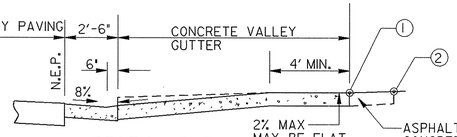


(SPECIAL CASE FOR SECTION B-B OR SECTION C-C; WHERE THE SHOULDER OR SIDEWALK IS SLOPED AWAY FROM THE ROAD)

SECTION WITH ASPHALT PAVING



SECTION C-C

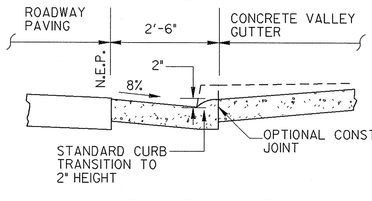


SECTION B-B

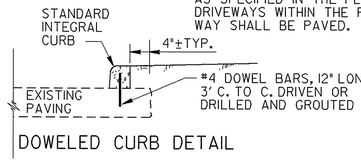
① IS THE BACK OF SIDEWALK SURFACE GRADE OR THE SHOULDER SURFACE GRADE 10'-0" BACK OF THE CURB, SLOPE OF THE CONCRETE VALLEY GUTTER WILL BE SUCH THAT THE BACK OF THE DRIVEWAY TAPER WILL BE THE SAME ELEVATION.

② IS BEGINNING OF DRIVEWAY TIE-IN.

NOTE: ① AND ② MAY COINCIDE



NOTE:
ALTERNATES TO THE CURB ISLAND DESIGN SHOWN HERE MAY BE SPECIFIED IN THE PLANS.



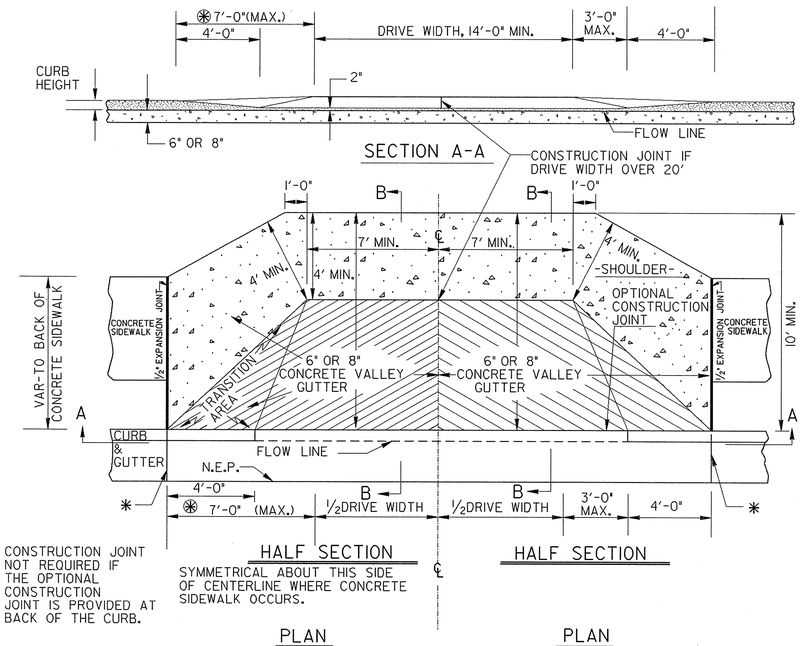
DOWELED CURB DETAIL

GENERAL NOTES:

1. QUANTITIES SHALL BE MEASURED AS FOLLOWS:
   (A) CONCRETE CURB & GUTTER ALONG ROADWAY--- LIN. FT. OF CURB & GUTTER SHALL BE MEASURED FOR PAYMENT CONTINUOUS THRU THE DRIVE ENTRANCES. PAYMENT FOR CURB & GUTTER SHALL INCLUDE DAPPING DOWN THE TOP PORTION OF THE CURB. SQ. YDS. OF CONCRETE VALLEY GUTTER SHALL BE MEASURED FOR PAYMENT TO THE BACK OF THE CURB LINE.
   (B) HEADER (OR INTEGRAL) CURB ALONG ROADWAY--- LIN. FT. OF CURB SHALL BE MEASURED FOR PAYMENT TO THE BEGINNING OF DRIVE WAY. SQ. YDS. OF CONCRETE VALLEY GUTTER SHALL BE MEASURED FOR PAYMENT TO THE EDGE OF THE ROADWAY PAVING.
2. N.E.P. IS DEFINED AS THE POINT WHERE THE ROADWAY PAVING MEETS THE CURB & GUTTER, OR HEADER CURB, OR FACE OR THE INTEGRAL CURB.
3. DRIVES RECONSTRUCTED SHALL BE REPLACED IN KIND, I.E, ASPHALT FOR ASPHALT, CONCRETE FOR CONCRETE, AND PAVED TO THE RIGHT OF WAY LINE.
4. SEE STANDARD 9032-B FOR DETAILS OF CONCRETE CURB & GUTTER, HEADER CURBS AND DOWELED INTEGRAL CURBS.
5. WIDTHS OF COMMERCIAL DRIVEWAYS SHALL COMPLY WITH CURRENT "RULES AND REGULATIONS FOR DRIVEWAY AND ENCROACHMENT CONTROL". WIDTHS OF RESIDENTIAL NON-COMMERCIAL DRIVEWAYS SHALL BE AS SPECIFIED IN THE PLANS.
6. THE SLOPE OF THE "TRANSITION AREA" OF THE CONCRETE VALLEY GUTTER SHALL NOT BE STEEPER THAN 8% (12:1) WHERE SIDEWALKS ARE LOCATED.
7. MAXIMUM DRIVEWAY GRADES SHOWN BELOW ARE INTENDED FOR RESIDENTIAL DRIVEWAYS WHERE FLATTER GRADES ARE NOT FEASIBLE. GRADES FOR COMMERCIAL DRIVEWAYS OR FOR TRUCKS SHALL NOT BE GREATER THAN 11% UNLESS SPECIFIED OTHERWISE.

Guidelines For Usage On Metric Projects

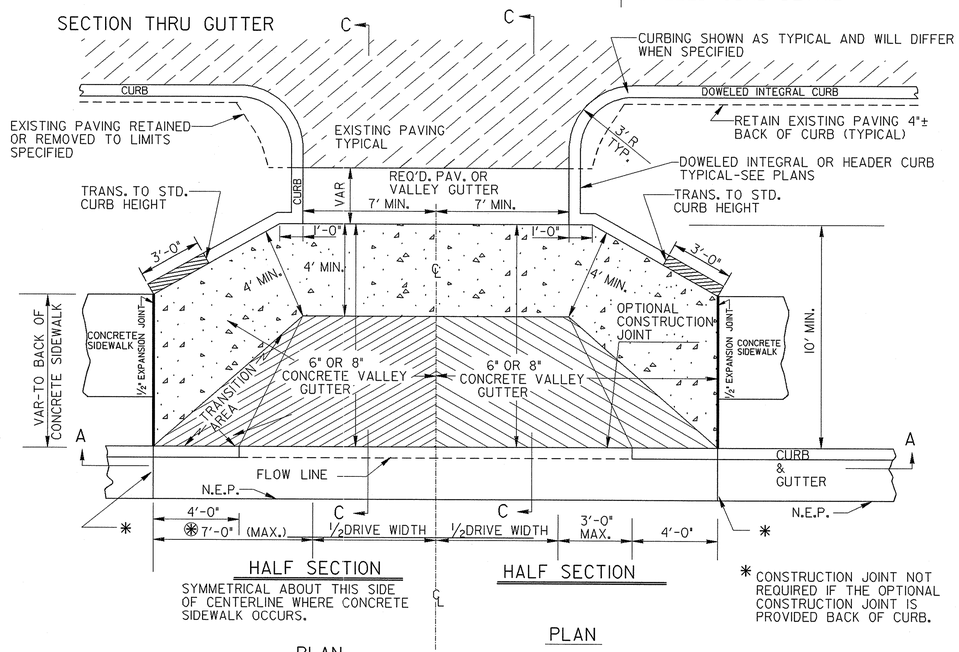
When these details are incorporated into plans and or projects that are being prepared or constructed in metric units, exact or precise conversion to metric units is not required. The dimensions shown that are in feet and inches may be converted to corresponding metric units using the following "Rounded-Off" conversion factors: 1" =25mm, 4"=100mm, and 12" or 1'=300mm. All measurement notes that refer to linear feet and square yards shall be interpreted to mean linear meters and square meters.



✱ CONSTRUCTION JOINT NOT REQUIRED IF THE OPTIONAL CONSTRUCTION JOINT IS PROVIDED AT BACK OF THE CURB.

SYMMETRICAL ABOUT THIS SIDE OF CENTERLINE WHERE CONCRETE SIDEWALK OCCURS.

RESIDENTIAL, COMMERCIAL OR NON-COMMERCIAL DRIVE



SYMMETRICAL ABOUT THIS SIDE OF CENTERLINE WHERE CONCRETE SIDEWALK OCCURS.

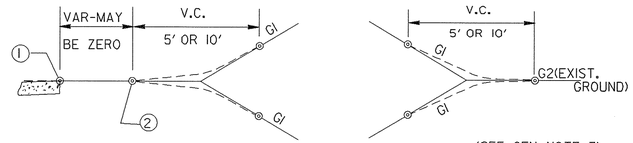
✱ CONSTRUCTION JOINT NOT REQUIRED IF THE OPTIONAL CONSTRUCTION JOINT IS PROVIDED BACK OF CURB.

DRIVEWAY WITH CURB ISLAND

(SHOWN ADJACENT TO EXISTING PAVED PARKING AREA)

V.C.	MAXIMUM	GI
	CUT	FILL
5'	27%	16.67%
10'	28%	27%

V.C.	GI-G2	(MAX. ALGEBRAIC GRADE CHANGE)	
		SAG	CREST
5'		21%	25%
10'		25%	36%



MAXIMUM DRIVEWAY GRADES (SEE GEN. NOTE 7)

This Detail Replaces Ga Standard 6050

DATE	REVISION	BY
7-2-11	REV. PAVEMENT NOTES, REV. 12' TO 14' MIN., REV. SWALK	GLO
4-11-02	REVISED	
4-3-02	REVISED	

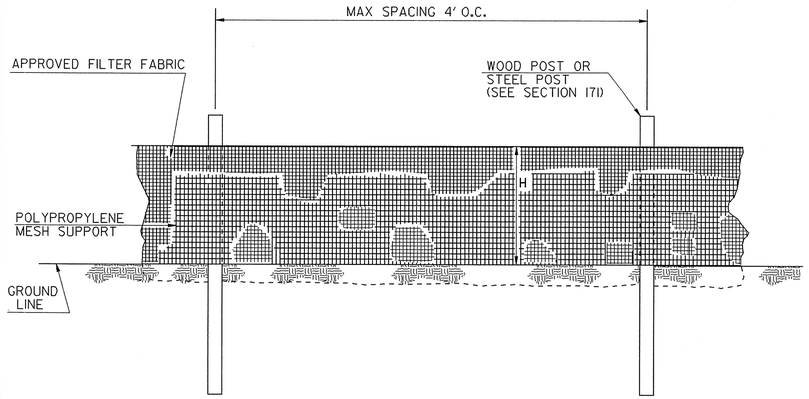
DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

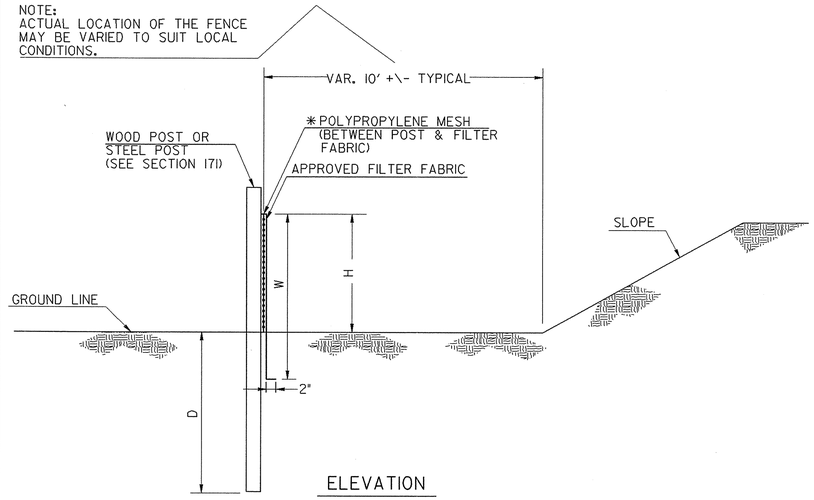
CONSTRUCTION DETAIL DRIVEWAYS WITH TAPERED ENTRANCES CONCRETE VALLEY GUTTERS

NO SCALE — MARCH 12, 2002

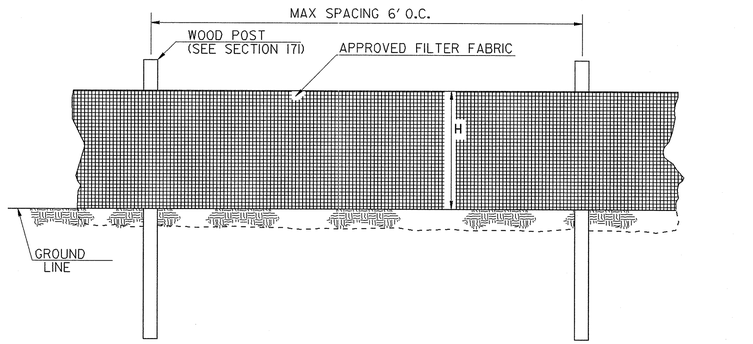
NUMBER A1

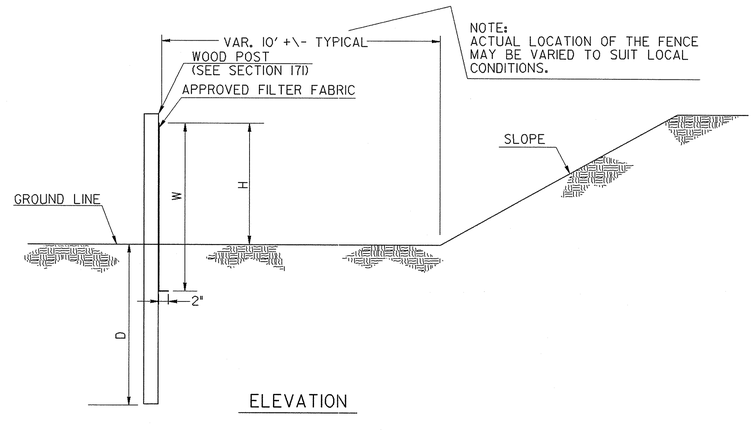
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		21	37



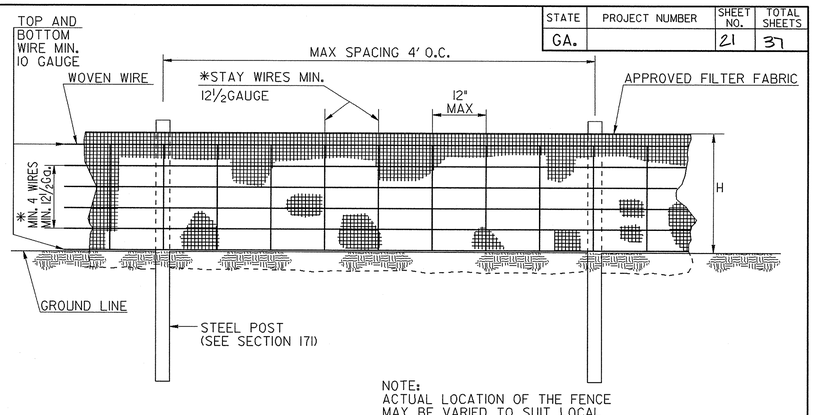


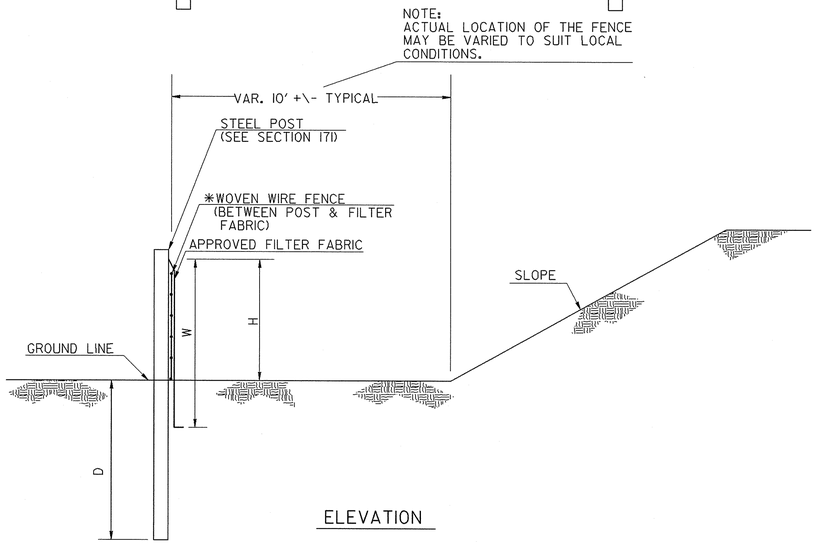
SINGLE ROW TYPE C SILT FENCE WITH POLYPROPYLENE MESH SUPPORT





SINGLE ROW TYPE A SILT FENCE





SINGLE ROW TYPE C SILT FENCE WITH WOVEN WIRE SUPPORT

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

NOTES:

1. WIRE STAPLES SHALL BE AT LEAST 17 GAUGE, WITH LEGS AT LEAST ½ INCHES LONG AND A CROWN AT LEAST ¾ INCHES WIDE. NAILS SHALL BE AT LEAST 14 GAUGE, 1 INCH LONG , WITH BUTTON HEADS AT LEAST ¾ INCHES WIDE.
2. NAILS OR STAPLES SHALL BE EVENLY PLACED WITH AT LEAST 5 PER POST FOR TYPE A FENCE AND 4 PER POST FOR TYPE C FENCE.
3. THE VERTICAL WIRES FOR THE WOVEN WIRE SUPPORT FENCE SHALL HAVE A MAXIMUM SPACING OF 12 INCHES. THE TOP AND BOTTOM WIRES SHALL BE AT LEAST 10 GAUGE AND ALL OTHER WIRES SHALL BE AT LEAST 12½ GAUGE.
4. TEMPORARY SILT FENCE INSTALLATION IS DIFFERENT THAN THE SILT RETENTION BARRIER INSTALLATION.
5. SEE SECTION 171 FOR SILT FENCE SPECIFICATIONS.
6. SEE SECTION 894 FOR FENCING SPECIFICATIONS.
7. SEE QPL-36 FOR A LIST APPROVED SILT FENCE FABRIC.
8. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS UNLESS PERMITTED.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONSTRUCTION DETAILS

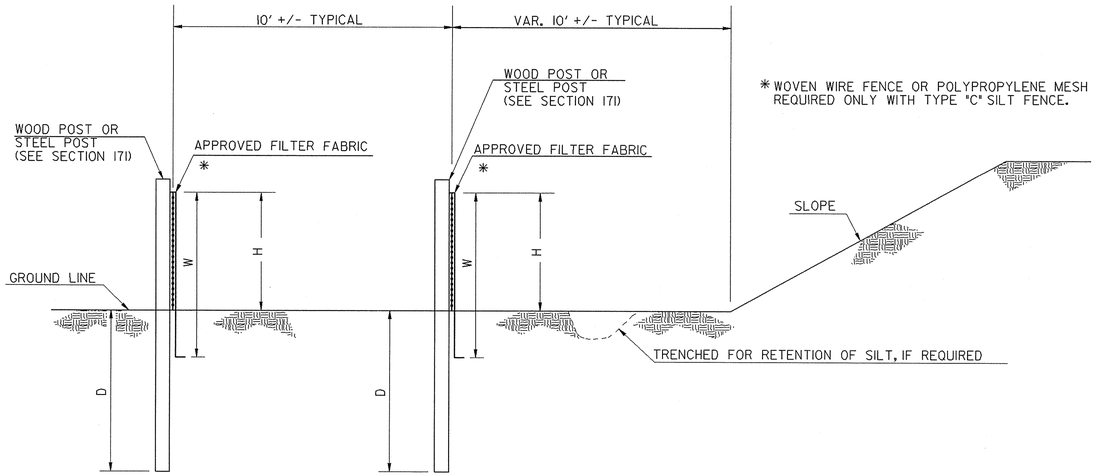
TEMPORARY SILT FENCE

NO SCALE — REV. AND REDRAWN JAN. 2011

DATE | REVISION | BY

NUMBER D-24A (SHEET 1 OF 4)

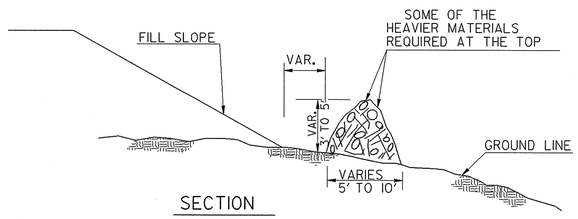
STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
		22	37



ELEVATION

DOUBLE ROW SILT FENCE

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.



SECTION

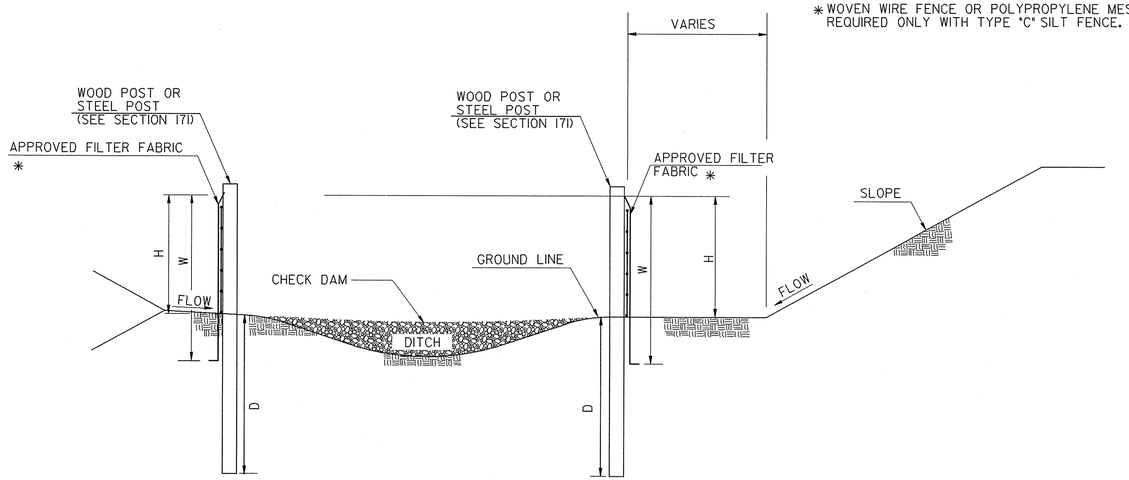
NOTE: INTERMINGLE BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM.

FRONT VIEW

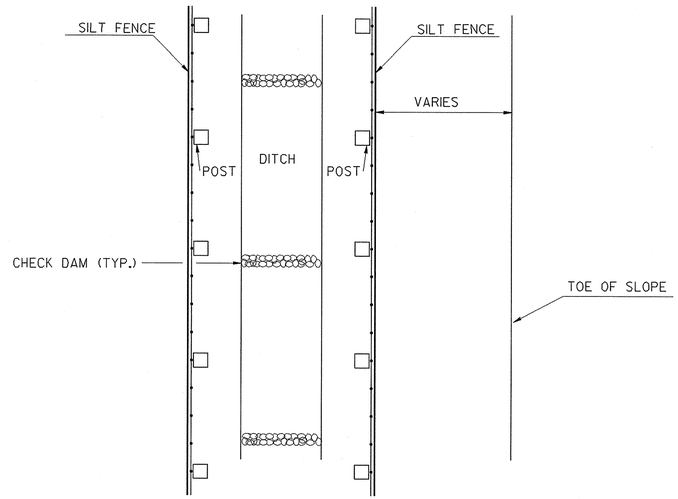
NOTE: BRUSH BARRIER(S) WILL BE INCLUDED IN PAYMENT FOR CLEARING & GRUBBING.

BRUSH BARRIER DETAILS

(FOR USE IN RURAL AREAS)



ELEVATION



PLAN

FENCE TYPE	POST LENGTH	H	D	W	TYPICAL USES
TYPE "A"	4 FT.	2'-4"	1'-6"	3'-0"	
TYPE "C"	4 FT.	2'-4"	1'-6"	3'-0"	AT BRIDGE END ROLLS, DOUBLE ROW ALONG STREAMS, WETLANDS AND ENVIRONMENTALLY SENSITIVE AREAS FOR USE OF THIS MATERIAL IN FABRIC CHECKDAMS SEE D-24D.

SILT FENCE
PERIMETER INSTALLATION ALONG DITCH SECTION

NOTE: TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONSTRUCTION DETAILS

TEMPORARY SILT FENCE

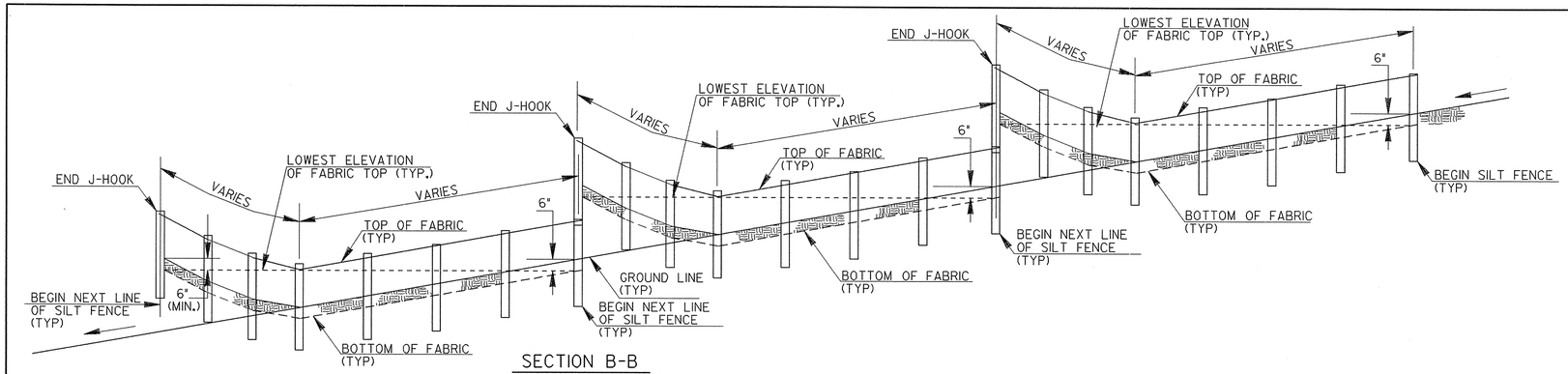
BERM DITCH, INSTALLATION, BRUSH BARRIER

NO SCALE — REV. AND REDRAWN JAN. 2011

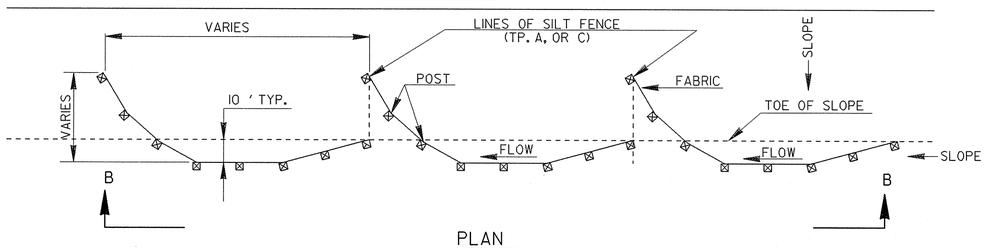
DATE | REVISION | BY

NUMBER D-24B (SHEET 2 OF 4)

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		23	37

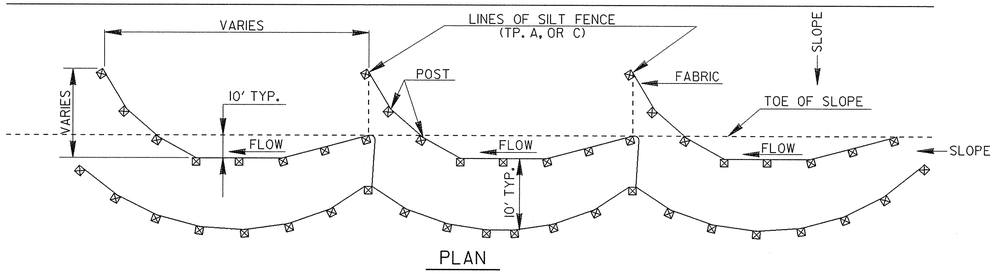


SECTION B-B



PLAN

SINGLE ROW SILT FENCE



PLAN

DOUBLE ROW SILT FENCE

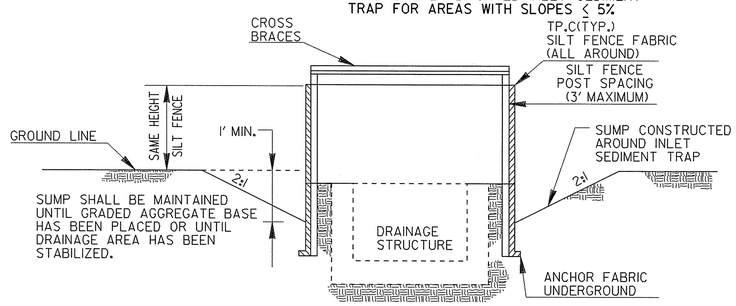
TYPICAL J HOOK SPACING		
SLOPE PERCENT	TYPE OF SILT FENCE	MINIMUM SPACING (FEET)
1% TO 2%	TYPE A	100' ±
2% TO 3%	TYPE A	50' ±
3% TO 4%	TYPE C	50' ±
4% TO 5%	TYPE C	25' ±

NOTE:

1. IF THE GRADE IS BETWEEN 0 TO 1 PERCENT, THE SILT FENCE SHALL BE PLACED ACROSS THE DITCH.
2. TEMPORARY SILT FENCE SHALL NOT BE PLACED WITHIN STATE WATERS.

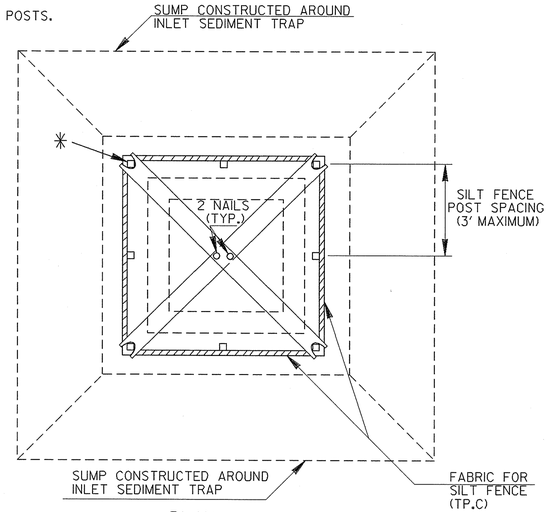
TYPICAL LOCATION AROUND DROP INLETS

ALT. TO PREFABRICATED INLET SEDIMENT TRAP FOR AREAS WITH SLOPES ≤ 5%



ELEVATION

✳ CROSS BRACING REQUIRED WHEN USING "ALTERNATE" TYPE C PRODUCTS WHICH USE WOOD POSTS.



PLAN

CROSS BRACES:

TWO - 2 X 4's WITH ENDS TO FIT POST, PROVIDING STURDY SUPPORT, OR AN APPROVED ALTERNATE

NOTE:
PAYMENT AS INLET SEDIMENT TRAP PER EACH.

NOTE:
SEE SEPARATE SHEET ENTITLED "TEMPORARY SILT FENCE DETAILS" FOR SILT FENCE ERECTION DETAILS.

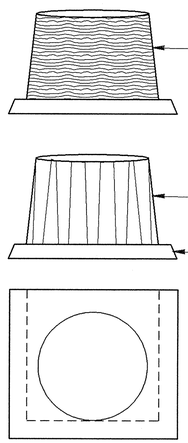
(PLASTIC ALTERNATE)

NOTE:
THE DRAINAGE AREA ENTERING THE INLET SEDIMENT TRAP SHALL BE NO GREATER THAN ONE ACRE.

TYPICAL CONSTRUCTION SEQUENCE FOR INLET SEDIMENT TRAP ALTERNATE

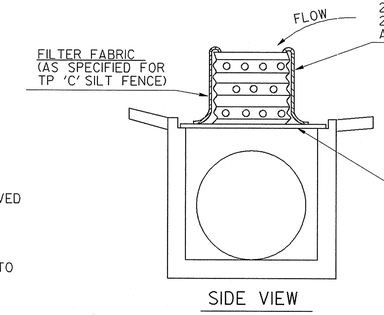
1. EXCAVATE APPROXIMATELY 4" TO 6" BELOW THE TOP OF THE INLET STRUCTURE.
2. PLACE THE FRAME ONTO THE INLET STRUCTURE, ENSURING PROPER SEATING OF FRAME TO STRUCTURE.
3. SLIDE THE FILTER OVER THE FRAME.
4. FILL THE FILTER POCKETS WITH SOIL, #57 GRAVEL OR EQUIVALENT. THE FILTER POCKETS SHOULD BE COMPLETELY FILLED TO ENSURE A GOOD SEAL BETWEEN THE GROUND AND INLET STRUCTURE.
5. BACK FILL AROUND THE FRAME AND FILTER ASSEMBLY IS NOT REQUIRED TO COMPLETE INSTALLATION; HOWEVER, BACK FILLING MAY BE NECESSARY TO COMPLETE EXCAVATION REQUIREMENTS FOR THE SITE.

NOTE:
INLET SEDIMENT TRAP ALTERNATE SHALL BE AS APPROVED BY THE GA. D.O.T. OFFICE OF MATERIALS & RESEARCH. DETAILS & SPECIFICATIONS NOT SHOWN ARE PER THE MANUFACTURER'S REQUIREMENTS.

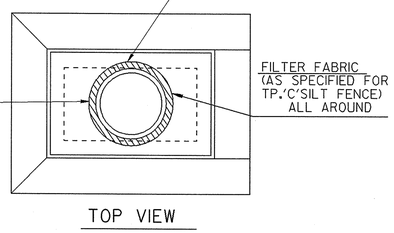


SIDE VIEW

(METAL ALTERNATE)



SIDE VIEW



TOP VIEW

NOTE: WHERE INLET SEDIMENT TRAPS ARE SPECIFIED, EITHER THE PLASTIC ALTERNATE (LEFT) OR THE METAL ALTERNATE (RIGHT) MAY BE USED AS APPROVED BY THE ENGINEER.

NOTE:
INLET SEDIMENT TRAP AND INLET TO BE BUILT CONTINUOUS WITH PIPE

NOTE:
PAYMENT AS INLET SEDIMENT TRAP PER EACH

NOTE: SEE SEPARATE DETAILS FOR SILT FENCE AROUND DROP INLETS.

INLET SEDIMENT TRAP - FOR DROP INLETS

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

CONSTRUCTION DETAILS

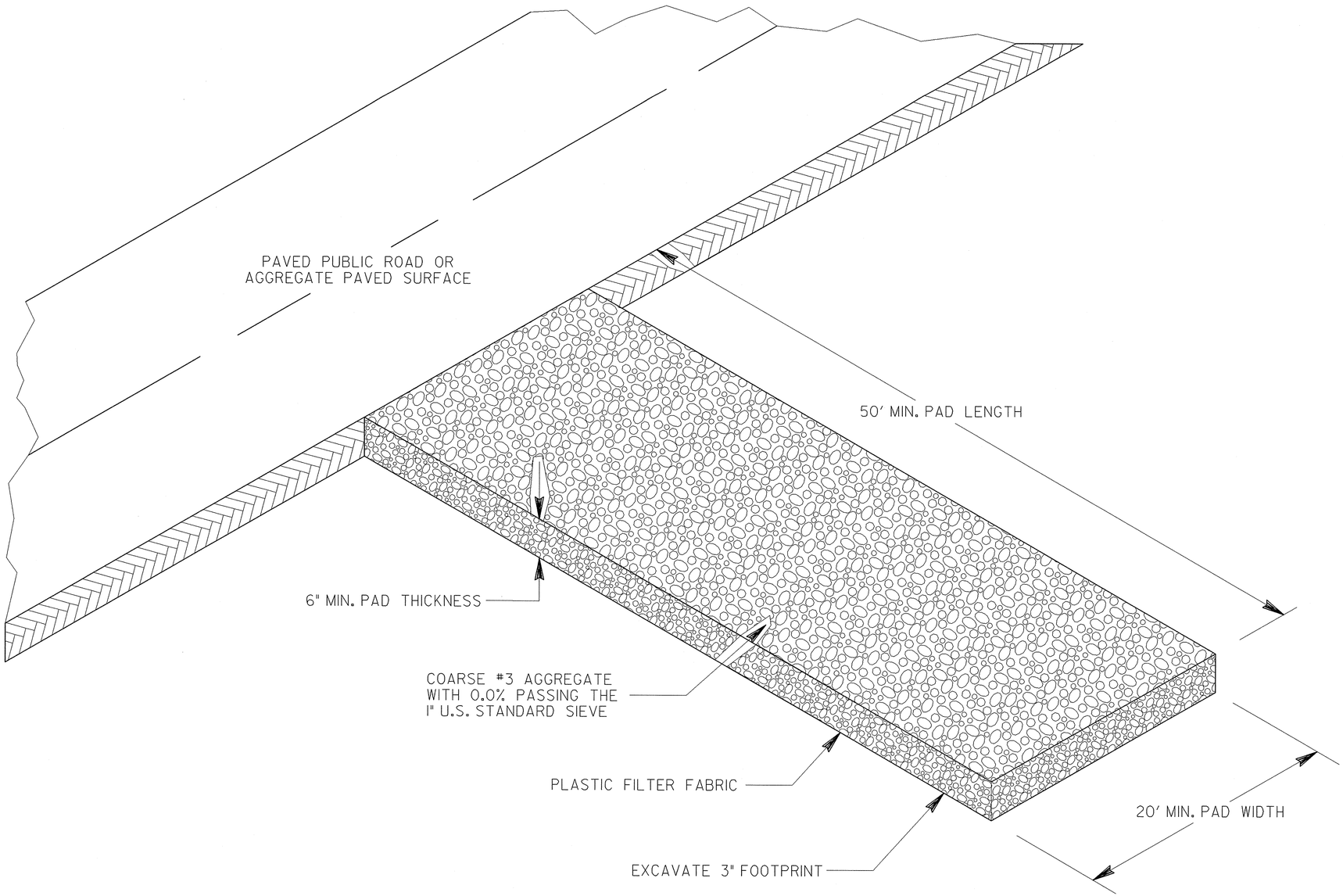
TEMPORARY SILT FENCE J-HOOK, INLET SEDIMENT TRAPS

NO SCALE — JANUARY 2011

DATE | REVISION | BY

NUMBER D-24C
(SHEET 3 OF 4)

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		24	37



NOTES:
1) STONE AGGREGATE SHALL BE KEPT LOOSE OR SCARIFIED WHEN AGGREGATE BECOMES CONSOLIDATED.
2) CONSTRUCTION EXITS ARE NOT REQUIRED FOR DIRT PUBLIC ROADS.

MAINTENANCE

THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH COARSE #3 AGGREGATE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES TO TRAP SEDIMENT. ALL MUD AND DEBRIS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OR SITE ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.

PAY ITEM: 163-0300__CONSTRUCTION EXIT___EACH

DATE	1-19-11	DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA
REVISION	REV. CONSTR. EXIT LABELS	CONSTRUCTION DETAILS CONSTRUCTION EXIT NO SCALE — FEBRUARY 2001
BY	TPC	NUMBER D-41

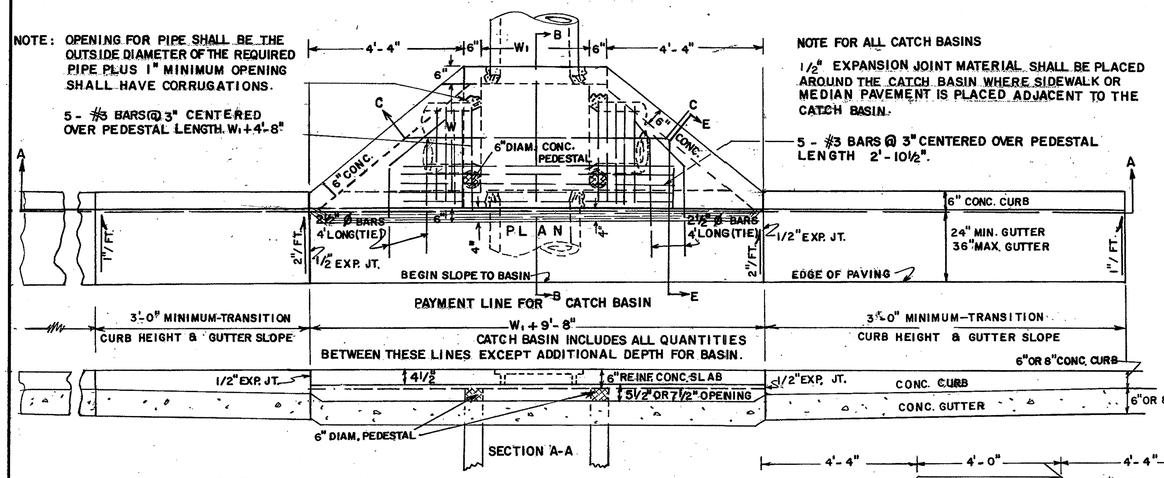
AF 21868

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		25	37

CATCH BASIN (IF CATCH BASIN HAS LONGITUDINAL PIPE OVER 24", SEE DETAILS AT RIGHT)

NOTE: OPENING FOR PIPE SHALL BE THE OUTSIDE DIAMETER OF THE REQUIRED PIPE PLUS 1" MINIMUM OPENING SHALL HAVE CORRUGATIONS.

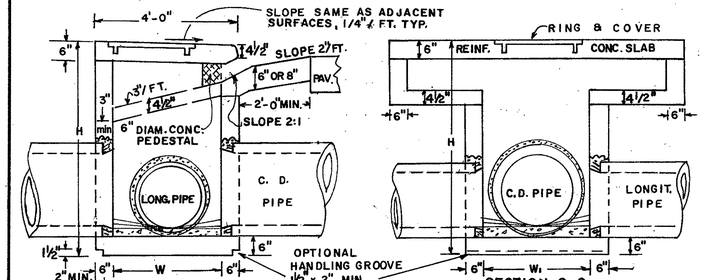
5 - #3 BARS @ 3" CENTERED OVER PEDESTAL LENGTH W_1+4'-8"

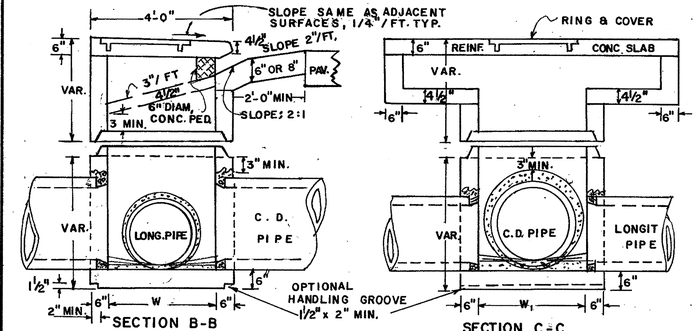


NOTE FOR ALL CATCH BASINS

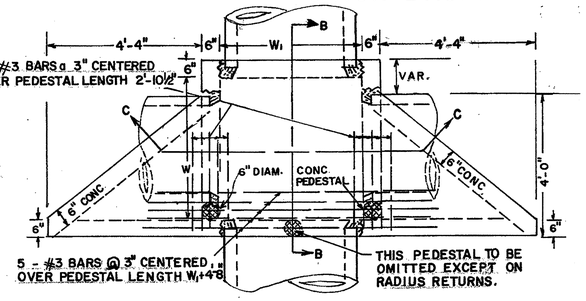
1/2" EXPANSION JOINT MATERIAL SHALL BE PLACED AROUND THE CATCH BASIN WHERE SIDEWALK OR MEDIAN PAVEMENT IS PLACED ADJACENT TO THE CATCH BASIN.

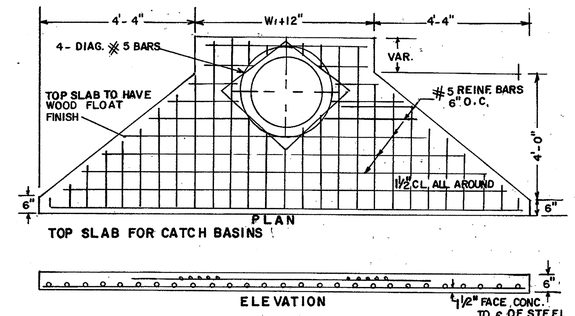
5 - #3 BARS @ 3" CENTERED OVER PEDESTAL LENGTH 2'-10½".

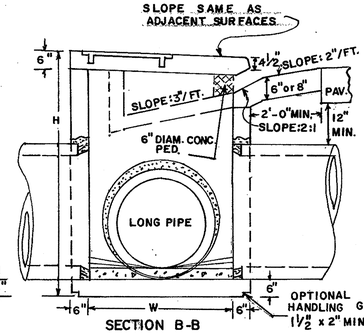


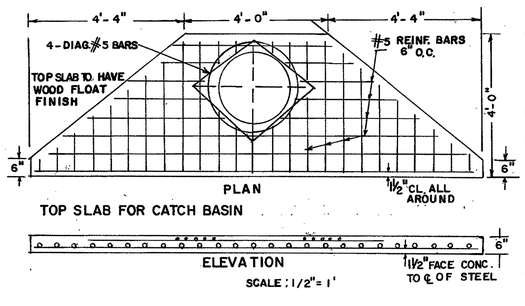


CATCH BASIN (TYPICAL FOR CATCH BASIN WITH LONGITUDINAL PIPE OVER 24".)

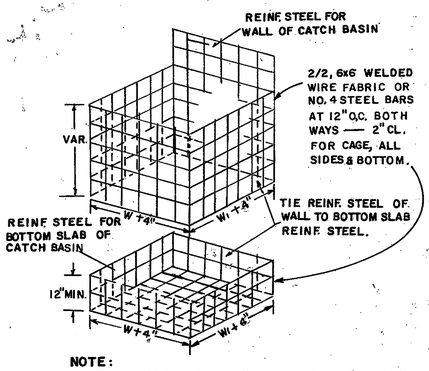






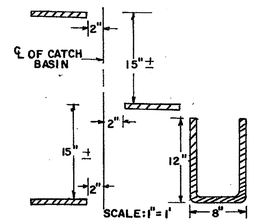


REINFORCING - ISOMETRIC VIEW

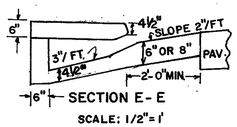


NOTE:
REINFORCING SHOWN ABOVE IS REQUIRED FOR BOX SHAPED BASIN. REINFORCING FOR CIRCULAR PRECAST ALTERNATE SHALL BE ACCORDING TO STD. 1040.

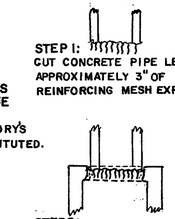
DETAIL AND ARRANGEMENT OF LADDER BARS

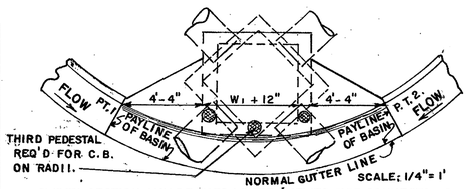


NOTE:
NUMBER AND LOCATION OF LADDER BARS IN CATCH BASIN TO BE AS DIRECTED BY THE ENGINEER.
M.H. STEPS LISTED IN GA. DOT. LABORATORY'S QUALIFIED PRODUCTS LIST MAY BE SUBSTITUTED.



METHOD OF CONNECTING PIPE (WHERE CONC. PIPE HAS TO BE CUT)

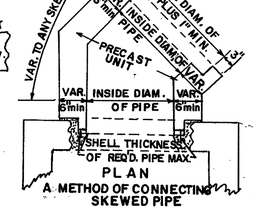


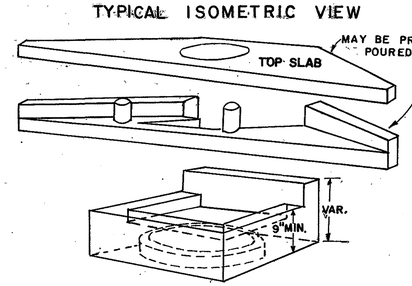


SWIVEL SECTION MAY BE USED WHERE SKEWED PIPE CONNECTS TO PRECAST CONCRETE BOX.
ALL DIMENSIONS ARE THE SAME AS SHOWN ON DETAILS FOR CATCH BASIN, DIMENSIONS FROM PT.1 TO PT.2 ARE MEASURED ALONG THE CHORD, UNIT PRICE BID FOR CATCH BASIN INCLUDES ALL CURB AND GUTTER FROM PT. 1 TO PT. 2.

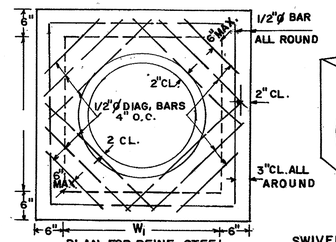
THIS UNIT WHERE REQ'D. FOR SKEWED PIPE IS INCLUDED IN PRICE BID FOR CATCH BASIN.

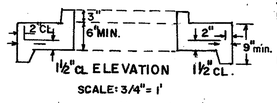
TYPICAL ISOMETRIC VIEW





IF THIS SWIVEL SECTION SLAB IS USED TO REDUCE THE W AND W_1 DIMENSIONS, INCREASE THE MINIMUM THICKNESS TO 9" AND USE REINF. STEEL. SEE DETAIL BELOW.

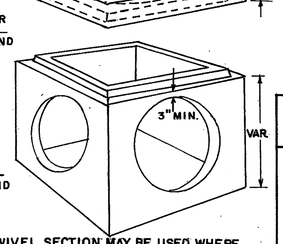




SWIVEL SECTION MAY BE USED WHERE SKEWED PIPE CONNECTS TO PRECAST CONCRETE BOX.

NO SCALE

NOTE:
THE ABOVE VIEW DEPICTS PRECAST BOX SEE SEPARATE STANDARDS FOR CIRCULAR ALTERNATE OR BUILT-IN-PLACE BOX.



DIMENSIONS FOR CATCH BASINS		
PIPE SIZE	NORMAL W or W_1	MIN. H
12"	3'-0"	4'-4"
15"	3'-0"	4'-7"
18"	3'-0"	4'-10"
24"	3'-0"	5'-6"
30"	3'-6"	6'-2"
36"	4'-0"	6'-10"
42"	5'-0"	7'-4"
48"	5'-0"	8'-0"
54"	6'-0"	8'-6"
60"	6'-0"	9'-2"

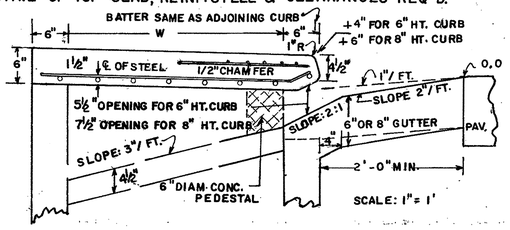
NOTE:
DIMENSIONS FOR CATCH BASINS ARE BASED UPON TYPICAL OUTSIDE DIAMETERS OF CONCRETE PIPES AND MAY BE VARIED IF CONDITIONS PERMIT AND THE ENGINEER APPROVES. W & W_1 DIMENSIONS DO NOT HAVE TO BE EQUAL.

ALTERNATE:
BUILT-IN-PLACE, PRECAST BOX, AND/OR PRECAST CIRCULAR UNITS WITH THE REQUIRED ADAPTERS, REDUCERS, FITTINGS, CONNECTIONS ETC. MAY BE USED IN COMBINATIONS.

NOTE:
FOR RING & COVER DETAILS AND OTHER DETAILS NOT SHOWN, SEE STANDARD 1034 D FOR BUILT-IN-PLACE CATCH BASIN.

ALL JOINTS BETWEEN PRECAST RISERS OR BETWEEN PRECAST BASE AND RISER WILL BE KEYED. KEYED JOINTS SHOWN ARE TYPICAL AND MAY BE VARIED.

DETAIL OF TOP SLAB, REINF. STEEL & CLEARANCES REQ'D.



FORM EF3

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD PRECAST CATCH BASINS
FOR USE WITH CURB (6" OR 8" HT.) & GUTTER (IN SAGS OR LOW POINTS)

SCALE AS SHOWN — REV. & REDR., SEPT. 1982

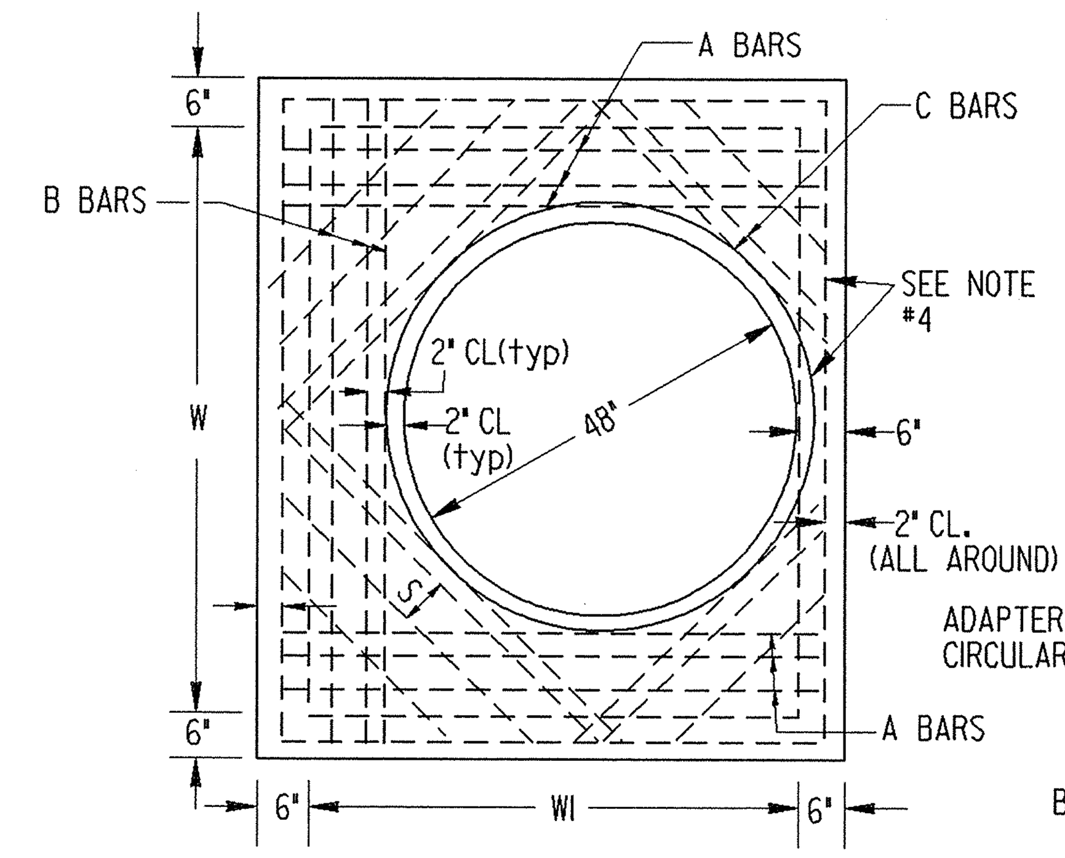
REV. & REDR.	RMU
TRA.	G.M.E.
CHK.	R.K.C.

(SUBMITTED) Floyd E. Hardy
STATE ROAD & AIRPORT DESIGN ENGR.
(APPROVED) Thomas D. Moreland
STATE HIGHWAY ENGINEER

NUMBER 1034D PRECAST

CIRCULAR PRECAST REINFORCED CONCRETE SECTIONS

ADAPTER TYPE 1



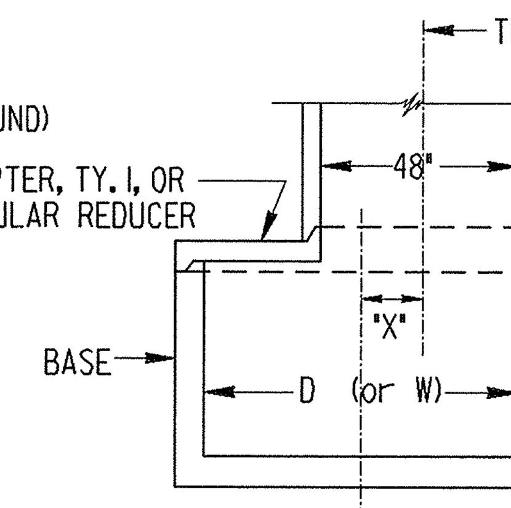
PLAN OF REINFORCING STEEL

NOTE:

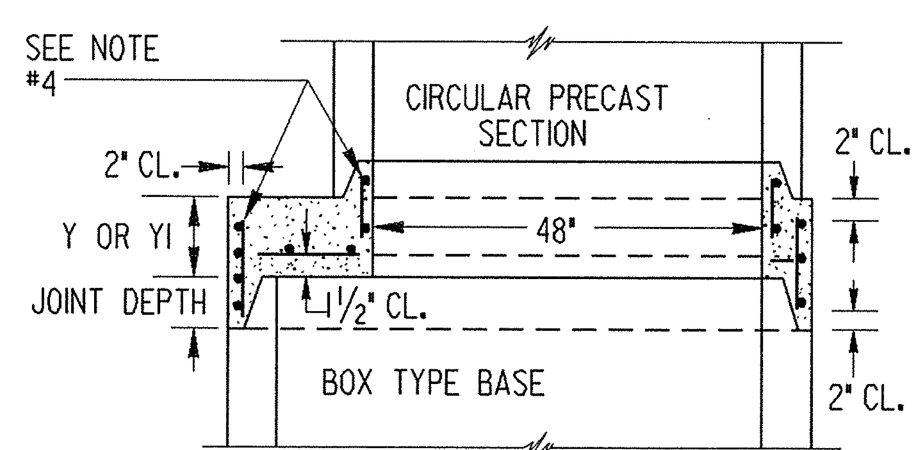
WHERE W=48" (ONLY) A BARS NOT REQUIRED

WHERE WI = 48" (ONLY) B BARS NOT REQUIRED

FOR CONSTRUCTION OF BOX TYPE BASES AND W AND WI DIMENSIONS, SEE APPLICABLE STANDARDS FOR CATCH BASINS OR DROP INLETS.



D (or W)	"X"
54"	3"
60"	6"
72"	1'-0"
78"	1'-3"
84"	1'-6"



SECTIONAL DETAIL

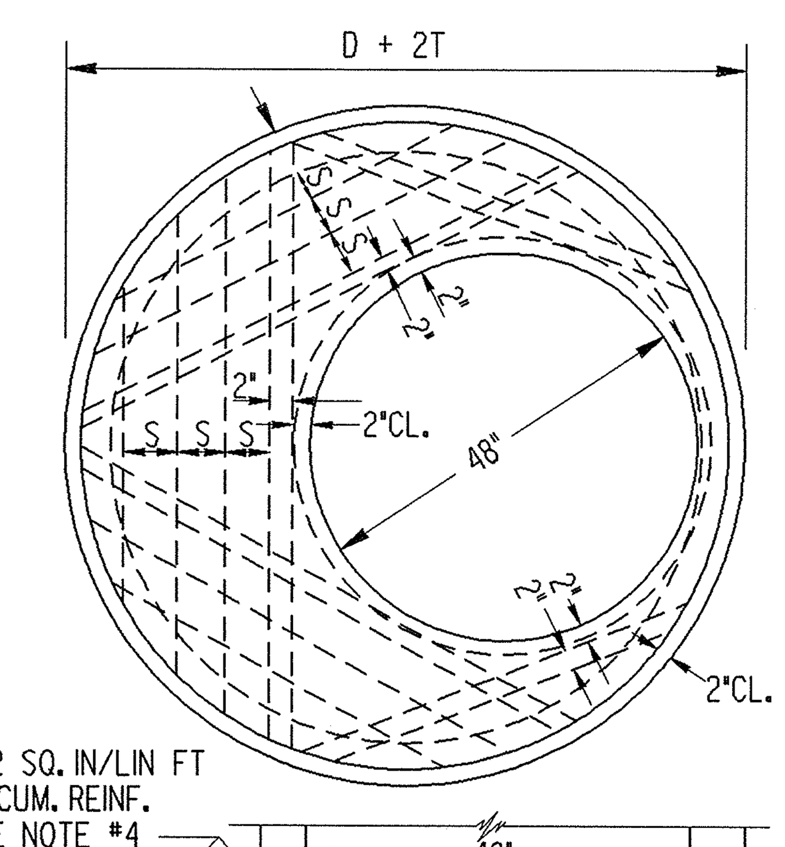
FIRST 2 BARS SPACED WITH 2" CL. AS SHOWN. ALL OTHERS MAX. SPACING OF "S" C. TO C. BARS SHALL BE IN BOTTOM OF SLAB WITH 1-1/2" CLEARANCE.

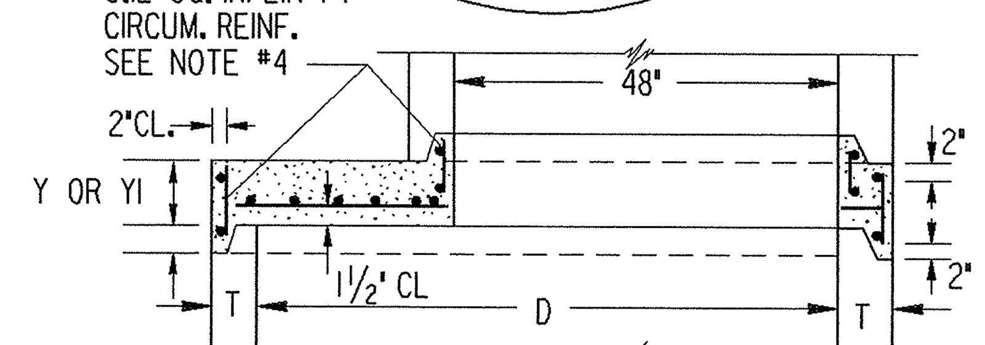
* WHERE W AND WI DIMENSIONS DIFFER, USE SLAB THICKNESS AND REINFORCEMENTS FOR LARGER DIMENSION.

Y = MIN. THICKNESS WHERE HEIGHT OF FILL IS 12 ft., OR LESS, ABOVE TOP OF ADAPTER, TYPE I, OR CIRCULAR REDUCER.
YI = MIN. THICKNESS WHERE HEIGHT OF FILL ABOVE ADAPTER, TYPE I, OR CIRCULAR REDUCER = OVER 12 ft.

W & WI or D	BAR SIZE	S (Max)	Y (Min.)	YI (Min)
48"	#4	6"	6"	6"
54"	#4	6"	8"	8"
60"	#5	6"	8"	9"
66"	#6	6"	8"	10"
72"	#6	5 1/2"	9"	11"
84"	#6	5"	9"	12"

CIRCULAR REDUCER SLAB



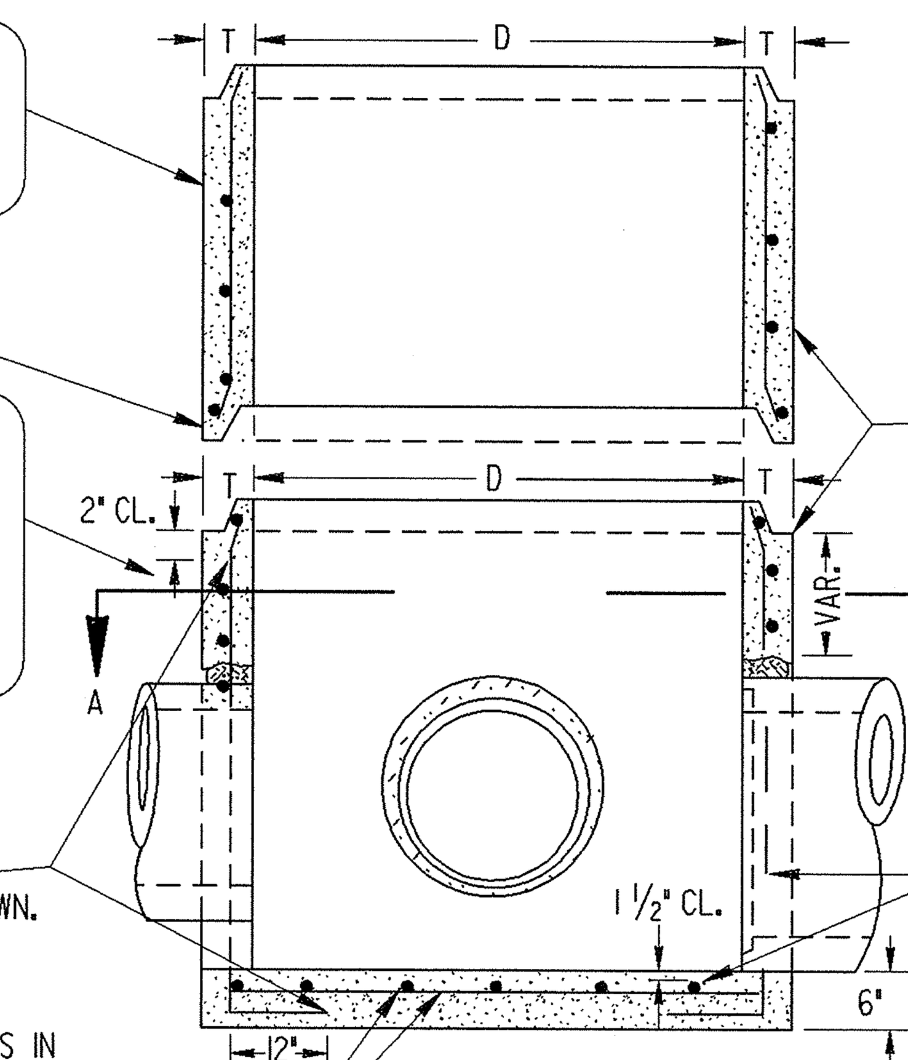


SECTIONAL DETAIL

CIRCULAR RISER SECTIONS-
DESIGN AND STEEL REINFORCEMENT TO COMPLY WITH A.S.T.M. C-478 FOR PRECAST MANHOLE SECTIONS HT. = 1'0" TO 4'0" EACH.

KEYED JOINT REQUIRED AT ALL SECTIONS UNLESS NOTED OTHERWISE

CIRCULAR BASE UNIT-
WALL DESIGN AND REINFORCEMENT TO COMPLY WITH A.S.T.M. C-478 EXCEPT THAT MIN. (T) THICKNESS = 5" AND ALL PRECAST OPENINGS FOR PIPES SHALL HAVE TWO ADDITIONAL VERTICAL REINFORCING BARS AS SHOWN.



SECTIONAL DETAIL

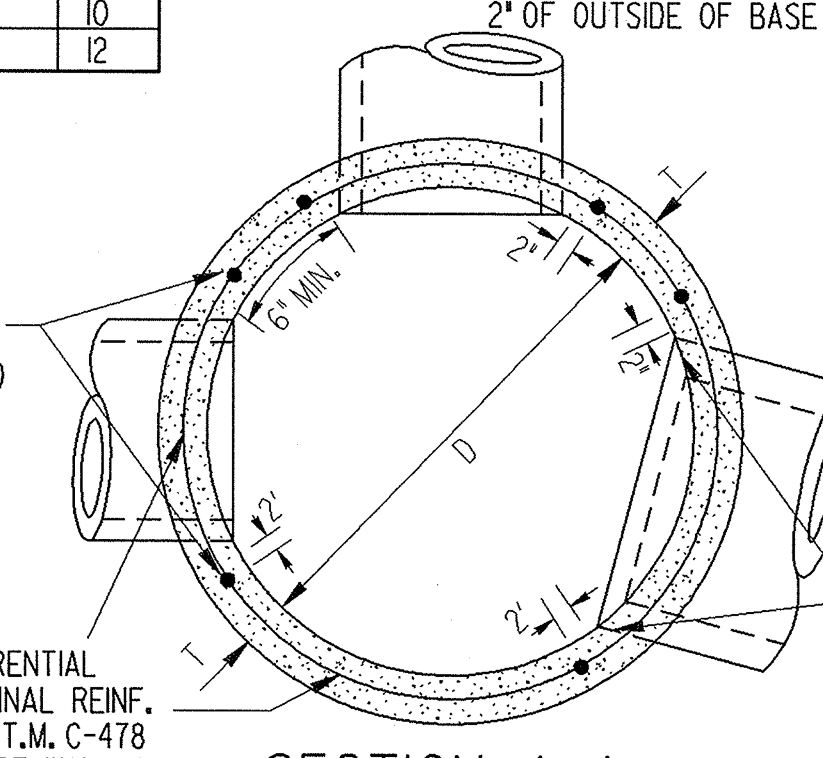
MIN WALL THICKNESS (T)		
D	BASE	RISER
48"	5"	4"
60"	5"	5"
72"	6"	6"

MATERIALS FOR BASE UNITS AND RISERS WILL COMPLY WITH GA. STANDARD SPECIFICATIONS FOR PRECAST MANHOLE SECTIONS.

D	MAX PIPE SIZE
48"	30"
60"	42"
72"	48"

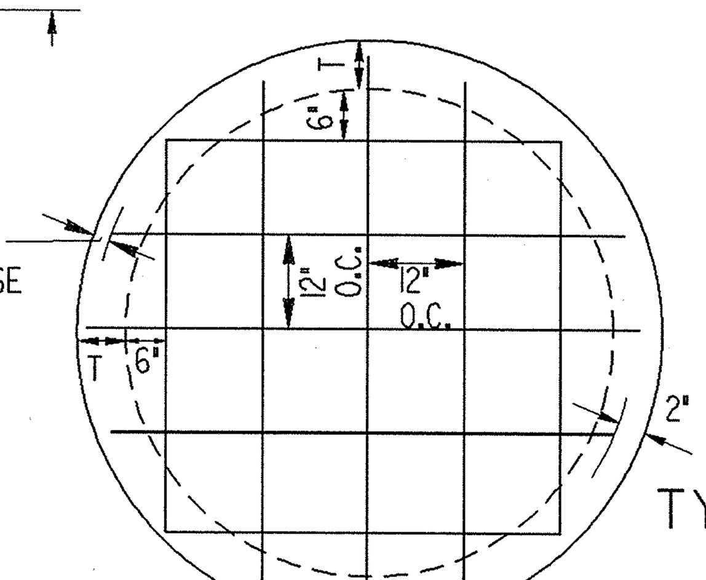
REINF. STEEL BARS IN BOTTOM MAX. SPAING 12" C. TO C. BOTH WAYS

D	BAR SIZE	NO.
48"	#5	8
60"	#5	10
72"	#6	12



SECTION A-A

CONTRACTOR SHALL PROVIDE FABRICATOR WITH PIPE SIZES AND ALIGNMENT



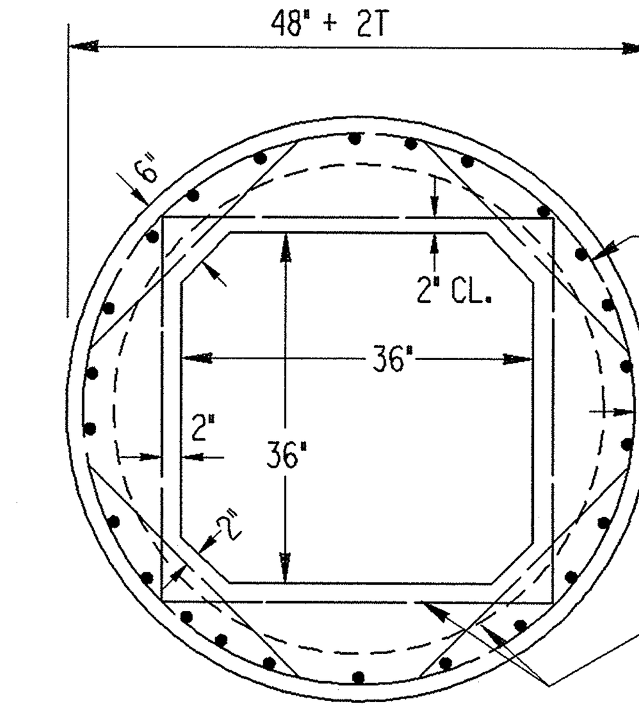
PLAN OF REINFORCING STEEL IN BOTTOM SLAB

ADAPTER TYPE 2

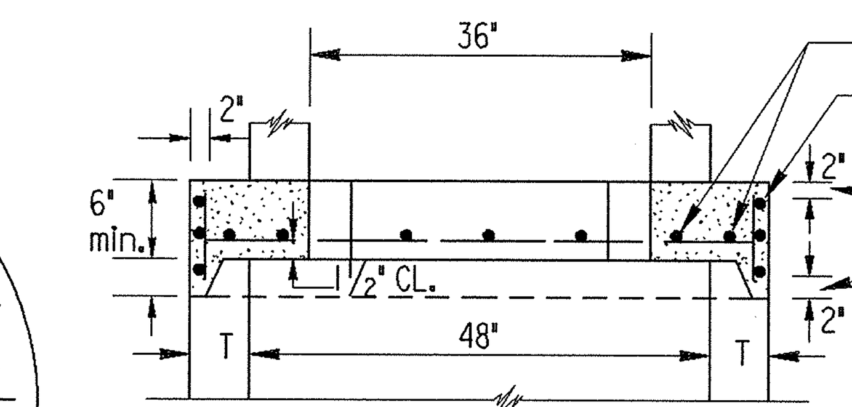
FOR USE WITH CATCH BASINS

ADAPTER, TYPE 2, MAY BE USED WITH DRAINAGE STRUCTURES OTHER THAN CATCH BASINS, IF SO NOTED ON OTHER STANDARDS OR IN THE PLANS.

ADAPTER, TYPE 3, WILL BE USED FOR STRUCTURES WHICH ARE UNDER TRAFFIC.



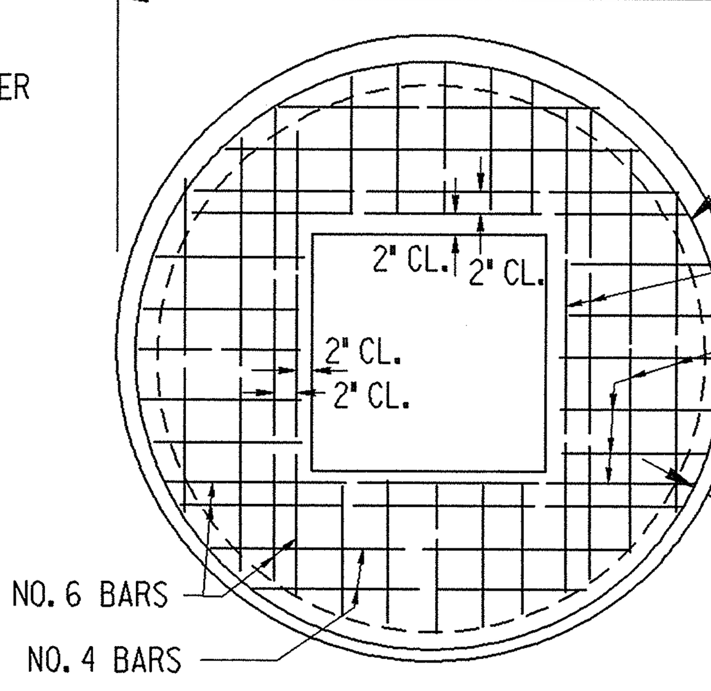
PLAN OF REINFORCING STEEL



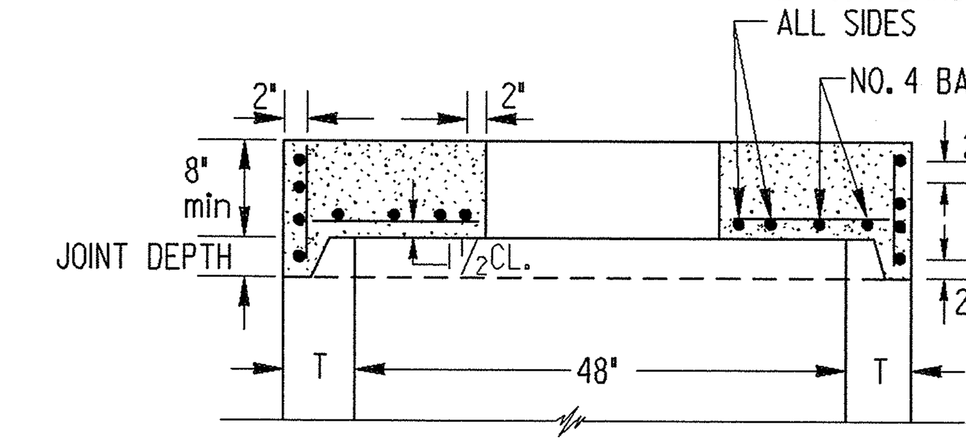
SECTIONAL DETAIL

ADAPTER TYPE 3

FOR USE WITH DROP INLETS



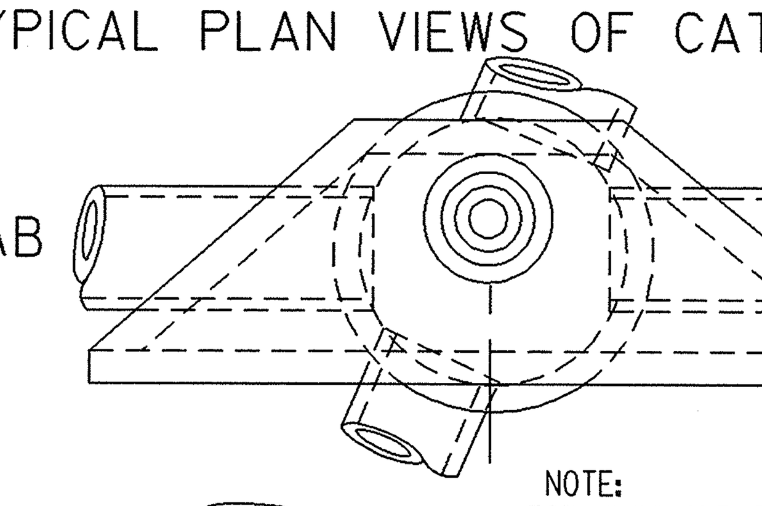
PLAN OF REINFORCING STEEL

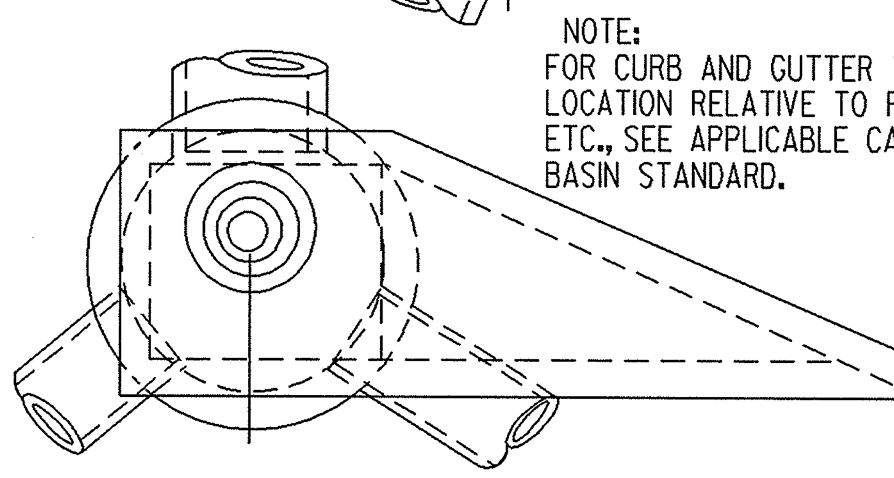


SECTIONAL DETAIL

NOTE: OPENING IN AN ADAPTER, TYPE 3, DEPENDS ON TYPE OF INLET, OPENING = 1'5" X 2'0" FOR INLET TYPES A,B,C, OR D, AND 2'0" X 2'0" FOR INLET, TYPE E (STANDARD 1019-A). FOR OTHER INLET TYPES OPENING EQUAL TO OPENING REQUIRED FOR INLET WITH BOX TYPE BASES.

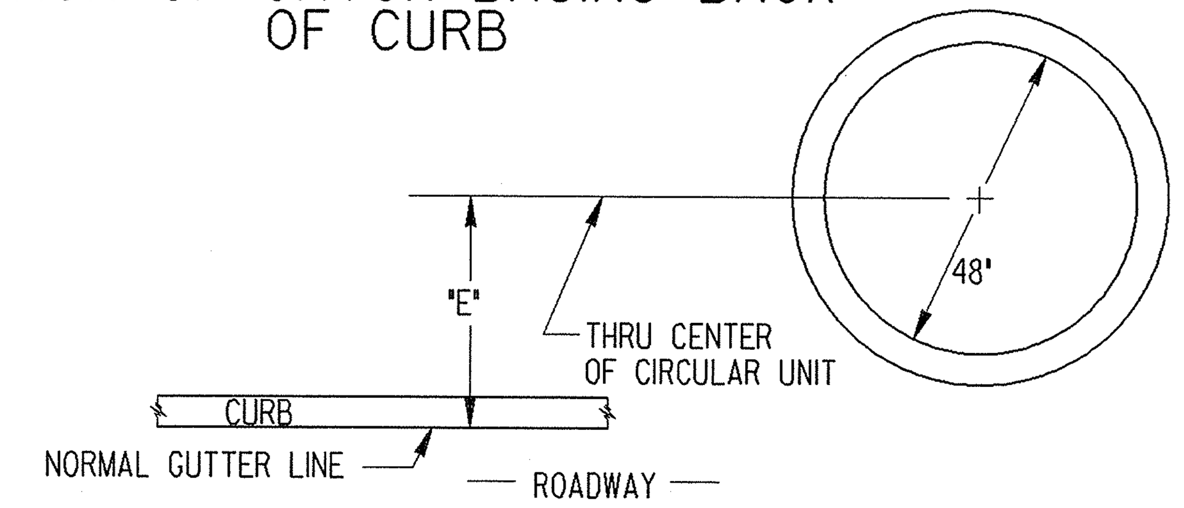
TYPICAL PLAN VIEWS OF CATCH BASINS





NOTE:
FOR CURB AND GUTTER TRANSITION LOCATION RELATIVE TO ROADWAY, ETC., SEE APPLICABLE CATCH BASIN STANDARD.

DETAIL FOR CENTERING CIRCULAR SECTION OF CATCH BASINS BACK OF CURB

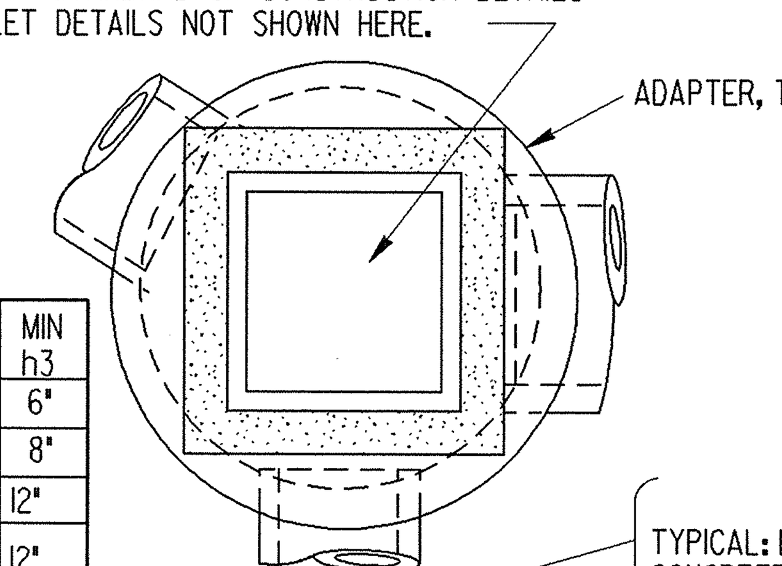


GENERAL NOTES:

1. ALL CIRCULAR SECTIONS WILL HAVE KEYED TYPE JOINT IN ACCORDANCE WITH A.S.T.M. C-478.
2. ALL OPENINGS FOR PIPES OVER 6" IN DIAMETER MUST BE PRECAST.
3. ALL ADAPTERS AND REDUCER SLABS SHALL CONTAIN, IN ADDITION TO STEEL BAR REINF. SHOWN, CIRCUMFERENTIAL REINFORCEMENT IN LIP AND EXTENDING INTO BODY OF SLAB AS SHOWN.
4. FOR CONSTRUCTION ABOVE ADAPTER, TYPE 2, AND TYPE 3, AND BELOW TYPE I, SEE APPLICABLE GA. STDS. FOR CATCH BASINS OR DROP INLETS.
5. CIRCULAR SECTIONS SHOWN ON THIS STANDARD MAY BE SUBSTITUTED FOR THE BOX TYPE BASE ON GA. STDS. AND CONSTRUCTION DETAILS FOR CATCH BASINS AND DROP INLETS, WHERE STRUCTURE HEIGHT, PIPE SIZE, AND ALIGNMENT PERMIT. SPECIFIED STRUCTURE HEIGHT SHALL BE SUFFICIENT TO ACCOMODATE THE REQUIRED BASE SIZE, ADAPTERS, RISERS, AND TOP PORTION FOR ALLOWANCE OF THE CIRCULAR ALTERNATES.

DROP INLET WITH CIRCULAR SECTIONS

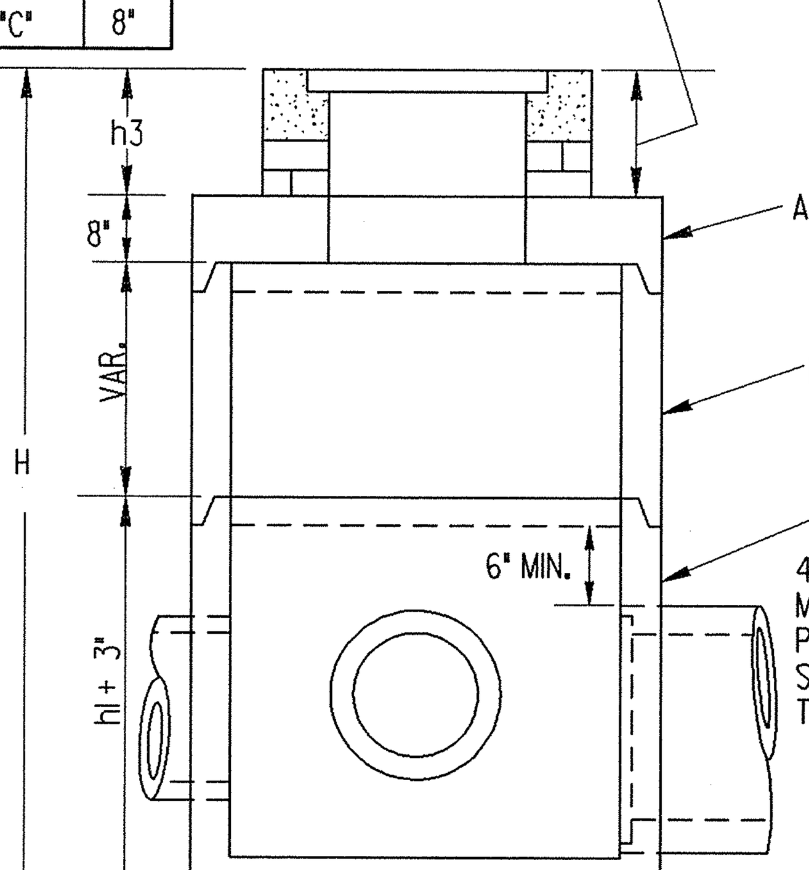
SEE APPLICABLE STANDARD OR CONSTRUCTION DETAILS FOR DROP INLET DETAILS NOT SHOWN HERE.



PLAN

INLET TYPE		MIN h3
STD. 1019A	A,B,or C	6"
	D	8"
	E	12"
STD. 1019 B TYPE VI or V2		12"
9031-S MED.		12"
DITCH D.I.		6"
STD 1010-Ty"C"		8"

TYPICAL: BRICK MASONARY AND/OR CONCRETE CONSTRUCTION PER APPLICABLE SEPARATE STANDARD.

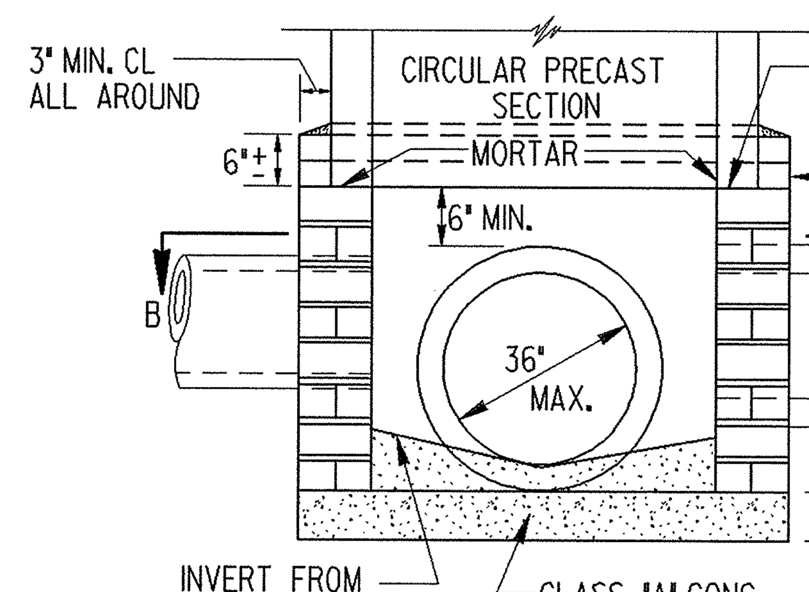


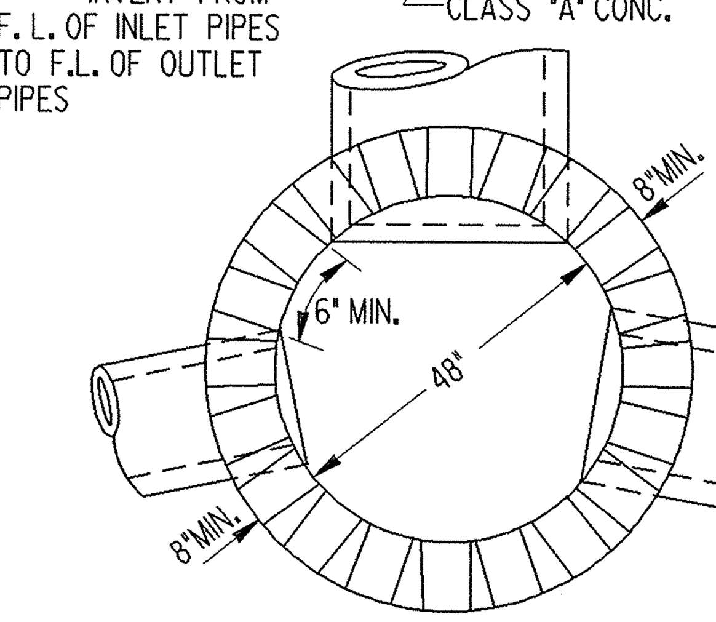
SECTIONAL VIEW

** TYPE 3 ADAPTER NOT REQUIRED FOR STD. 9031-S MEDIAN D.I. IF PRECAST APRON IS USED. (SEE STANDARD 9031-S PRECAST)

BUILT-IN-PLACE CIRCULAR BASE

(BRICK MASONRY OR CLASS "A" CONCRETE)



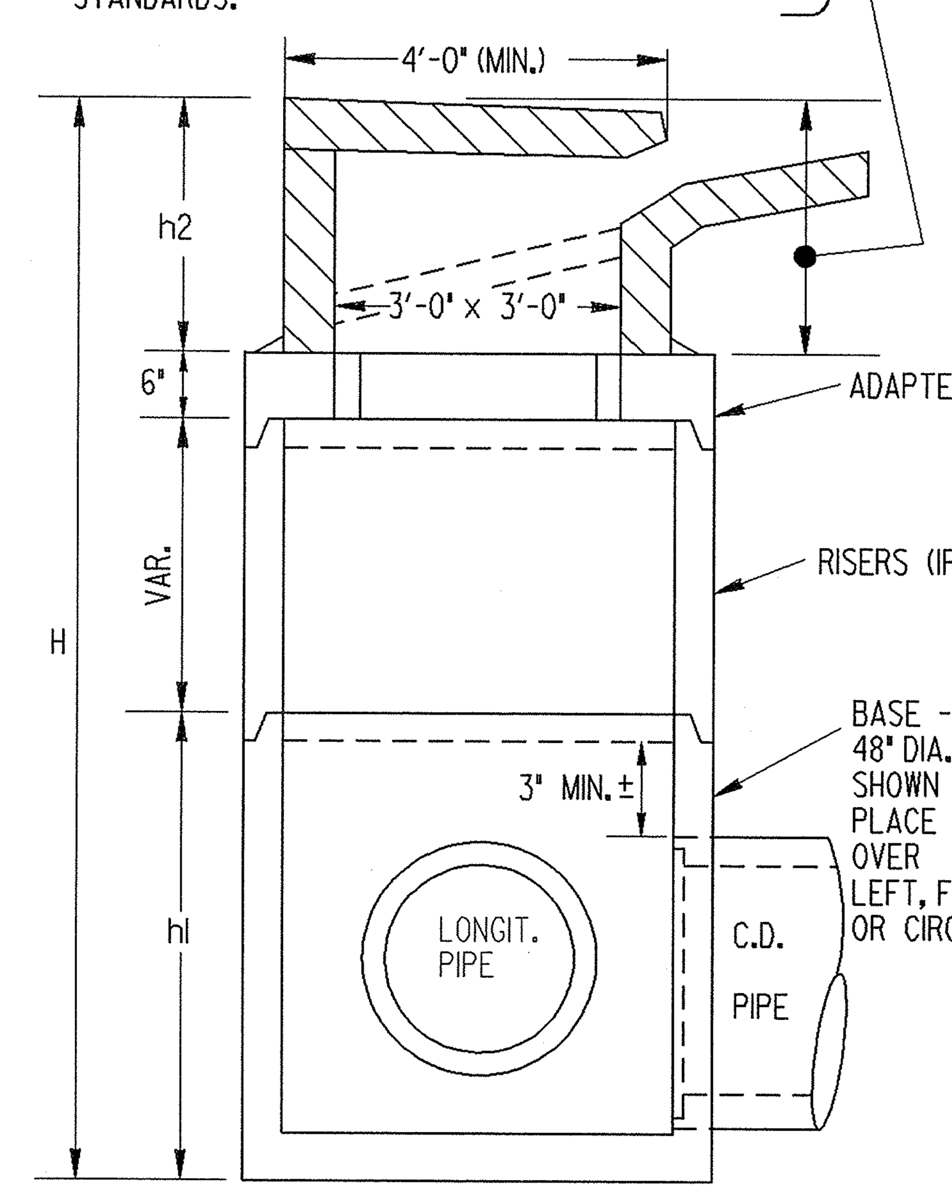


SECTION B-B

PIPE SIZE	MIN. hl
12"	2'-3"
15"	2'-6"
18"	2'-9"
24"	3'-6"
30"	4'-0"
36"	4'-6"
42"	5'-3"
48"	5'-9"

CATCH BASIN WITH CIRCULAR SECTIONS

CONSTRUCTION ABOVE ADAPTER WILL BE EITHER PRECAST, BUILT-IN-PLACE, OR A COMBINATION OF BOTH ACCORDING TO APPLICABLE CATCH BASIN STANDARDS.



SECTIONAL VIEW

⊛ STD. NO	CURB HEIGHT	MIN. h2	"E"
1033 D; 1033 G	6"	2'-0"	2'-0"
	8"	2'-2"	2'-0"
1033 E	4"	2'-0"	3'-0"
1033 F	4"	1'-11"	4'-0"
	6"	2'-1"	4'-0"
	8"	2'-1"	3'-0"
	10"	2'-1"	2'-0"
1034 D; 1034 G	6"	2'-1"	2'-0"
	8"	2'-2"	2'-0"
1034 E	4"	2'-0"	3'-0"
1034 F	4"	1'-11"	4'-0"
	6"	2'-1"	4'-0"
	8"	2'-1"	3'-0"
	10"	2'-1"	2'-0"

⊛ REFERENCED STANDARD MAY BE PRECAST OR BUILT-IN PLACE

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD

CIRCULAR BASE UNITS AND RISERS FOR CATCH BASINS AND DROP INLETS
(CONSTRUCTION ALTERNATES)

NO SCALE
REV. & REDR.: NOV., 1999

DATE	REVISION	BY

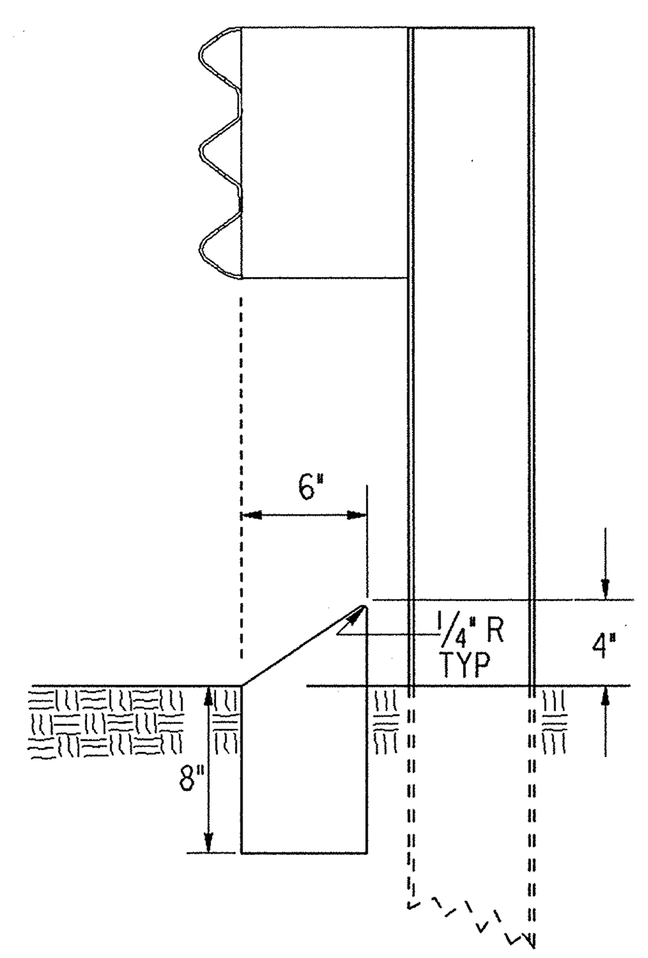
DES. ____
DRW. ____
TRA. ____
CHK. ____

(SUBMITTED) James A. Kennel
STATE ROAD & AIRPORT DESIGN ENGR.
(APPROVED) [illegible]
CHIEF ENGINEER

NUMBER
1040

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		27	37

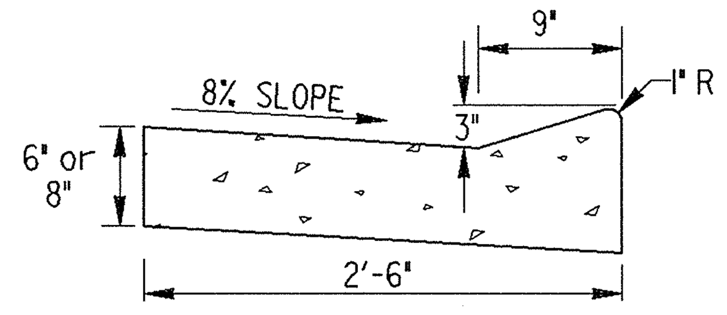
FACE OF CURB MUST ALIGN WITH BACK EDGE OF GUARDRAIL AND THE FACE OF THE OFFSET BLOCK.



TYPE 8

TYPE 8 CURB IS USED IN CONJUNCTION WITH GUARDRAIL CONNECTIONS TO CONCRETE BARRIER AS NOTED ON GA. STD. 4012C.

RAISED EDGE WITH CONCRETE GUTTER



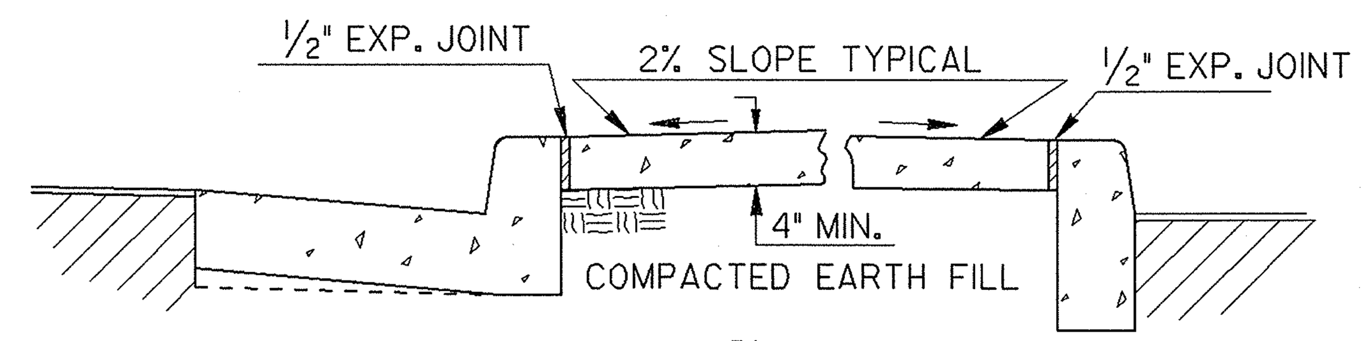
SCALE: 1" = 1FT.

RAISED EDGE TO BE CONSTRUCTED WITH SAME CONCRETE MIX AS THE GUTTER AND SHALL BE FORMED MONOLITHIC WITH GUTTER. JOINTS IN RAISED EDGE SHALL MATCH THOSE IN THE GUTTER.

NOTE:
IF CONCRETE MEDIAN INTERCEPTS PEDESTRIAN CROSSWALKS, WHEELCHAIR RAMPS (CONSTRUCTION DETAIL A-3 AND A-4) WILL BE REQUIRED.

CONCRETE MEDIAN (Between Curbs)

NOTE: CURB TYPES SHOWN ARE TYPICAL. OTHER TYPES MAY BE SPECIFIED.



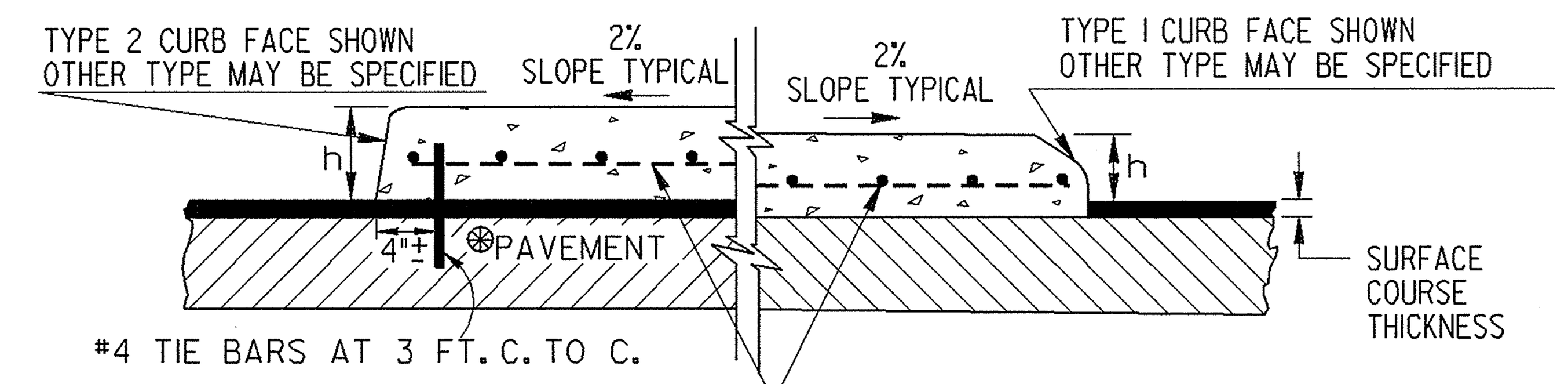
SCALE: 3/4" = 1FT.

NOTE: WIDTH OF CONCRETE MEDIAN WILL BE AS SHOWN IN PLANS

CONCRETE MEDIANS (Integral)

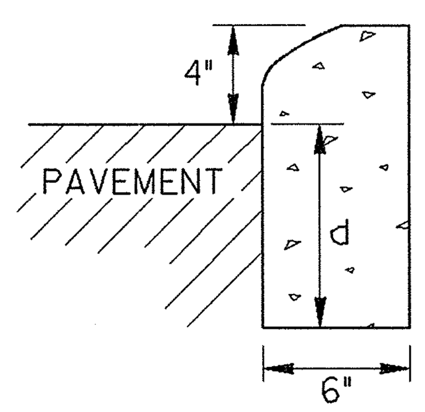
SCALE: 1"=1FT.

-WITH TIE BARS- -WITHOUT TIE BARS-



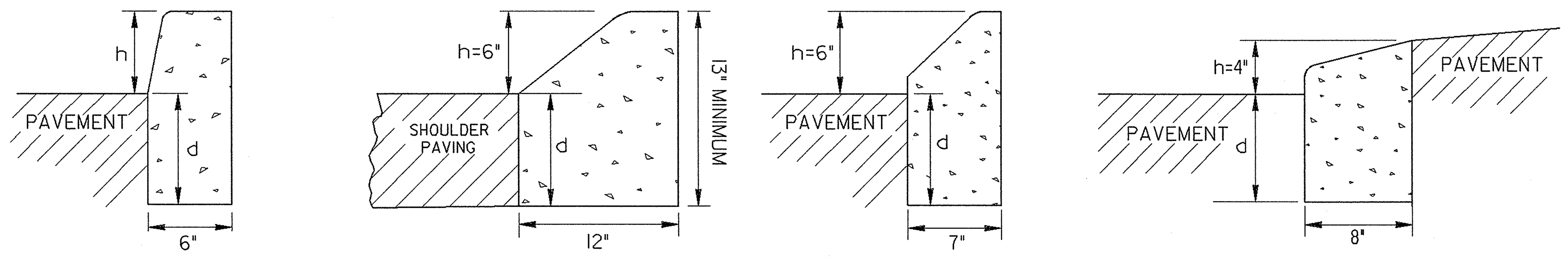
NOTE:
IF FINAL SURFACE COURSE IN PRESENT OR MUST BE INSTALLED BEFORE THE CONCRETE MEDIAN CAN BE INSTALLED, THEN DOWELED IN CONCRETE MEDIAN IS REQUIRED.

CONCRETE HEADER CURBS



TYPE 1

CURB TYPE	h	d
1	4"	6" min.
2	6"	8" min.
3	8"	10" min.
4	10"	12" min.
6	6"	7" min.
7	6"	8" min.
9	4"	8" min.



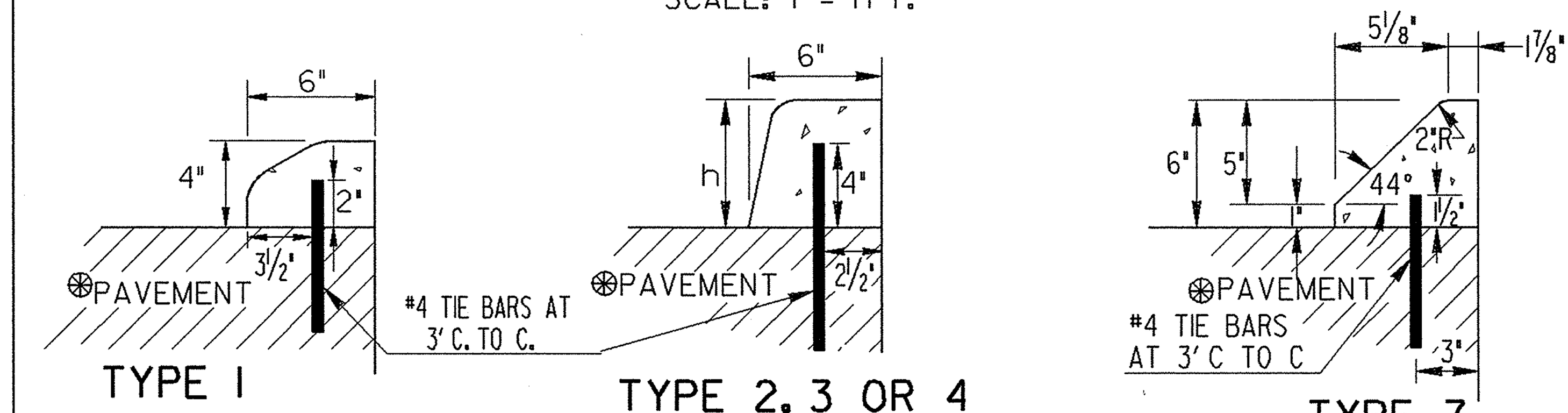
TYPE 2, 3 OR 4 TYPE 6 TYPE 7 TYPE 9 TRUCK APRON IN ROUNDABOUTS

THE DIMENSION d MAY BE INCREASED AT CONTRACTOR'S OPTION SO BOTTOM OF HEADER CURB WILL ALIGN WITH BOTTOM OF PAVEMENT TYPICAL SECTION.

SCALE: 1 1/2" = 1FT.

CONCRETE DOWELED INTEGRAL CURBS

SCALE: 1" = 1FT.



TYPE 1 TYPE 2, 3 OR 4 TYPE 7

⊕ NOTES:
1. CONCRETE CURB CAN BE INSTALLED AFTER INITIAL SET AS LONG AS TIE BARS ARE DRILLED INTO UNDERLAYING CONCRETE PAVEMENT.
2. CONCRETE CURB CAN BE INSTALLED BEFORE INITIAL SET WITH DOWELS THAT ARE DRIVEN INTO UNDERLYING CONCRETE PAVMENT.
3. JOINTS IN CURB AND CONCRETE MEDIAN WILL MATCH THOSE IN THE CONCRETE PAVEMENT.
4. ALL TYPES OF CONCRETE CURB CAN BE PLACED ON ASPHALT PAVEMENTS WHERE TIE BARS MAY BE EITHER DRIVEN OR DRILLED INTO THE UNDERLYING PAVEMENT. CONTRACTION JOINTS SHALL BE CONSTRUCTED IN CURB OR CONCRETE MEDAIN AT 20 FT. SPACING.

MINIMUM TIE BAR LENGTHS (FOR CONC. DOWELED CURBS OR CONC. MEDIAN)

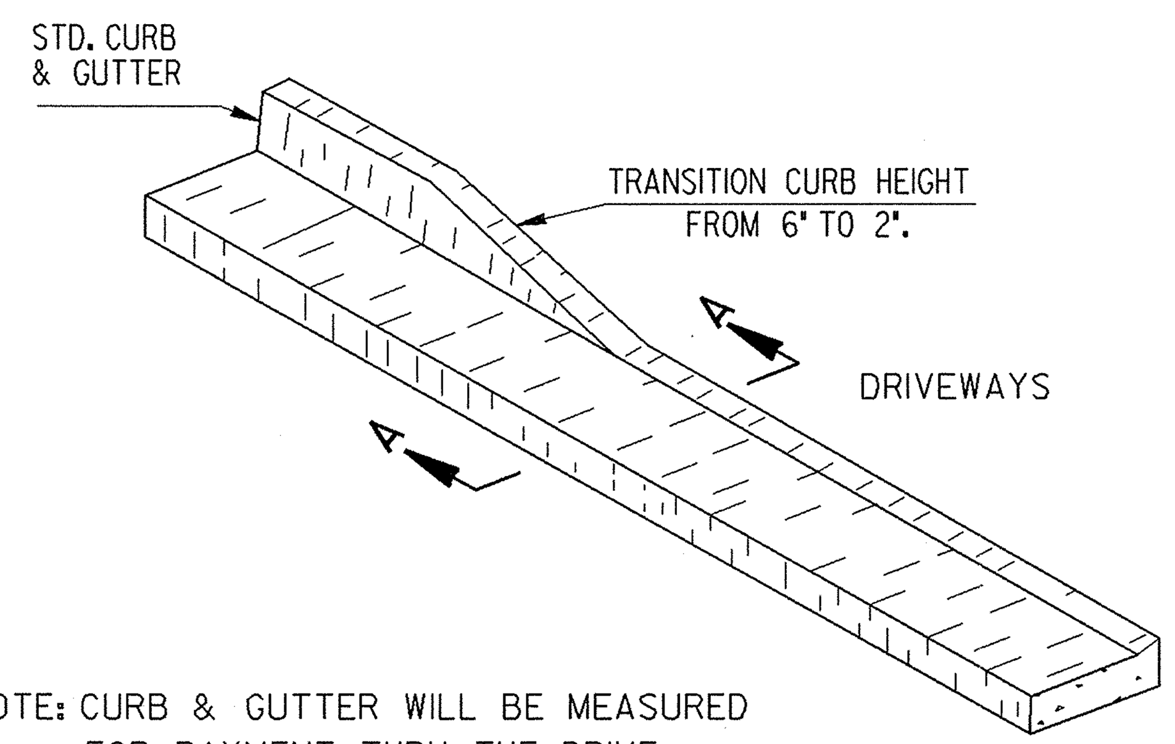
CURB TYPE	P.C. CONC. PAV.	ASPHALT PAV.
1	6"	8"
2, 3 or 4	8"	12"
7	6"	8"

NOTE:
TIE BARS FOR DOWELED CURBS MAY BE UNCOATED PLAIN OR DEFORMED BILLET-STEEL BARS (GRADE 40) AS USED FOR CONCRETE REINFORCEMENT. (AASHTO M-31)

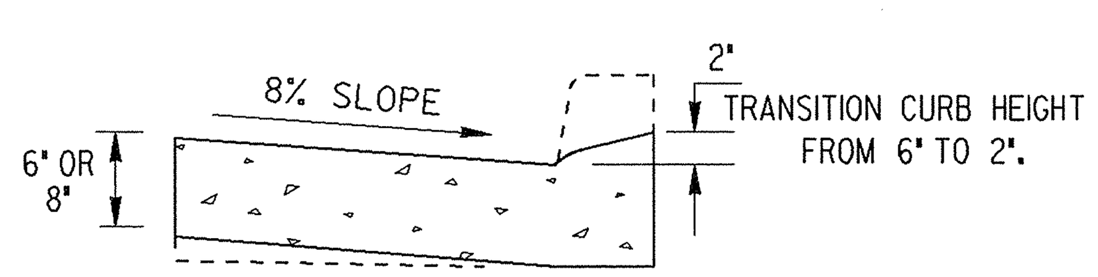
DETAILS OF RECESSED CURB FOR DRIVEWAYS

NO SCALE

PICTORIAL VIEW



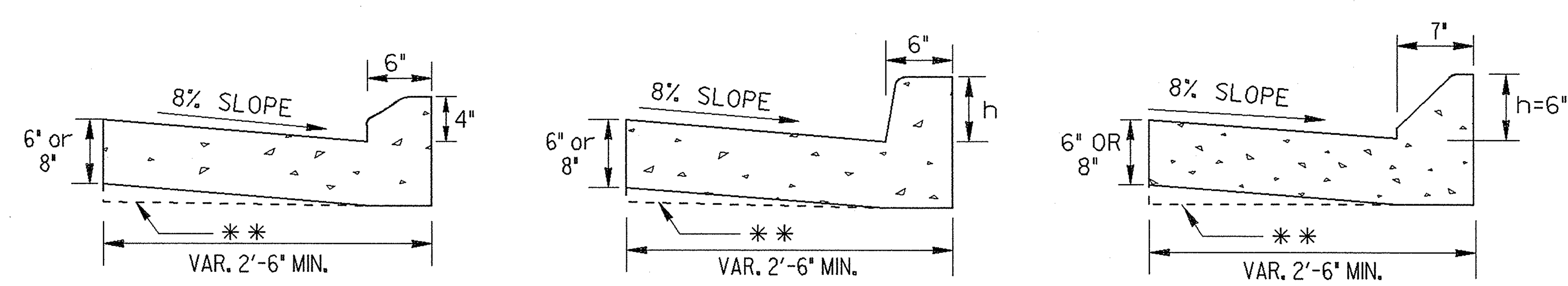
NOTE: CURB & GUTTER WILL BE MEASURED FOR PAYMENT THRU THE DRIVE



SECTIONAL VIEW
SECTION A-A

(SEE SEPARATE CONSTRUCTION DETAILS FOR DRIVEWAYS)

CONCRETE CURB & GUTTER

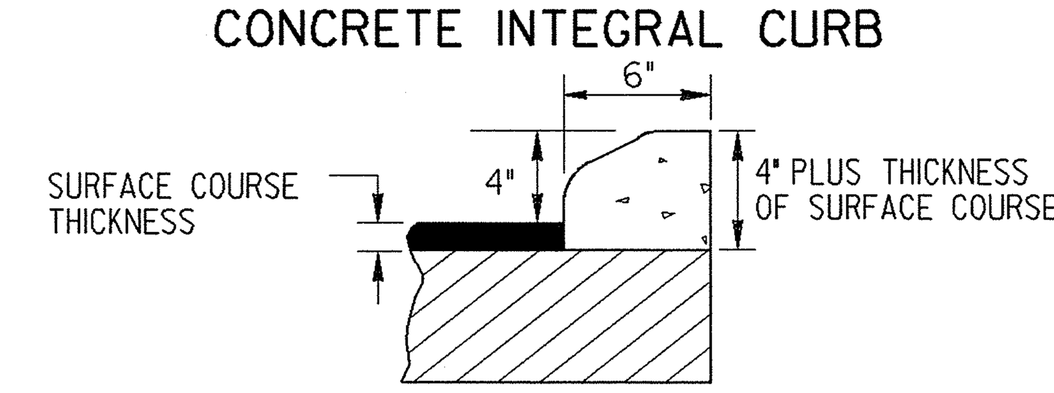


SCALE: 1"= 1FT.

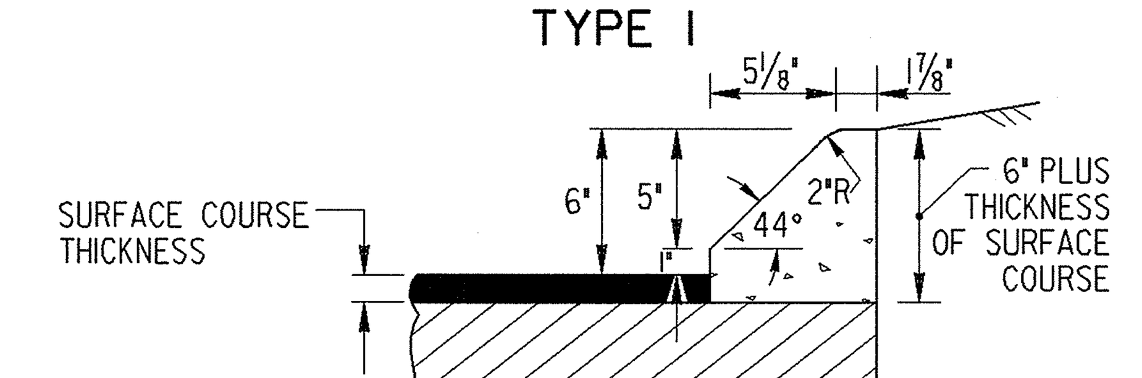
TYPE 1 TYPE 2, 3 OR 4 TYPE 7

** AT CONTRACTOR'S OPTION THE GUTTER THICKNESS MAY BE INCREASED AT EDGE OF PAVEMENT TO MAKE BOTTOM OF GUTTER PARALLEL WITH PAVING OF BASE COURSE, BUT THE GUTTER THICKNESS MUST NOT BE LESS THAN THE SPECIFIED 6" OR 8" AT ANY POINT.

CONCRETE INTEGRAL CURB



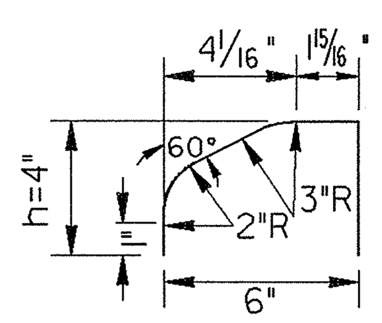
TYPE 1



TYPE 7

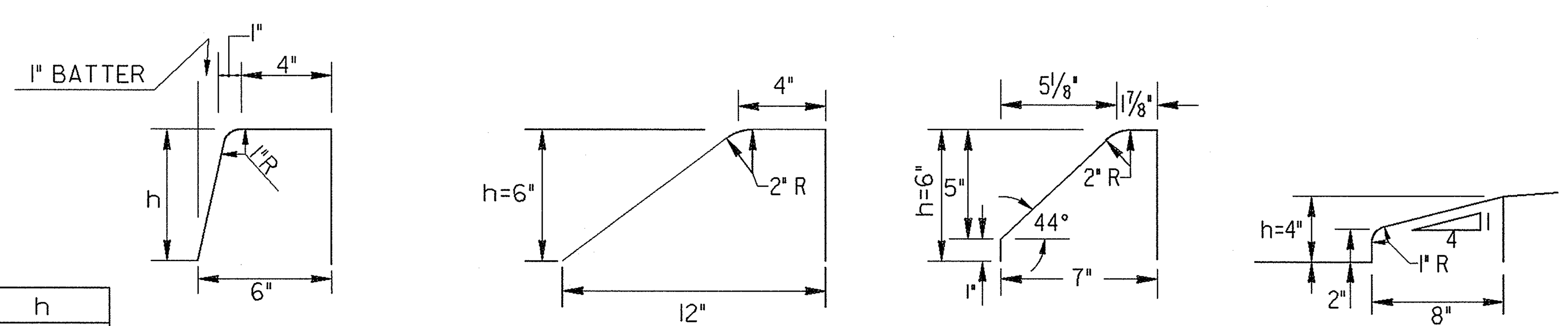
SCALE: 1 1/2" = 1FT.

CURB FACE DESIGN



TYPE 1

TYPE	h
1	4"
2	6"
3	8"
4	10"
6	6"
7	6"
9	4"



TYPE 2, 3 OR 4 TYPE 6 TYPE 7 TYPE 9

SCALE: 2"=1FT.

REVISION	DATE	BY
REV. TYPE 9 CURB DETAIL	11-15-11	TC
& REV. OVERALL LAYOUT		
REV. MEDIAN NOTE AND	1-27-11	GLO
ADDED TYPE 9 CURB DETAIL		
ADDED TYPE 9 DETAIL	3-03	

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD
CONCRETE CURB & GUTTER
CONCRETE CURBS, CONCRETE MEDIANS

SCALE: AS SHOWN REVISED AND REDRAWN OCT. 2011

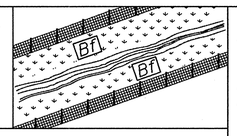
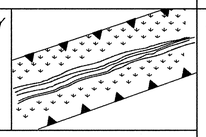
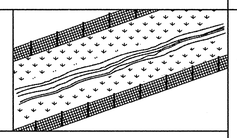
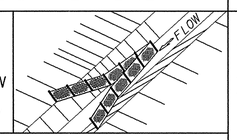
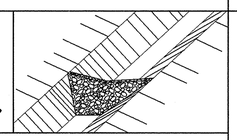
DES. ____ DRW. ____ TRA. ____ CHK. ____

(SUBMITTED) [signature] STATE DESIGN POLICY ENGINEER

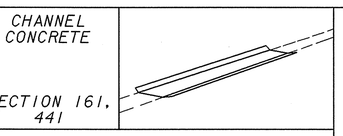
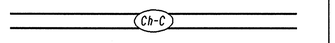
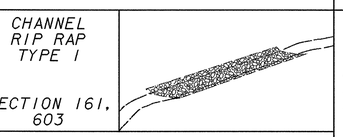
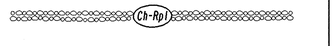
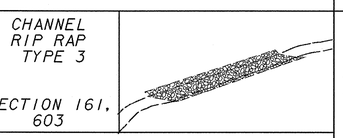
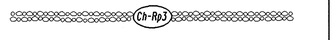
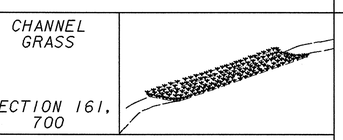
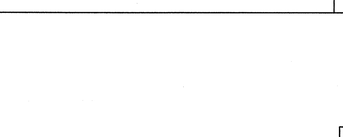
(APPROVED) [signature] CHIEF ENGINEER

NUMBER 9032B

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		28	37

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Bf	BUFFER ZONE	 SYMBOL Bf	A STRIP OF UNDISTURBED ORIGINAL VEGETATION, ENHANCED OR RESTORED EXISTING VEGETATION, OR THE RE-ESTABLISHMENT OF VEGETATION SURROUNDING AN AREA OF DISTURBANCE OR BORDERING STREAMS, PONDS, WETLANDS, LAKES, AND COASTAL WATERS. THE BOUNDARIES OF THESE AREAS ARE BE DELINEATED BY ORANGE BARRIER FENCE.
	ESA	ENVIRONMENTALLY SENSITIVE AREA	 LINE CODE  ESA-25'(OR 50')STREAM BUFFER, ETC.	ENVIRONMENTALLY SENSITIVE AREA (ESA) CONTAINS RESOURCES THAT ARE ENVIRONMENTALLY, CULTURALLY, OR HISTORICALLY SENSITIVE. ESA AREAS INCLUDE, BUT ARE NOT LIMITED TO: STATE WATER BUFFERS, ARCHAEOLOGICAL SITES, HISTORIC SITES, AND PROTECTED ANIMAL AND PLANT SPECIES HABITATS. IF WORK IS AUTHORIZED IN THIS AREA, THE WORK MUST BE PERFORMED IN ACCORDANCE WITH SECTION 107 AND ANY OTHER APPLICABLE SPECIAL PROVISIONS AND APPLICABLE PLAN NOTES.
		ORANGE BARRIER FENCE	 LINE CODE  ORANGE BARRIER FENCE	ORANGE BARRIER FENCE DELINEATES ESA AREAS WHERE THE CONTRACTOR SHALL NOT CLEAR, GRUB, PLACE CONSTRUCTION MATERIALS OR EQUIPMENT WITHIN THIS AREA.
	Cd-F	FABRIC CHECK DAM CONSTRUCTION DETAIL SECTION 171	 LINE CODE Cd-F	A CHECK DAM COMPOSED OF SYNTHETIC FIBER FABRIC, WIRE REINFORCED, POST, AND BRACING PLACED IN DITCHES IN A SPECIAL CONFIGURATION WHICH CONTROLS ENERGY DISSIPATION AND FILTRATION OF STORM WATER. SEE CONSTRUCTION DETAIL D-24b FOR SPACING REQUIREMENT. THIS ITEM IS SUITABLE FOR USE IN ROADSIDE DITCHES THAT ARE PART OF INFRASTRUCTURE CONSTRUCTION PROJECTS. IF THIS ITEM IS USED IN AN AREA WITHOUT A SEDIMENT BASIN CONSIDERATION SHOULD BE GIVEN TO USING TWO OR MORE ROCK FILTER DAMS NEAR THE DISCHARGE POINT.
	Cd-S	STONE OR SANDBAG CHECK DAM SECTION 163, 603	 LINE CODE Cd-S	STONE CHECK DAMS ARE USED IN ROADWAY DITCHES. GEOTEXITLE UNDERLINER SHALL BE USED WHEN PLACING STONE CHECK DAMS. CONTRACTOR MAY USE SANDBAG CHECK DAMS IN LIEU OF STONE CHECK DAMS. SANDBAG CHECK DAMS MUST BE USED IN CONCRETE LINED CHANNELS.

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Ch-C	CHANNEL CONCRETE SECTION 161, 441	 	THIS ITEM CONSISTS OF CONSTRUCTING A 4" THICK CONCRETE CHANNEL. THE CONCRETE SHALL PROTECT THE DITCH FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
	Ch-Rp1	CHANNEL RIP RAP TYPE 1 SECTION 161, 603	 LINE CODE 	THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 1 RIP RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP RAP SHALL PROTECT THE DITCH FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED ALONG THIS CHANNEL SUCH AS Sd1-C, Rdc OR Sg. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
	Ch-Rp3	CHANNEL RIP RAP TYPE 3 SECTION 161, 603	 LINE CODE 	THIS ITEM CONSISTS OF LINING A CHANNEL WITH TYPE 3 RIP RAP 24" THICK (UNLESS SPECIFIED OTHERWISE) PLACED ON TOP OF A GEOTEXTILE UNDERLINER. THE RIP RAP SHALL PROTECT THE DITCH FLOWING TO A DEPTH "Dp" RECOMMENDED BY THE GDOT DITCH PROTECTION PROGRAM. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED ALONG THIS CHANNEL SUCH AS Sd1-C, Rdc OR Sg. "Dp" SHALL BE IDENTIFIED IN A TABLE LOCATED ON THE SUMMARY OF QUANTITIES SHEETS
	Ch-V	CHANNEL GRASS SECTION 161, 700	 LINE CODE 	USED TO IMPROVE OR STABILIZE A NEW OR EXISTING CHANNEL. IT IS CONSTRUCTED IN STORMWATER DRAINAGE DITCHES. THIS MEASURE SHALL BE DESIGNED IN ACCORDANCE WITH THE GDOT DITCH PROTECTION PROGRAM ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED. TYPICALLY NOT SHOWN IN PLANS.

BY	REVISION	DATE
TC	UDATED DRAWING NO.	1-24-13
TC	REVISED Cd-S DESCRIPTION,	10-2-12
	REMOVED Be & Ch-Br. AND	
	RELOCATED Ch-Rp1, Ch-RP3	
	AND Ch-V CODES FROM	
	ECL&UC SHEET 2 OF 6.	
GLO	REV. Be, ADDED Bf, ESA,	11-13-07
	OBF AND Ch-F	
GLO	REVISED TITLE BLOCK	1-19-07

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

EROSION CONTROL LEGEND
AND UNIFORM CODE SHEET
SHEET 1 OF 6

NO SCALE — JANUARY 2007

NUMBER EC-L1

DRAWING No. 52-001

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		29	37

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Co	CONSTRUCTION EXIT CONSTRUCTION DETAIL	LINE CODE: Co	A STONE STABILIZED PAD LOCATED AT ANY POINT WHERE TRAFFIC WILL BE EXITING A CONSTRUCTION SITE TO A PUBLIC ROAD. BEST USED AT ACCESS POINTS, I.e. NEW LOCATION PROJECTS, BORROW PITS, WASTE PITS, ACCESS ROADS, ETC. SHOULD BE MIN. 20' WIDE AND 50' LONG, AND 6" THICK. REQUIRES A GEOTEXTILE UNDERLINER. INCLUDED IN THE PRICE FOR THE CONSTRUCTION EXIT.
	Dc-A	DIVERSION CHANNEL GEOTEXTILE, POLYETHYLENE FILM SECTION 163	LINE CODE: D D D Dc-A D D D	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE OR POLYETHYLENE FILM. INSTALL TWO ROWS OF Sdl-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 0-2.5 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	Dc-B	DIVERSION CHANNEL GEOTEXTILE ONLY SECTION163	LINE CODE: D D D Dc-B D D D	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH GEOTEXTILE ONLY. INSTALL TWO ROWS OF Sdl-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 2.5-9.0 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	Dc-C	DIVERSION CHANNEL RIPRAP AND GEOTEXTILE SECTION 163	LINE CODE: D D D Dc-C D D D	A DIVERSION CHANNEL IS A TEMPORARY CHANNEL CONSTRUCTED TO CONVEY FLOW AROUND A CONSTRUCTION SITE WHILE A PERMANENT DRAINAGE STRUCTURE IS BEING CONSTRUCTED IN A NATURAL STREAM. THIS IS A MEASURE USED TO PROTECT STREAM BEDS FROM EROSION. LINE THE CHANNEL WITH RIPRAP AND GEOTEXTILE. INSTALL TWO ROWS OF Sdl-C PARALLEL TO THE CHANNEL TO PREVENT SEDIMENT LADEN RUNOFF FROM ENTERING THE STREAM. THE SIZE OF THE CHANNEL WILL DEPEND ON THE DISCHARGE, CHANNEL GEOMETRY, CHANNEL SLOPE AND ROUGHNESS. IT IS DESIGNED FOR A TWO YEAR STORM FREQUENCY WITH A FLOW RATE BETWEEN 9.0-13.0 fps. CONSTRUCTION OF THE DIVERSION CHANNEL IS INCLUDED IN THE COST OF THE STRUCTURE.
	Di	DIVERSION BERM CONSTRUCTION DETAIL SECTION 161, 205	LINE CODE: DI	THIS IS A TEMPORARY EARTHEN BERM WITH A COMPACTED SUPPORTING RIDGE ON THE LOWER SIDE TO BE USED AT AT THE EDGE OF EMBANKMENT DURING THE GRADING OPERATION. THE BERMS ARE ALSO CONSTRUCTED ABOVE, ACROSS OR BELOW A SLOPE TO REDUCE THE LENGTH OF A SLOPE. THEY ARE USED TO INTERCEPT RUNOFF, PREVENTING SLOPE EROSION AND TO DIRECT THE RUNOFF TO A STABLE OUTLET, DOWN DRAINS "Dnl"OR CATCHMENT AREAS AND ON ALL GRADING PROJECTS. SEE CHAPTER 6 OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA FOR DESIGN CRITERIA AND DETAILS.

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Dnl	DOWN DRAIN STRUCTURE FLEXIBLE CONSTRUCTION DETAIL SECTION 163	LINE CODE: T T T Dnl T T T	A TEMPORARY PIPE SLOPE DRAIN IS A PLASTIC FLEXIBLE PIPE TO CARRY WATER FROM THE WORK AREA TO A LOWER ELEVATION. TEMPORARY SLOPE DRAINS SHOULD BE PLACED A INTERVALS OF 500 FEET ON A 0 TO 2 PERCENT GRADE, 200 FEET ON STEEPER GRADES AND MORE FREQUENTLY AS DICTATED BY FIELD CONDITIONS. THE USUAL PIPE SIZE IS 10 INCH CORRUGATED. THE OUTLET AREA SHOULD BE STABILIZED WITH SILT FENCE, SUMP HOLE, HAYBALES, ANGLING OUTLET IN UPHILL DIRECTION OR OTHER APPROPRIATE MEANS FOR VELOCITY DISSIPATION AND EROSION CONTROL. THE PIPE WILL BE ANCHORED WITH STAKES AT INTERVALS NOT TO EXCEED 10'.
	Dn2-A	PERMANENT DOWN DRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL SECTION 441	LINE CODE: Dn2-A	A CONCRETE FLUME TYPE "A" IS USED TO DIRECT SURFACE RUNOFF DOWN A ROADWAY SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN ALL DEPRESSED AREAS WHERE WATER WILL FLOW DOWN THE SLOPE. IT IS DESIGNED FOR A 25 YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	Dn2-B	PERMANENT DOWN DRAIN STRUCTURE CONCRETE CONSTRUCTION DETAIL SECTION 441	LINE CODE: Dn2-B	A CONCRETE FLUME TYPE "B" IS USED TO DIRECT SURFACE DITCH RUNOFF DOWN A BACK SLOPE INTO ANOTHER FORM OF CONTROL. IT IS USED IN DEPRESSED AREAS WHERE CONCENTRATED OFFSITE WATER REACHES THE CUT SLOPE. IT IS DESIGNED TO SAFETLY CONVEY WATER DOWN THE CUT SLOPE. IT IS DESIGNED FOR A 25 YEAR STORM AND MUST HAVE SOME FORM OF OUTLET PROTECTION. ADDITIONAL LABELING IS NOT REQUIRED IF SHOWN AS A PERMANENT DRAINAGE STRUCTURE ON THE CONSTRUCTION PLANS. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	Dn2-1	PERMANENT DOWNDRAIN STRUCTURE GA. STD. 9017J TP1, D-26 TPI SECTION 576, 577.	LINE CODE: Dn2-1	CONCRETE DRAIN INLET WITH METAL PIPE IS USED TO DRAIN CURBS, ON A GRADE, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES SEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

BY	DATE	REVISION
TC	1-24-13	UDATED DRAWING NO.
TC	10-1-12	REV. DI LABEL&DESCRIPTION.
		RELOCATED Dn2-A, Dn2-B, AND Dn2-1 CODES FROM ECL&UC SHEET 3 OF 6.
	11-13-07	
GLO	1-9-07	REVISED ORDER
GLO		REVISED TITLE BLOCK

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

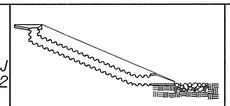
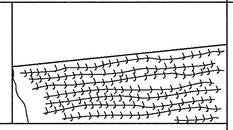
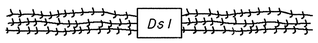
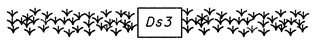
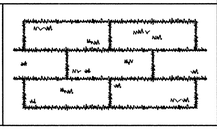
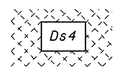
EROSION CONTROL LEGEND
AND UNIFORM CODE SHEET
SHEET 2 OF 6

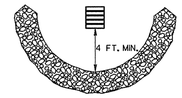
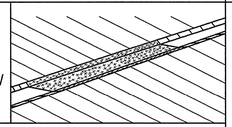
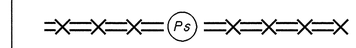
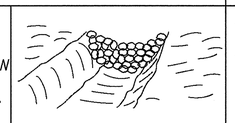
NO SCALE — JANUARY 2007

NUMBER EC-L2

DRAWING No. 52-002

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		30	37

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Dn2-2	PERMANENT DOWN DRAIN STRUCTURE GA. STD. 9017J TP2, D-26 TP2 SECTION 576, 577.	 LINE CODE 	CONCRETE DRAIN INLET AND METAL PIPE IS USED TO DRAIN CURB, IN A SAG, DOWN TO A LOWER ELEVATION. THIS IS A PERMANENT STRUCTURE, REQUIRING OUTLET PROTECTION, TEMPORARY AND PERMANENT. INLETS SHALL BE SPACED ACCORDING TO GDOT GUIDELINES (REGARDING GUTTER SPREAD AND OR OTHER CRITERIA).
	Ds1	MULCH SECTION 163	 LINE CODE 	THIS IS AN APPLICATION OF STRAW MULCH USED TO REDUCE SOIL EROSION AND STABILIZE THE SOIL. IT IS USED TO CONTROL EROSION IN AREAS WHERE PERMANENT VEGETATION IS OUT OF SEASON OR TO TEMPORARILY STABILIZE AREAS PRIOR TO FINAL GRADING.
	Ds2	TEMPORARY GRASSING SECTION 163	 LINE CODE 	THE SOWING OF A QUICK GROWING SPECIES OF GRASS SUITABLE TO THE AREA AND SEASON IS TO BE USED ON ALL PROJECTS.
	Ds3	PERMANENT GRASSING SECTION 700	 LINE CODE 	THE SOWING OF PERMANENT VEGETATION, SUCH AS GRASS, SUITABLE TO THE AREA AND SEASON IS TO BE USED ON ALL PROJECTS. PERMANENT VEGETATIVE REQUIREMENTS ARE ADDRESSED BY STANDARD SPECIFICATIONS AND ARE NOT TYPICALLY SHOWN ON THE PLANS; HOWEVER, THEY MAY BE SHOWN ON THE PLANS FOR HIGHLY SENSITIVE AREAS WHERE THESE VEGETATIVE PRACTICES ARE CRITICAL.
	Ds4	SODDING SECTION 700	 PATTERN 	THE INSTALLATION OF A SPECIES OF GRASS SODDING SUITABLE TO THE AREA AND SEASON TO PROVIDE IMMEDIATE PERMANENT VEGETATION. SODDING MAY BE SHOWN FOR HIGHLY SENSITIVE AREAS, TO IMPROVE AESTHETICS, OR FOR SPECIAL PLANTING REQUIREMENTS ON THE BASIS OF ENVIRONMENTAL COMMITMENTS OR LANDSCAPING REQUIREMENTS.

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Fr	FILTER RING CONSTRUCTION DETAIL	 LINE CODE Fr	A TEMPORARY STONE BARRIER CONSTRUCTED AT DRAINAGE STRUCTURE INLETS. THIS REDUCES THE VELOCITY OF THE RUNOFF AND FILTERS SEDIMENT FROM THE RUNOFF. SEE CHAPTER 6 OF THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA FOR DESIGN CRITERIA AND DETAILS.
	Mb	EROSION CONTROL MATS CONSTRUCTION DETAIL SECTION 716	 PATTERN 	ALL CUT OR FILL SLOPES OF 2.5:1 OR STEEPER AND WITHIN 50' OF ALL CROSS DRAINS AND CULVERTS.
	Ps	PERMANENT SOIL REINFORCING MAT CONSTRUCTION DETAIL SECTION 710	 LINE CODE 	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
	Rd	ROCK FILTER DAM CONSTRUCTION DETAIL SECTION 163, 603.	 LINE CODE 	ROCK FILTER DAMS ARE CONSTRUCTED OF TYPE 3 STONE RIP RAP AND ARE USED TO PROTECT SMALL STREAMS OR DRAINAGEWAYS. TO BE USED IN SMALL DRAINAGE CHANNELS OF 50 ACRES OR LESS. THE RIP RAP SHOULD BE PLACED ON A GEOTEXITLE UNDERLINER.

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES, SEEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

BY	REVISION	DATE
TC	UDATED DRAWING NO., ADDED Ds3 & Ds4 CODES, RELOC. Rp & R1-P CODES to DRAWING NO. 52-004.	1-24-13
TC	RELOCATED Rd, Rp, & R1-B CODES FROM ECL&UC SHEET 4 OF 6.	10-2-12
GLO	DELETED Fe, REVISED ORDER	11-13-07
GLO	REVISED TITLE BLOCK	1-19-07

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

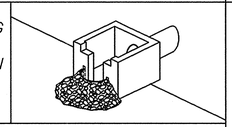
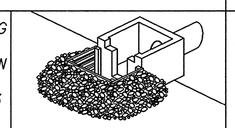
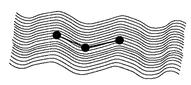
EROSION CONTROL LEGEND
AND UNIFORM CODE SHEET
SHEET 3 OF 6

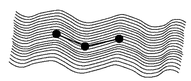
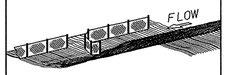
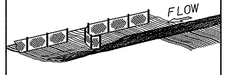
NO SCALE JANUARY 2007

NUMBER EC-L3

DRAWING No. 52-003

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		31	37

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Rp	RIPRAP SECTION 603 PATTERN		RIP RAP IS A FLEXIBLE PERMANENT BLANKET FOR PROTECTION OF FILL SLOPES AND END ROLLS. RIP RAP, TYPE I SHOULD BE PLACED ON TOP OF A GEOTEXITLE UNDERLINER AT A MINIMUM 24" THICKNESS OR AS INDICATED ON THE PLANS.
Rt-P	RETROFITTING CONSTRUCTION DETAIL SECTION 163 LINE CODE Rt-P		A PERFORATED HALF-ROUND PIPE WITH STONE FILTER PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 30 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA. THIS ITEM SHOULD BE DESIGNED ACCORDING TO CHAPTER 6 IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA"
Rt-B	RETROFITTING CONSTRUCTION DETAIL SECTION 163 LINE CODE Rt-B		A SLOTTED BOARD DAM WITH STONE PLACED IN FRONT OF A PERMANENT STORMWATER DETENTION POND OUTLET STRUCTURE TO SERVE AS A TEMPORARY SEDIMENT FILTER. SHOULD BE USED ONLY IN DETENTION PONDS WITH LESS THAN 100 ACRES TOTAL DRAINAGE AREA. SHALL ONLY BE USED IN DETENTION BASINS LARGE ENOUGH TO STORE 67 CUBIC YARDS OF SEDIMENT PER ACRE OF DISTURBED AREA. THIS ITEM SHOULD BE DESIGNED ACCORDING TO CHAPTER 6 IN THE "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA"
Rt-BSg1 Rt-BSg2 Rt-BSg3	SILT CONTROL GATES CONSTRUCTION DETAIL D-20 SECTION 163 LINE CODE Rt-BSg1 Rt-BSg2 Rt-BSg3		A SILT CONTROL GATE IS A STRUCTURE PLACED ON A PIPE, SMALL BOX CULVERT, OR DROP INLET TO FORM A BASIN TO CATCH SILT AND PREVENT IT FROM LEAVING THE CONSTRUCTION SITE. IT IS EFFECTIVE ON SMALL DRAINAGE AREAS ONLY. DO NOT USE IN STATE WATERS. Rt-BSg1=TYPE 1: USED ON BOX CULVERTS Rt-BSg2=TYPE 2: USED ON STRAIGHT HEADWALLS Rt-BSg3=TYPE 3: USED ON FLARED END SECTIONS AND TAPERED HEADWALLS
Sb-F	SILT RETENTION BARRIER FLOATING SECTION 170 LINE CODE Sb-F		A FLOATING BARRIER IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY FORCING IT TO DROP OUT OF SUSPENSION BEFORE IT MOVES OUT OF THE CONSTRUCTION AREA. IT IS USUALLY USED WHERE CONSTRUCTION IS REQUIRED IN A LARGE BODY OF WATER SUCH AS LAKES AND RIVERS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. THIS ITEM IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED BMP'S.

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
Sb-S	SILT RETENTION BARRIER STAKED SECTION 170 LINE CODE Sb-S		A STAKED BARRIER IS USED TO PREVENT SEDIMENT FROM MOVING IN WATER BY FORCING IT TO DROP OUT OF SUSPENSION BEFORE IT MOVES OUT OF THE CONSTRUCTION AREA. IT IS USUALLY USED WHERE CONSTRUCTION IS REQUIRED IN SHALLOW INUNDATED AREAS. IT SHOULD BE USED AS DIRECTED BY THE ENGINEER. A STAKED BARRIER MAY BE USED TO PROTECT A SMALL STREAM WHILE IT IS BEING REALIGNED OR WIDENED IN "Chl". IN THIS CASE THE BARRIER SHOULD EXTEND TO THE BOTTOM OF THE STREAM. IT SHOULD BE LIMITED TO 5' IN HEIGHT UNLESS OTHERWISE DIRECTED. STAKED BARRIERS IN SMALL STREAMS SHOULD EXTEND 1' ABOVE NORMAL WATER. THIS ITEM IS ONLY TO BE USED WHEN PERMITTED FILL IS BEING PLACED INTO A STATE WATER, OR AS A SUPPLEMENT TO ADEQUATELY PLACED BMP'S.
Sdl-A	SILT FENCE TYPE A CONSTRUCTION DETAIL SECTION 171 LINE CODE —A—A—A—Sdl-A—A—A—A—		USED ALONG THE TOE OF FILLS LESS THAN 10' HIGH, ALONG THE RIGHT OF WAY LINE OR PARALLEL TO STREAMS. THE FENCE SHOULD NEVER RUN CONTINUOUS. IT SHOULD TURN BACK INTO THE FILL TO CREATE SMALL POCKETS TO TRAP SILT.
Sdl-B	SILT FENCE TYPE B CONSTRUCTION DETAIL SECTION 171 LINE CODE —B—B—B—Sdl-B—B—B—B—		TYPE B MAY BE USED IN LIEU OF BALED STRAW AND AT THE TOE OF FILLS LESS THAN 10 FEET HIGH.
Sdl-C	SILT FENCE TYPE C CONSTRUCTION DETAIL SECTION 171 LINE CODE —C—C—C—Sdl-C—C—C—C—		A WOVEN SYNTHETIC FIBER FABRIC PLACED IN FRONT OF A WIRE FENCE. IT CAN BE USED ALONG THE TOE OF THE FILL, ALONG THE RIGHT OF WAY LINE OR PARALLEL TO STREAMS. IT IS USED TO CAPTURE SEDIMENT FROM FILLS OVER 10 FEET HIGH AND UNDER ALL BRIDGES.

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES, SEEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

BY	REVISION	DATE
TC	UDATED DRAWING NO. & RELOCATED Sdl-Bb&Sdl-Hb CODES TO DRAWING NO. 52-005.	1-24-13
TC	RELABELED AND RELOCATED Sg-1,Sg-2, Sg-3 TO Rt-BSg1, Rt-BSg2, & Rt-BSg3 CODES AND Sdl-Bb,Sdl-Hb CODES FROM ECL&UC SHT. 5 OF 6.	10-2-12
GLO	REV. Sdl-A	11-13-07
GLO	REV. Sb-F, Sb-S, Sdl-A, Sdl-B AND Sdl-C.	
GLO	REVISED TITLE BLOCK	1-19-07

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

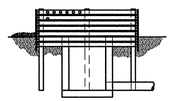
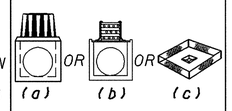
EROSION CONTROL LEGEND AND UNIFORM CODE SHEET
SHEET 4 OF 6

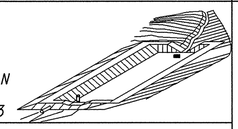
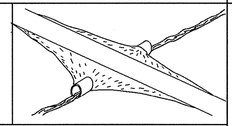
NO SCALE — JANUARY 2007

NUMBER EC-L4

DRAWING No. 52-004

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		32	37

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Sd1-Bb	BRUSH BARRIER CONSTRUCTION DETAIL LINE CODE * * * Sd1-Bb * * *		THIS ITEM CONSISTS OF INTERMINGLED BRUSH, LOGS, ETC. SO AS NOT TO FORM A SOLID DAM. CONSTRUCTED AT THE TOE OF FILL SLOPES DURING THE CLEARING AND GRUBBING OPERATION. THE BARRIER SHOULD BE USED AT THE TOE OF FILL SLOPES ON GRADING PROJECTS IN RURAL AREAS WHERE SUFFICIENT RIGHT OF WAY OR EASEMENT IS AVAILABLE (10 FEET OR MORE). THE BARRIER SHOULD RUN ROUGHLY PERPENDICULAR TO THE FLOW OF WATER WHERE THIS DOES NOT CONFLICT WITH RIGHT OF WAY OR EASEMENT LIMITS. THEY WILL NOT BE PLACED IN WETLANDS. PAYMENT FOR THIS ITEM IS INCLUDED IN THE CLEARING AND GRUBBING COST. NO SEPERATE PAYMENT SHALL BE MADE.
	Sd1-Hb	SEDIMENT BARRIER CONSTRUCTION DETAIL SECTION 163 LINE CODE —S—S—S—Sd1-Hb—S—S—S—		A BARRIER OF BALED STRAW IS USED TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT IS USED IN DITCHES AS DITCH CHECKS OR ALONG THE TOE OF SLOPE OR RIGHT OF WAY IN FILLS LESS THAN 10 FEET HIGH. THE BALES SHOULD RUN PARALLEL TO THE SILT YIELDING AREA UNTIL THE TOP OF THE BALE IS 6 INCHES LOWER THAN THE GROUND ELEVATION OF THE BEGINNING BALE. THEY SHOULD THEN TURN INTO THE FILL WITH A LOW POINT FOR THE WATER TO DRAIN OVER THE BALE. IN DITCHES, BALED STRAW SHOULD BE PERPENDICULAR TO THE FLOW. USED FOR SLOPES LESS THAN 1%. USE 100' SPACING. BALED STRAW SHALL BE STAKED SECURELY TO THE GROUND.
	Sd2-B	BAFFLE BOX INLET SEDIMENT TRAP CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163 LINE CODE Sd2-B		USED FOR INLETS RECEIVING RUNOFF WITH A HIGHER VOLUME OR VELOCITY. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q=7cfs.
	Sd2-Bg	BLOCK & GRAVEL DROP INLET PROTECTION CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163 LINE CODE Sd2-Bg		USED FOR INLET PROTECTION WHERE HEAVY FLOWS ARE EXPECTED AND WHERE OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE. CAN BE USED AT CULVERT INLETS. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q=5-7 cfs.
	Sd2-F	INLET SEDIMENT TRAP CONSTRUCTION DETAILS SECTION 163 LINE CODE Sd2-F		(a) A SEDIMENT BARRIER CONSISTING OF A PREFABRICATED FRAME WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN (b) A SEDIMENT BARRIER CONSISTING OF A PERFORATED METAL STAND PIPE WITH FILTER FABRIC USED AROUND A DROP INLET OR CATCH BASIN (c) TYPE C SILT FENCE WITH SUPPORTING FRAME CAN BE USED AS AN ALTERNATE TO INLET SEDIMENT TRAP FOR AREAS WITH SLOPES < 5% THIS ITEM IS USED TO PREVENT SILT FROM ENTERING THE PIPE SYSTEM. SHALL NOT APPLY TO INLETS RECIEVING CONCENTRATED FLOWS. RECOMMENDED FOR INLET RECEIVING FLOWS THAT RANGE FROM Q=0-4 cfs.

	CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
	Sd2-G	GRAVEL DROP INLET PROTECTION CONSTRUCTION DETAIL D42 SPECIFICATIONS SECTION 163 LINE CODE Sd2-G		USED FOR INLET PROTECTION WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED. STONE AND GRAVEL ARE USED TO TRAP SEDIMENT. THE SLOPE TOWARD THE INLET SHALL BE NO MORE THAN 3:1. A GUIDE FOR USE WILL BE FOR AN INLET RECEIVING A Q=3-5 cfs.
	Sd3	SEDIMENT BASIN CONSTRUCTION DETAIL SECTION 163 LINE CODE Sd3		A BASIN EXCAVATED OR AN AREA THAT IS DAMMED. THE BASIN IS DESIGNED TO HOLD A SEDIMENT LOAD OF 67 CUBIC YARDS OF VOLUME PER ACRE OF DRAINAGE AREA. IT IS USED FOR DRAINAGE AREAS OF 3 TO 5 ACRES OR WHERE A ROADWAY CUTS OR FILLS EXCEEDS 1,000 FEET IN LENGTH. IF A SEDIMENT BASIN IS USED ON AN AREA LARGER THAN 5 ACRES SPECIAL CONSIDERATION FOR CLEAN OUT IS REQUIRED. SUFFICIENT RIGHT OF WAY OR PERMANENT EASEMENT NEEDED FOR THE BASIN AND ACCESS FOR CLEAN OUT VIA A ROUTE WITH 3:1 SLOPES OR LESS. SEDIMENT BASINS SHOULD ALSO BE CONSIDERED WHERE HIGH FILLS OVER 30 FEET DRAIN TO ONE LOCATION.
	Sr	STREAM CROSSING SECTION 161 LINE CODE Sr		A TEMPORARY BRIDGE OR PIPE STRUCTURE PROTECTING A STREAM OR WATER COURSE FROM DAMAGE BY CONSTRUCTION EQUIPMENT. THIS AREA MUST BE COMPLETELY STABILIZED. THIS ITEM MUST BE DESIGNED ACCORDING TO CHAPTER 6 OF THE MANUAL FOR EROSION CONTROL IN GEORGIA

FOR CONTRACTOR'S USE ONLY

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES, SEEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

BY	REVISION	DATE
TC	UDATED DRAWING NO. & RELOCATED S† & S†-Rp CODES TO DRAWING NO. 52-006.	1-24-13
TC	DEL. Sg-1, Sg-2, Sg-3 CODES. RELOCATED S† & S†-Rp, CODES FROM ECL & UC SHT. 6 OF 6.	10-2-12
GLO	REV. Sg-1, Sg-2 AND Sg-3	11-13-07
GLO	REVISED TITLE BLOCK	1-19-07

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

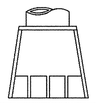
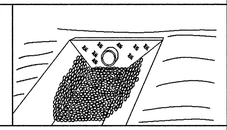
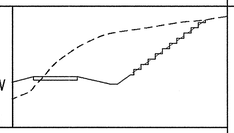
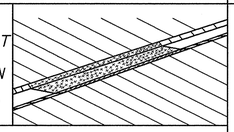
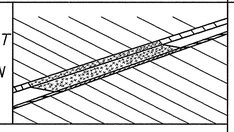
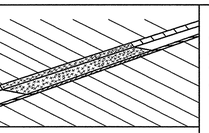
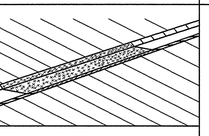
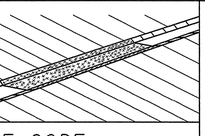
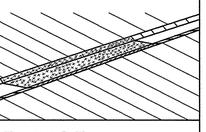
EROSION CONTROL LEGEND
AND UNIFORM CODE SHEET
SHEET 5 OF 6

NO SCALE JANUARY 2007

NUMBER EC-L5

DRAWING No. 52-005

STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
GA.		33	37

CODE	PRACTICE STD :SPC's :SECTION	DETAIL	DESCRIPTION
St	STORM DRAIN OUTLET PROTECTION GA. STD. 1125 & 2332	 LINE CODE St	A PIPE OR BOX CULVERT OUTLET HEADWALL WITH AN APRON AND DISSIPATOR BLOCKS IS USED TO PREVENT EROSION AND TO SLOW WATER. IT IS USED ON THE OUTLET OF ALL BOX CULVERTS AND ON 48" AND LARGER PIPES. MAY BE USED ON INLET FOR FLOWING STREAMS. USE ON SMALL PIPES WHEN OUTLET VELOCITY IS 12 fps AND GREATER.
St-Rp	STORM DRAIN OUTLET PROTECTION SECTION 603	 PATTERN St-Rp	THIS ITEM IS ADDED TO "St" WHEN ADDITIONAL PROTECTION IS NEEDED. TYPE I RIP RAP PLACED ON FILTER FABRIC SHOULD BE USED AT A 24" THICKNESS. MAY BE USED ON INLETS FOR FLOWING STREAMS. REFER TO CHARTS IN "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" FOR QUANTITIY DETERMINATION.
Su	SURFACE ROUGHENING SERRATED SLOPES CONSTRUCTION DETAIL SECTION 205	 LINE CODE Su (LINE CODE Su IS SHOWN ON THE PLANS FOR SERRATED SLOPES WHERE SPECIFIED IN THE SOIL SURVEY.)	PROVIDING A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS, BY OPERATING A CLEATED DOZER ON THE SLOPE IN A VERTICAL DIRECTION. CREATING SERRATED SLOPES IN THE GRADING PROCESS TO CONSTRUCT BENCHES WILL REDUCE RUNOFF VELOCITY AND INCREASE INFILTRATION OF WATER. IN MOST CASES THIS ITEM IS NOT REQUIRTED TO BE SHOWN ON THE PLANS, BUT REQUIRED TO BE COMPLETED BY THE CONTRACTOR UNDER ALL PROJECTS. IF SERRATED SLOPES ARE USED ON THE PROJECT, THEN THIS ITEM SHALL BE SHOWN WHERE SERRATED SLOPES ARE TO BE USED.
Trm-1	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-1	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-2 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
Trm-2	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-2	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-4 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
Trm-3	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-3	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG TERM PROTECTION FOR SHEAR STRESSES 0-6 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
Trm-4	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-4	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-8 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
Trm-5	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-5	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-10 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)
Trm-6	TURF REINFORCEMENT MAT CONSTRUCTION DETAIL SECTION 711	 LINE CODE Trm-6	THIS THREE DIMENSIONAL EROSION CONTROL MAT IS USED IN DITCHES TO STABILIZE THE SOIL BY REINFORCING THE GRASS ROOTS TO PROVIDE LONG-TERM PROTECTION FOR SHEAR STRESSES 0-12 psf. (THIS IS ALSO CALLED "Mb" IN THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA.)

NOTE:
1. DO NOT USE EROSION CONTROL ITEMS IN A FLOWING STREAM OR IN A TIDAL AREA BELOW HIGH TIDE.
2. FOR ADDITIONAL INFORMATION ON THE DESIGN AND APPLICATION OF EROSION CONTROL MEASURES. SEEE THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION. "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA".

BY	REVISION	DATE
TC	UDATED DRAWING NO. 5 of 6.	1-24-13
TC	ADDED Trm-1,Trm-2,Trm-3, Trm-4,Trm-5, AND Trm-6.	10-2-12
	CODES AND DESCRIPTIONS.	
	RELOCATED St,& St-Rp	
	CODES TO ECL & UC SHT.	

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

EROSION CONTROL LEGEND
AND UNIFORM CODE SHEET
SHEET 6 OF 6

NO SCALE — NOV., 2007

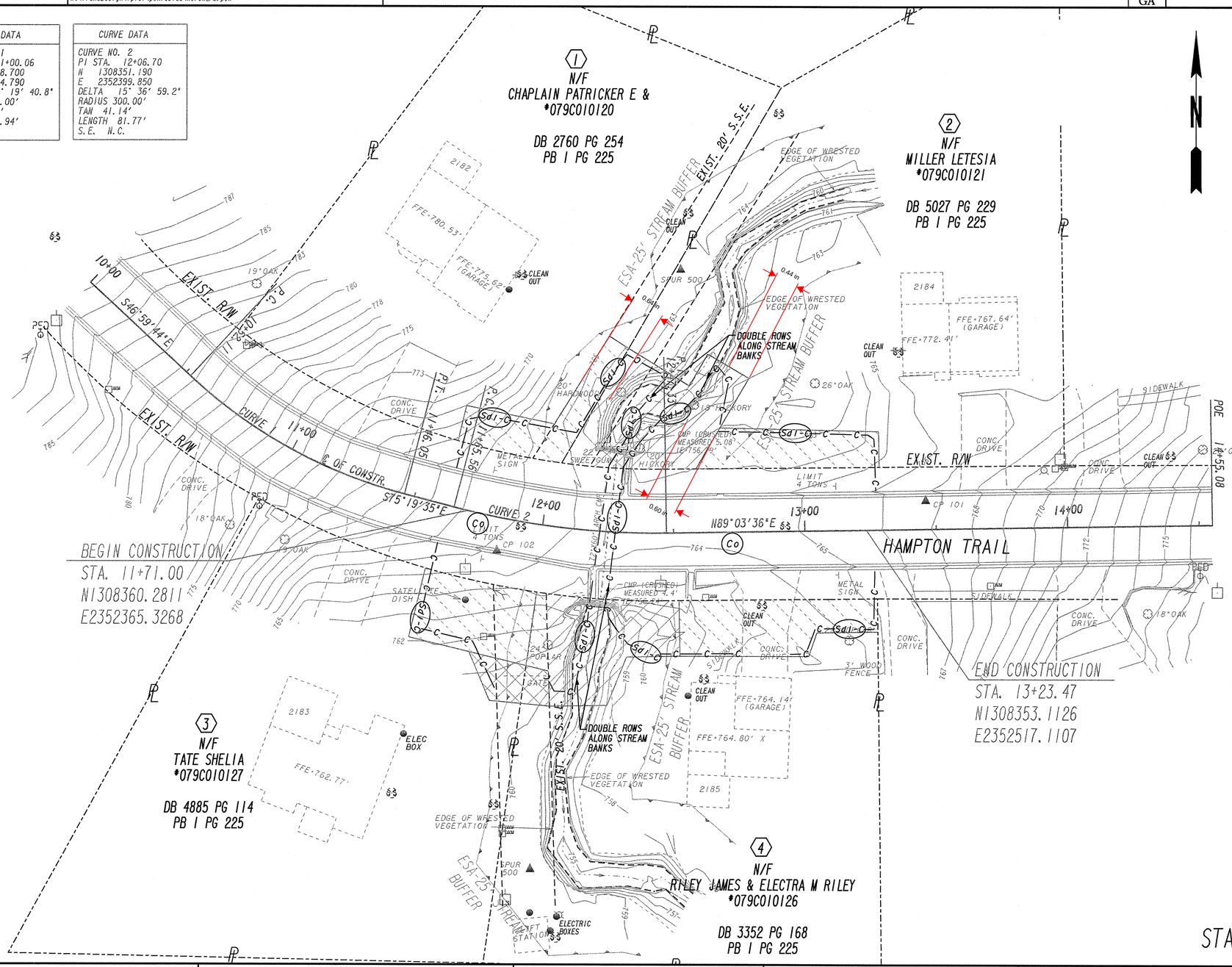
NUMBER EC-L6

DRAWING No. 52-006

5/28/2013 9:27:31 AM	$PRF8$	H:\Rockdale County\Hampton Trail\dgn\ERO1_01A.dgn[0-46, 28046, 28056-28073, 28085-34009]	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER:14627	w:\TransDesign\lplot\pentables\Xerox_FS.pen		GA		2A	37

CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1308378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
TAN 47.95'
LENGTH 93.94'
S.E. N.C.

CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
N 1308351.190
E 2352399.850
DELTA 15° 36' 59.2"
RADIUS 300.00'
TAN 41.14'
LENGTH 81.77'
S.E. N.C.



STAGE 1A

PROPERTY AND EXISTING R/W LINE	----℄----
REQUIRED R/W LINE	———
CONSTRUCTION LIMITS	--C--F--
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

ATKINS

SCALE IN FEET
0 20 40 80

REVISION DATES		

ROCKDALE COUNTY
STORMWATER DEPARTMENT

OFFICE:

BMP LOCATION DETAILS

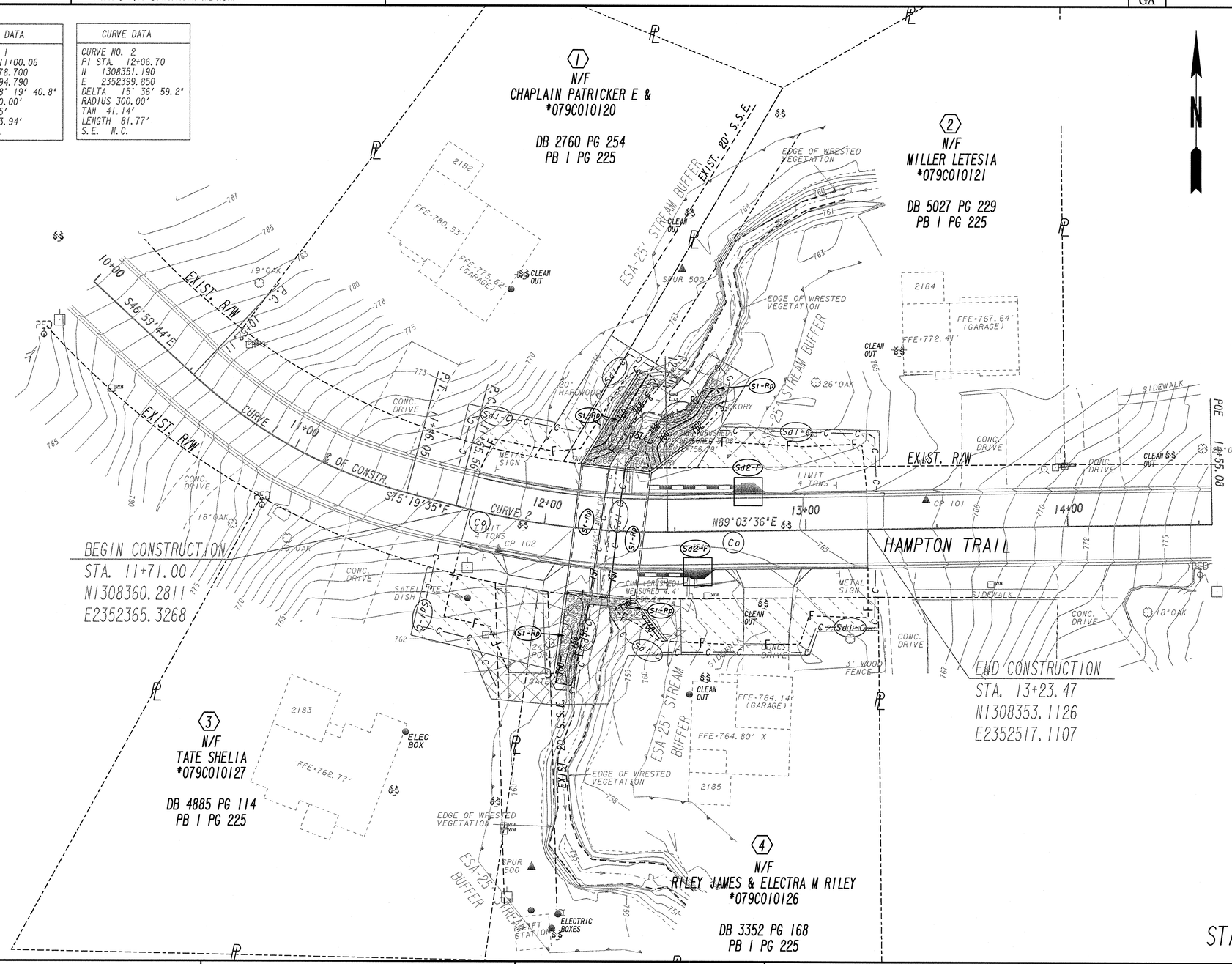
HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No.
54-01

6/20/2011 GPLN

CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1308378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
TAN 47.95'
LENGTH 93.94'
S.E. N.C.

CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
N 1308351.190
E 2352399.850
DELTA 15° 36' 59.2"
RADIUS 300.00'
TAN 41.14'
LENGTH 81.77'
S.E. N.C.



STAGE 1

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

ATKINS

SCALE IN FEET
0 20 40 80

REVISION DATES

ROCKDALE COUNTY
STORMWATER DEPARTMENT
OFFICE:

BMP LOCATION DETAILS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No.
54-02

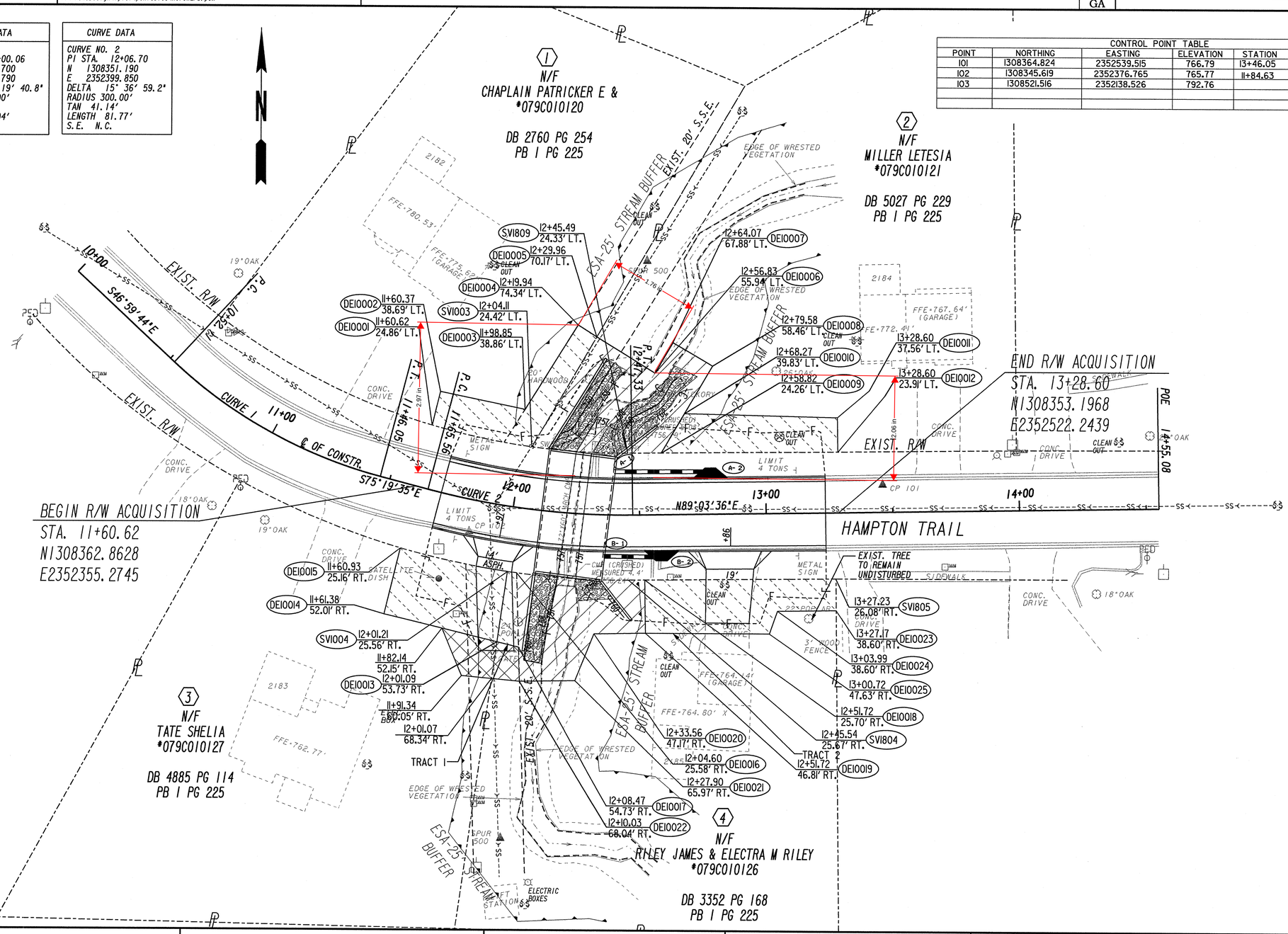
6/20/2011 GPLN

5/30/2013 9:29:32 AM USER:14627	$PRF8$ w:\TransDesign\lplot\pentables\Xerox_FS.pen	H:\Rockdale County\Hampton Trail\dgn\RW01.dgn[0-25000, 28014, 28056-28073, 28085-34009]	STATE GA	PROJECT NUMBER	SHEET NO. 36	TOTAL SHEETS 37

CURVE DATA
CURVE NO. 1
PI STA. 11+00.06
N 1308378.700
E 2352294.790
DELTA 28° 19' 40.8"
RADIUS 190.00'
TAN 47.95'
LENGTH 93.94'
S.E. N.C.

CURVE DATA
CURVE NO. 2
PI STA. 12+06.70
N 1308351.190
E 2352399.850
DELTA 15° 36' 59.2"
RADIUS 300.00'
TAN 41.14'
LENGTH 81.77'
S.E. N.C.

CONTROL POINT TABLE						
POINT	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESCRIPTION
101	1308364.824	2352539.515	766.79	13+46.05	10.78' LT.	60D NAIL SET
102	1308345.619	2352376.765	765.77	11+84.63	12.53' RT.	60D NAIL SET
103	1308521.516	2352138.526	792.76			60D NAIL SET



PROPERTY AND EXISTING R/W LINE	-----E-----
REQUIRED R/W LINE	
CONSTRUCTION LIMITS	--C--F--
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	
EASEMENT FOR CONSTR OF SLOPES	
EASEMENT FOR CONSTR OF DRIVES	

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

ATKINS

SCALE IN FEET
0 20 40 80

REVISION DATES

ROCKDALE COUNTY
STORMWATER DEPARTMENT
OFFICE:

RIGHT OF WAY PLANS

HAMPTON TRAIL
DRAINAGE IMPROVEMENTS

DRAWING No. RW-01

6/20/2011 GPLN

PARCEL 1
PATRICKER E. CHAPLIN

PARCEL 1 REQ'D TEMP. EASM'T CONST. OF SLOPE DE10

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10001	24.86 L	11+60.62	HAMPTON TRAIL
	13.82	N 13°37'19.9" E	
DE10002	38.69 L	11+60.37	HAMPTON TRAIL
	34.16	S 78°18'31.1" E	
DE10003	38.86 L	11+98.85	HAMPTON TRAIL
	39.37	N 32°03'54.9" E	
DE10004	74.34 L	12+19.94	HAMPTON TRAIL
	8.67	S 57°56'05.1" E	
DE10005	70.17 L	12+29.96	HAMPTON TRAIL
	50.62	S 30°19'00.0" W	
SV1003	24.42 L	12+04.11	HAMPTON TRAIL

ARC LENGTH = 40.33
CHORD BEAR = N 77°55'32.0" W
LNTH CHORD = 40.29
RADIUS = 261.99
DEGREE = 21°52'10.0"

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10001	24.86 L	11+60.62	HAMPTON TRAIL

REQD EASMT = 960.41 SF
REQD EASMT = 0.022 ACRES

PARCEL 2
LETESIA MILLER

PARCEL 2 REQ'D PERM. EASM'T. CONST. & MAINT. OF SLOPE DE11

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1003	24.42 L	12+04.11	HAMPTON TRAIL
	50.62	N 30°19'00.0" E	
DE10005	70.17 L	12+29.96	HAMPTON TRAIL
	27.08	S 58°16'22.4" E	
DE10006	55.94 L	12+56.83	HAMPTON TRAIL
	13.96	N 30°19'00.0" E	
DE10007	67.88 L	12+64.07	HAMPTON TRAIL
	18.14	S 59°41'00.0" E	
DE10008	58.46 L	12+79.58	HAMPTON TRAIL
	40.00	S 30°19'00.0" W	
DE10009	24.26 L	12+58.82	HAMPTON TRAIL
	13.19	S 89°21'00.0" W	
SV1809	24.33 L	12+45.49	HAMPTON TRAIL

ARC LENGTH = 38.02
CHORD BEAR = N 86°29'34.3" W
LNTH CHORD = 37.98
RADIUS = 261.99
DEGREE = 21°52'10.0"

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1003	24.42 L	12+04.11	HAMPTON TRAIL

REQD EASMT = 2015.91 SF
REQD EASMT = 0.046 ACRES

PARCEL 2 REQ'D TEMP. EASM'T. CONST. OF SLOPE DE12

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10009	24.26 L	12+58.82	HAMPTON TRAIL
	18.21	N 30°19'00.0" E	
DE10010	39.83 L	12+68.27	HAMPTON TRAIL
	60.38	S 88°47'00.1" E	
DE10011	37.56 L	13+28.60	HAMPTON TRAIL
	13.65	S 0°56'23.9" E	
DE10012	23.91 L	13+28.60	HAMPTON TRAIL
	69.78	S 89°21'00.0" W	
DE10009	24.26 L	12+58.82	HAMPTON TRAIL

REQD EASMT = 956.33 SF
REQD EASMT = 0.022 ACRES

PARCEL 3
SHELIA TATE

PARCEL 3 REQ'D TEMP. EASM'T. CONST. OF SLOPE DE13

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1004	25.56 R	12+01.21	HAMPTON TRAIL
	28.16	S 8°10'00.0" W	
DE10013	53.73 R	12+01.09	HAMPTON TRAIL
	45.98	N 76°16'11.9" W	
DE10014	52.01 R	11+61.38	HAMPTON TRAIL
	26.85	N 13°43'48.1" E	
DE10015	25.16 R	11+60.93	HAMPTON TRAIL

ARC LENGTH = 43.30
CHORD BEAR = S 77°50'17.8" E
LNTH CHORD = 43.27
RADIUS = 311.99
DEGREE = 18°21'52.6"

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1004	25.56 R	12+01.21	HAMPTON TRAIL

REQD EASMT = 1203.46 SF
REQD EASMT = 0.028 ACRES
ONE DRIVEWAY EASM'T REQUIRED

PARCEL 4
JAMES & ELECTRA M. RILEY

PARCEL 4 REQ'D PERM. EASM'T. CONST. & MAINT. OF SLOPE DE15

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10018	25.70 R	12+51.72	HAMPTON TRAIL
	21.11	S 0°56'23.9" E	
DE10019	46.81 R	12+51.72	HAMPTON TRAIL
	20.32	S 89°03'36.1" W	
DE10020	47.17 R	12+33.56	HAMPTON TRAIL
	19.96	S 21°56'05.2" W	
DE10021	65.97 R	12+27.90	HAMPTON TRAIL
	21.95	S 89°03'36.1" W	
DE10022	68.04 R	12+10.03	HAMPTON TRAIL
	42.92	N 1°42'40.8" W	
DE10016	25.58 R	12+04.60	HAMPTON TRAIL

ARC LENGTH = 44.43
CHORD BEAR = S 86°34'11.6" E
LNTH CHORD = 44.40
RADIUS = 311.99
DEGREE = 18°21'52.6"

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1804	25.67 R	12+45.54	HAMPTON TRAIL
	6.33	N 89°21'00.0" E	
DE10018	25.70 R	12+51.72	HAMPTON TRAIL

REQD EASMT = 1596.00 SF
REQD EASMT = 0.037 ACRES

PARCEL 4
JAMES & ELECTRA M. RILEY

PARCEL 4 TRACT 1 REQ'D TEMP. EASM'T. CONST. OF SLOPE DE14

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10016	25.58 R	12+04.60	HAMPTON TRAIL
	29.47	S 1°42'40.8" E	
DE10017	54.73 R	12+08.47	HAMPTON TRAIL
	8.77	N 76°16'11.9" W	
DE10013	53.73 R	12+01.09	HAMPTON TRAIL
	28.16	N 8°10'00.0" E	
SV1004	25.56 R	12+01.21	HAMPTON TRAIL

ARC LENGTH = 3.68
CHORD BEAR = S 82°09'07.9" E
LNTH CHORD = 3.68
RADIUS = 311.99
DEGREE = 18°21'52.6"

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
DE10016	25.58 R	12+04.60	HAMPTON TRAIL

REQD EASMT = 176.38 SF
REQD EASMT = 0.004 ACRES

PARCEL 4 TRACT 2 REQ'D TEMP. EASM'T. CONST. OF SLOPE DE16

PNT	OFFSET/ DIST	STATION/ BEARING	ALIGNMENT
SV1805	26.08 R	13+27.23	HAMPTON TRAIL
	12.52	S 0°39'00.0" E	
DE10023	38.60 R	13+27.17	HAMPTON TRAIL
	23.18	S 89°03'36.1" W	
DE10024	38.60 R	13+03.99	HAMPTON TRAIL
	9.61	S 18°56'46.3" W	
DE10025	47.63 R	13+00.72	HAMPTON TRAIL
	49.01	N 89°58'28.7" W	
DE10019	46.81 R	12+51.72	HAMPTON TRAIL
	21.11	N 0°56'23.9" W	
DE10018	25.70 R	12+51.72	HAMPTON TRAIL
	75.52	N 89°21'00.0" E	
SV1805	26.08 R	13+27.23	HAMPTON TRAIL

REQD EASMT = 1396.42 SF
REQD EASMT = 0.032 ACRES

TWO DRIVEWAY EASM'T REQUIRED