MAJOR SUBDIVISION PLAN FOR
HENDERSON WOODS
605 ERWIN ROAD, DURHAM NC 27707

ECE GENERAL NOTES

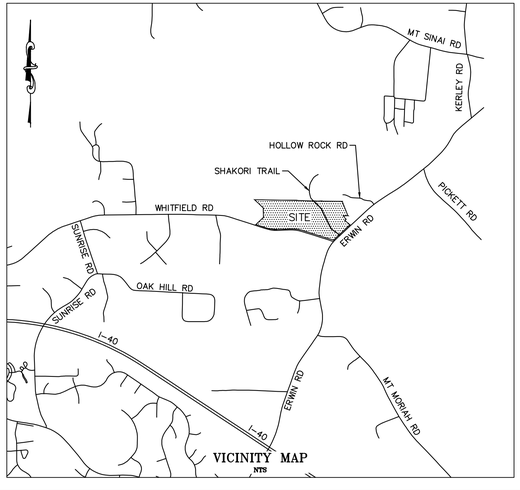
GENERAL NOTES

1. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION TAKEN FROM SURVEY DATA SUPPLIED BY R. S. JONES AND ASSOCIATES, INC.
2. WORK WITHIN PUBLIC RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REQUIREMENTS, NOTIFICATIONS, STANDARDS AND POLICIES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL MEASURES FOR ALL WORK W/IN PUBLIC R/W PER THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND THE N.C. SUPPLEMENT TO THE MUTCD, AND LOCAL CITY INSPECTORS DIRECTION.
4. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT PLANS AND/OR SPECIFICATIONS, LOCAL STANDARD DETAILS AND CONSTRUCTION STANDARDS, STATE CONSTRUCTION STANDARDS, AND OTHER APPLICABLE CONTRACT DOCUMENTS.
5. CONTRACTOR IS FULLY RESPONSIBLE FOR CONTACTING ALL APPROPRIATE PARTIES AND ASSURING THAT UTILITIES ARE LOCATED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. CALL NC ONE CALL (PREVIOUSLY ULOCO) AT 1-800-632-4949 FOR UTILITY LOCATING SERVICES 48 HOURS PRIOR TO COMMENCEMENT OF ANY WORK. CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
6. UNDERGROUND UTILITIES SHOWN USING BEST AVAILABLE INFORMATION. ALL LOCATIONS SHALL BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE MORE UNDERGROUND UTILITIES THAN ARE SHOWN HEREON. CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES PRIOR TO ANY EXCAVATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO REMAIN DURING ALL DEMOLITION AND CONSTRUCTION ACTIVITIES.
8. ALL CLEARING, GRUBBING AND UNSUITABLE FILL MATERIAL SHALL BE DISPOSED OF LEGALLY.
9. ALL PAVEMENT, CURB, STORM DRAINAGE PIPE, AND STRUCTURES TO BE REMOVED SHALL BE HAULED OFFSITE AND DISPOSED OF LEGALLY.
10. SIGNAGE SHALL BE LOCATED AS SHOWN. SIGNAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL STANDARDS.
11. SITE LIGHTING SHALL AS SHOWN, AND SHALL BE SUFFICIENT TO PROPERLY ILLUMINATE THE SITE IN ACCORDANCE WITH LOCAL STANDARDS.
12. LANDSCAPING SHALL BE INSTALLED IN THE PROVIDED YARDS, IN ACCORDANCE WITH LOCAL STANDARDS.
13. NO SIGHT OBSTRUCTING OR PARTIALLY OBSTRUCTING WALL, FENCE, FOLIAGE, BERMING, PARKED VEHICLES OR SIGNS BETWEEN THE HEIGHT OF TWENTY-FOUR (24) INCHES AND EIGHT (8) FEET ABOVE THE CURB LINE ELEVATION, OR NEAREST TRAVELED WAY IF NO CURBING EXISTS, SHALL BE PLACED WITHIN A SIGHT TRIANGLE OF A PUBLIC STREET, PRIVATE STREET OR DRIVEWAY CONTAINED ON THE PROPERTY OR ON AN ADJOINING PROPERTY.
14. ALL LOTS SHALL BE SERVED BY WELL AND SEPTIC.
15. SIDEWALK LOCATION IS CONCEPTUAL AND IS TO BE FIELD LOCATED DURING CONSTRUCTION.

CONTRACTOR SHALL NOT MAKE ANY MODIFICATIONS TO THE APPROVED DRAWINGS WITHOUT PRIOR APPROVAL OF BOTH THE DESIGN ENGINEER AND LOCAL INSPECTOR.

GRADING & STORM DRAINAGE NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOCAL CONSTRUCTION STANDARDS, SPECIFICATIONS, AND PROCEDURES AND THE NCDENR'S SEDIMENTATION AND EROSION CONTROL STANDARDS, SPECS., AND PROCEDURES.
2. CONTRACTOR SHALL VERIFY THAT ALL APPLICABLE STATE AND LOCAL PERMITS REQUIRED FOR THE COMMENCEMENT OF GRADING OPERATIONS HAVE BEEN OBTAINED PRIOR TO START OF GRADING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF DEMOLITION AND/OR CONSTRUCTION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO REMAIN DURING ALL CONSTRUCTION ACTIVITIES.
5. ALL STORMWATER MANAGEMENT FACILITIES SHALL BE DESIGNED AND CONSTRUCTED TO MEET ALL STATE AND LOCAL REQUIREMENTS, INCLUDING THE STATE STANDARDS FOR WATER QUALITY AND DETENTION FACILITIES (CURRENT EDITION).
6. EROSION CONTROL MEASURES SHALL BE PROVIDED ACCORDING TO THE EROSION CONTROL PLAN AND AS NEEDED TO PROTECT ADJACENT PROPERTIES.
7. CONTRACTOR SHALL PROVIDE ALL STAKING, FLAGGING AND/OR FENCING NECESSARY TO PROVIDE PROPER PROTECTION OF THE STREAM BUFFER.



VICINITY MAP

LEGEND

	NEW	EXISTING
PROPERTY LINE		
EASEMENT		
SETBACK		
RIGHT-OF-WAY		
CENTERLINES		
CURB & GUTTER		
EDGE OF PAVEMENT		
SIDEWALK		
CREEK		
STRUCTURE NO.	1	
CATCH BASIN		
YARD INLET		
STORM DRAINAGE JUNCTION BOX		
CURB INLET		
SANITARY SEWER MANHOLE		
SANITARY SEWER CLEANOUT	C.O.	C.O.
METER BOX		
VALVE		
FIRE HYDRANT		
FIRE DEPARTMENT CONNECTION		
LIGHT POLE	LP	
UTILITY POLE AND GUY WIRE	PP	PP
CABLE TV LINE	TV	XTV
ELECTRIC	E	XE
FIBER OPTIC CABLE	FO	XFO
GAS LINE	G	XG
OVERHEAD UTILITY LINE	OH	XOH
SANITARY SEWER	SS	XSS
STORM DRAIN PIPE	SD	XSD
TELEPHONE	T	XT
WATER LINE	W	XW
GRADE CONTOUR	400	
FINISHED GRADE SPOT ELEVATION	356.44	x 356.44
CLEARING LIMIT/TREE LINE		
LIMITS OF DISTURBANCE		
DITCH OR SWALE FLOWLINE		
TREE PROTECTION FENCE		
SILT FENCE	SF	SF
FENCE	X	X
RIP RAP APRON		
CHECK DAM		
SEDIMENT FENCE OUTLET		
INLET PROTECTION		
ELECTRICAL TRANSFORMER	T	

EIP EXISTING IRON PIPE	○
EIR EXISTING IRON ROD	●
IPS IRON PIPE SET	⦿
PKS PK NAIL SET	X
CP COMPUTED POINT	⊗

NOTATION ON PROPOSED ROADWAYS

THE DEVELOPER ACKNOWLEDGES THAT ANY AND ALL PROPOSED ROAD NAMES SHALL BE SUBMITTED TO ORANGE COUNTY LAND RECORDS FOR REVIEW AND APPROVAL PRIOR TO RECORDATION TO ENSURE THAT THE NAMES MEET THE COUNTY'S ADDRESSING ORDINANCES AND POLICIES. THE DEVELOPER FURTHER UNDERSTANDS THAT SHAKORI TRAIL IS THE NAME OF A CURRENT PRIVATE ROAD AND AT THIS TIME IT IS UNDETERMINED WHETHER THE NAME WOULD REMAIN WHEN CONVERTED TO A PUBLIC ROAD.

ORANGE COUNTY SOLID WASTE NOTES

1. ALL EXISTING STRUCTURES 500 SQUARE FEET AND LARGER IN SIZE SHALL BE ASSESSED PRIOR TO DEMOLITION TO ENSURE COMPLIANCE WITH THE COUNTY'S REGULATED RECYCLABLE MATERIALS ORDINANCE (RRMO) AND TO ASSESS THE POTENTIAL FOR DE-CONSTRUCTION AND/OR THE RE-USE OF SALVAGEABLE MATERIALS.
2. BY ORANGE COUNTY ORDINANCE, CLEAN WOOD WASTE, SCRAP METAL, AND CORRUGATED CARDBOARD PRESENT IN CONSTRUCTION OR DEMOLITION WASTE MUST BE RECYCLED.
3. BY ORANGE COUNTY ORDINANCE, ALL HAULERS OF MIXED CONSTRUCTION AND DEMOLITION WASTE THAT INCLUDES ANY REGULATED RECYCLABLE MATERIALS SHALL BE LICENSED BY ORANGE COUNTY.
4. PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITY ON THE SITE THE APPLICANT SHALL HOLD A PRE-DEMOLITION/PRE-CONSTRUCTION CONFERENCE WITH THE SOLID WASTE STAFF. THIS MAY BE THE SAME PRE-CONSTRUCTION MEETING HELD WITH OTHER DEVELOPMENT/ENFORCEMENT OFFICIALS.
5. THE PRESENCE OF ANY ASBESTOS CONTAINING MATERIALS (' ACM') AND/OR OTHER HAZARDOUS MATERIALS IN CONSTRUCTION AND DEMOLITION WASTE SHALL BE HANDLED IN ACCORDANCE WITH ANY AND ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND GUIDELINES.

PROJECT DATA

SITE INFORMATION:

OWNER PARCEL 1:	HUMPHRIES FAMILY, LLC
PIN NUMBER PARCEL 1:	9891-60-4884
DEED REF PARCEL 1:	BOOK 2027, PAGE 561
ACREAGE PARCEL 1:	36.11 ACRES BY SURVEY
OWNER PARCEL 2:	HENDERSON WOODS, INC.
PIN NUMBER PARCEL 2:	9891-80-0703
DEED REF PARCEL 2:	BOOK 5892, PAGE 471
ACREAGE PARCEL 2:	11.84 ACRES BY SURVEY
SITE TOTAL:	47.95 ACRES
ZONING:	RB - RURAL BUFFER
WATERSHED:	JORDAN LAKE UNPROTECTED OVERLAY
TOWNSHIP:	7
SCHOOL DISTRICT:	CHAPEL HILL - CARRBORO
FIRE DISTRICT:	NEW HOPE

PROPOSED SITE DATA:

NUMBER OF LOTS:	19 WELL & SEPTIC LOTS
AVERAGE LOT SIZE:	1.23 ACRES
MIN. LOT SIZE:	1.00 ACRES
OVERALL DENSITY:	19 LOTS / 47.95 ACRES 1 UNIT PER 2.52 ACRES
LINEAR FEET OF NEW ROADS:	2,120 LF
ACRES IN OPEN SPACE:	21.73 ACRES
SLOPES >15% DISTURBED:	~6,000 SF
FRONT SETBACKS:	30'
SIDE & REAR SETBACKS:	15'
LAND USE BUFFER:	N/A BUT 100' BUFFER PROVIDED ALONG PERIMETER OF SITE (EXISTING VEGETATION TO REMAIN)

PROPOSED ROADWAY DATA:

ROAD "A"
- 0.45 ACRES RIGHT-OF-WAY
- 441 LINEAR FEET OF CENTER LINE
- 10,969 SF IMPERVIOUS AREA

ROAD "B"
- 1.39 ACRES RIGHT-OF-WAY
- 1,125 LINEAR FEET OF CENTER LINE
- 34,475 SF IMPERVIOUS AREA

SHAKORI TRAIL (NEWLY CONSTRUCTED PORTION)
- 1.05 ACRES IN RIGHT-OF-WAY
- 554 LINEAR FEET OF CENTER LINE
- 21,242 SF IMPERVIOUS AREA

ACCESS EASEMENT (FORMER SHAKORI TRAIL, PARTIAL OVERLAP WITH NEW PUBLIC RIGHT-OF-WAY)
- 1227 LINEAR FEET @ CENTER LINE

OPEN SPACE CALCULATIONS:

PER SECTION 7.13.3 (C) (1) AND (2) OF THE ORANGE COUNTY UNIFIED DEVELOPMENT ORDINANCE (UDO) OPEN SPACE FOR THE PROJECT IS BROKEN DOWN AS FOLLOWS:

PRIMARY:
- WETLANDS INCLUDING BUT NOT LIMITED TO STREAMS, CREEKS, PONDS, RESERVOIRS ETC: 4.02 ACRES OF OPEN SPACE OF STREAM BUFFER AROUND EXISTING STREAMS.

SECONDARY:
- PERIMETER BUFFER - 100 FOOT NATURAL BUFFER AROUND THE PERIMETER OF THE PROJECT: 12.61 ACRES
- WOODLANDS - PRESERVATION OF EXISTING FORESTED AREA AS OPEN SPACE: 4.88 ACRES ADDITIONAL OPEN SPACE ADJACENT TO 100' PERIMETER BUFFER AND OUTSIDE PROPOSED LOTS.

TOTAL: 21.51 ACRES OR 44.9%

IMPERVIOUS SURFACE CALCULATIONS:

IMPERVIOUS AREA FOR ROAD "A" =	0.25 ACRES (10,969 SF)
IMPERVIOUS AREA FOR ROAD "B" =	0.79 ACRES (34,475 SF)
IMP. AREA FOR NEW SHAKORI TRAIL =	0.49 ACRES (21,242 SF)
IMP. AREA, REMAINDER PRIVATE DRIVE =	0.15 ACRES (6,383 SF)
TOTAL R/W IMPERVIOUS AREA =	1.68 ACRES (73,069 SF)
PER LOT IMPERVIOUS AREA	
BUILDING FOOTPRINT =	3,600 SF
DRIVEWAY =	1,000 SF
PATIOS & SIDEWALKS =	400 SF
TOTAL IMPERVIOUS ON EACH LOT =	5,000 SF
X 19 LOTS = TOTAL IMPERVIOUS ON LOTS	2.18 ACRES (95,000 SF)
TOTAL R/W IMPERVIOUS =	1.68 ACRES (73,069 SF)
TOTAL STREET SIDEWALK =	0.44 ACRES (19,297 SF)
TOTAL LOT IMPERVIOUS =	2.18 ACRES (95,000 SF)
TOTAL PROPOSED PROJECT IMP. =	4.30 ACRES (187,336 SF)

14-044 HENDERSON WOODS IMPERVIOUS SURFACE TABLE

	Existing	Proposed
Gross Land Area (GLA):	2,088,766	2,088,766
Residential Impervious		
Roadway	0	66,686
Driveway	27,113	25,383
Parking Lot	0	0
Roof	5,929	68,400
Sidewalk / Patio	0	26,897
Pervious Area		
Managed Pervious	277,629	0
Lawn (Residential)	0	892,192
Forest	1,457,180	707,973
Jurisdictional Lands		
Natural Wetland	46,847	46,847
Riparian Buffer	193,648	193,648
Open Water	80,420	60,740
Land Taken Up By BMP	0	0
Total All Areas:	2,088,766	2,088,766
Total Impervious Area:	33,042	187,366
Total Impervious %	1.58%	8.97%

INDEX OF DRAWINGS:

C1.0 COVER SHEET
C2.0 EXIST. COND. / DEMOLITION
C3.0 SITE PLAN
C4.0 GRADING & STORM DRAINAGE
C5.0 EROSION CONTROL
C6.0 UTILITY PLAN
C8.0 LANDSCAPE & LIGHTING

P1.0 ROAD "A" PLAN & PROFILE
P2.0 ROAD "B" PLAN & PROFILE
P3.0 SHAKORI TRAIL PLAN & PROFILE

D1.0 EROSION CONTROL DETAILS
D1.1 EROSION CONTROL DETAILS
D2.0 STORMWATER DETAILS
D4.0 SITE DETAILS
A1-4 ARCHITECT GAZEBO PLANS

OWNERS:
HUMPHRIES FAMILY, LLC
4712 WHITFIELD ROAD
DURHAM, NC 27707
&
HENDERSON WOODS, INC.
6315 HOWIE MINE CHURCH RD
WAXHAW, NC 28173

DEVELOPER / OWNERS AGENT:
TOM HEFFNER
HEFFNER PROPERTIES, INC.
1020 NEW HOPE ROAD
CHAPEL HILL, NC 27516
OFFICE: (919) 929-0518
MOBILE: (919) 880-6279
TOM@CHAPELHILLNC.COM

SURVEYOR/ARCHITECT:
ROBERT S. JONES
R.S. JONES & ASSOCIATES, INC.
201 WEST CLAY STREET
MEBANE, NC 27302
PHONE: (919) 563-3623
FAX: (919) 563-0086
BOBBY@RSJONESANDASSOCIATES.COM

ENGINEER:
CHARLES P. KOCH P.E.
EARTHCENTRIC ENGINEERING, INC.
204 WEST CLAY STREET
MEBANE, NC 27302
PHONE: (919) 563-9041
FAX: (919) 304-3234
PHIL.KOCH@EARTHCENTRIC.COM

CALL BEFORE YOU DIG... IT'S THE LAW.
CALL N.C. ONE-CALL(1-800-632-4949)
FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST
2 WORKING DAYS PRIOR TO BEGINNING GRADING OR TRENCHING.
NORTH CAROLINA GENERAL STATUTE 87-102

APPROVAL STAMP

EarthCentric Engineering, Inc.
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204 W. Clay Street
Mebane, NC 27302
Phone: (919) 563-9041
Fax: (919) 304-3234
E-Mail: Phil.Koch@EarthCentric.com

PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA
COVER SHEET

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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SHEET NO.
C1.0
MAJOR SUBDIVISON PLAN

BOUNDARY SURVEY AND SELECT TOPOGRAPHY BY R.S. JONES AND ASSOCIATES. WETLANDS DETERMINATION BY S & EC, POSITION BASED ON GIS DATA. STREAM DETERMINATION BY ORANGE COUNTY, POSITION BASED ON GIS DATA. REMAINING TOPOGRAPHY & TREE COVERAGE VIA ORANGE COUNTY AND NCDOT GIS.

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LINE TABLE		
LINE	BEARING	DISTANCE
L1	S48°49'02"E	177.34'
L2	S60°54'43"E	107.84'
L3	S21°59'21"E	106.34'
L4	S26°47'44"E	152.84'
L5	S25°07'59"E	161.50'
L6	S25°14'47"E	146.94'
L7	S46°06'59"E	287.76'

CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1141.41'	396.71'	394.71'	S81°55'30"E	19°54'49"
C2	1136.33'	387.46'	385.59'	N82°26'39"W	19°32'12"

NOTE ON TOPOGRAPHY:

SURVEYED GROUND COMPRISES A CORRIDOR APPROXIMATELY 100' WIDE FOLLOWING THE PROPOSED ROADWAY CENTERLINES. THIS AREA IS REPRESENTED BY THE SMALL DASHED LINES AND A 1' CONTOUR INTERVAL. THE TOPOGRAPHY OUTSIDE THIS AREA IS TAKEN FROM GIS DATA (NCDOT LIDAR) AND IS REPRESENTED WITH LARGER DASHED LINES, AND A 2' CONTOUR INTERVAL. NOTE THAT THE TWO DATA SETS DO NOT PERFECTLY MATCH ELEVATIONS AT THE EDGES, BUT ARE GENERALLY CONSISTENT IN CHARACTER AND ARE WITHIN TYPICAL TOLERANCES FOR THE USE OF GIS DATA.

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

EXISTING CONDITIONS & DEMOLITION PLAN

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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SHEET NO.

C2.0

MAJOR SUBDIVISON PLAN

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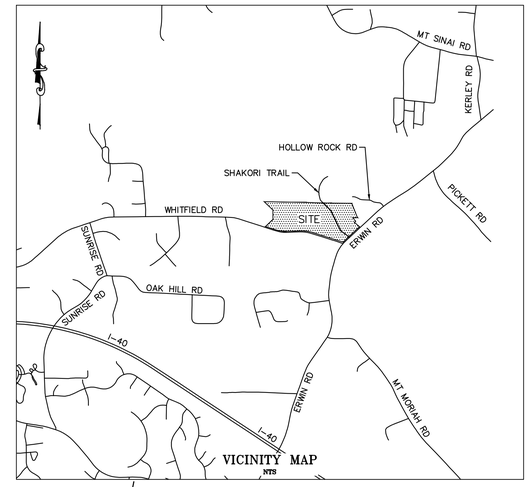

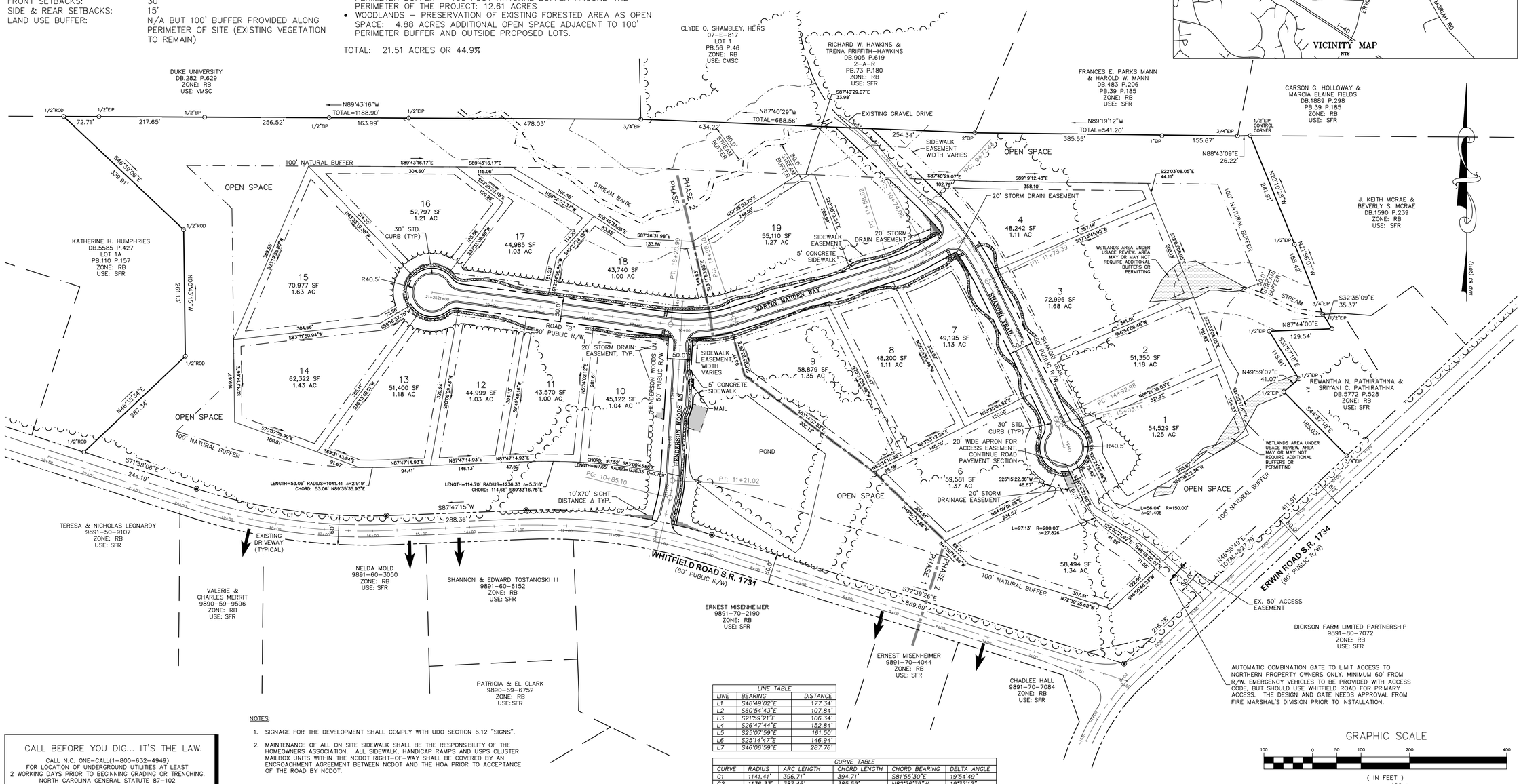

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NOTES:

1. SIGNAGE FOR THE DEVELOPMENT SHALL COMPLY WITH UDO SECTION 6.12 "SIGNS".
2. MAINTENANCE OF ALL ON SITE SIDEWALK SHALL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION. ALL SIDEWALK, HANDICAP RAMPS AND USPS CLUSTER MAILBOX UNITS WITHIN THE NCDOT RIGHT-OF-WAY SHALL BE COVERED BY AN ENCROACHMENT AGREEMENT BETWEEN NCDOT AND THE HOA PRIOR TO ACCEPTANCE OF THE ROAD BY NCDOT.

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NORTH CAROLINA GENERAL STATUTE 87-102

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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204 W. Clay Street
Mebane, NC 27302
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Fax: (919) 304-3234
E-Mail: Phil.Koch@EarthCentric.com

ECE Incorporated

PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

SITE PLAN

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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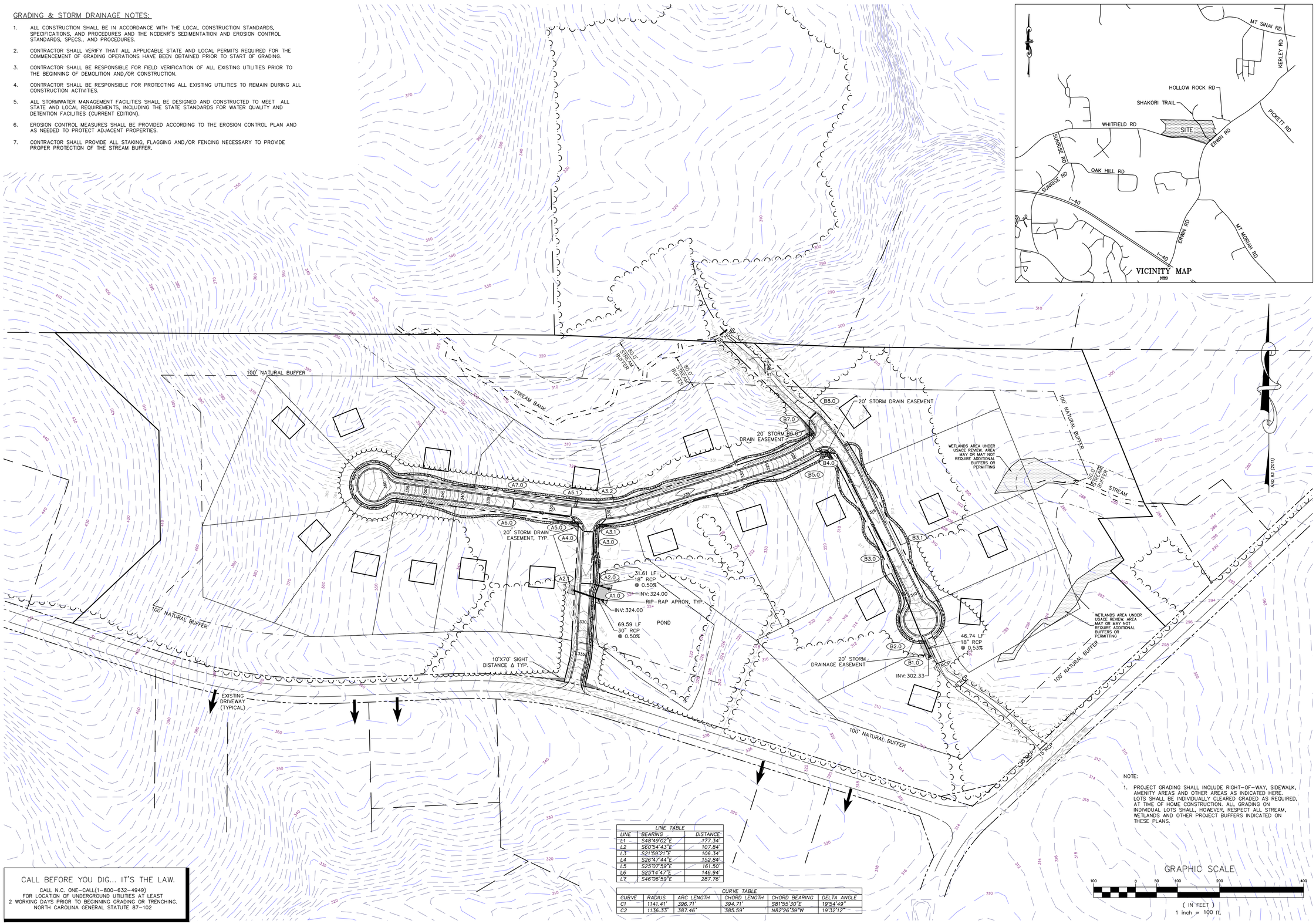
SHEET NO.

C3.0

MAJOR SUBDIVISON PLAN

GRADING & STORM DRAINAGE NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOCAL CONSTRUCTION STANDARDS, SPECIFICATIONS, AND PROCEDURES AND THE NCDENR'S SEDIMENTATION AND EROSION CONTROL STANDARDS, SPECS., AND PROCEDURES.
2. CONTRACTOR SHALL VERIFY THAT ALL APPLICABLE STATE AND LOCAL PERMITS REQUIRED FOR THE COMMENCEMENT OF GRADING OPERATIONS HAVE BEEN OBTAINED PRIOR TO START OF GRADING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING UTILITIES PRIOR TO THE BEGINNING OF DEMOLITION AND/OR CONSTRUCTION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO REMAIN DURING ALL CONSTRUCTION ACTIVITIES.
5. ALL STORMWATER MANAGEMENT FACILITIES SHALL BE DESIGNED AND CONSTRUCTED TO MEET ALL STATE AND LOCAL REQUIREMENTS, INCLUDING THE STATE STANDARDS FOR WATER QUALITY AND DETENTION FACILITIES (CURRENT EDITION).
6. EROSION CONTROL MEASURES SHALL BE PROVIDED ACCORDING TO THE EROSION CONTROL PLAN AND AS NEEDED TO PROTECT ADJACENT PROPERTIES.
7. CONTRACTOR SHALL PROVIDE ALL STAKING, FLAGGING AND/OR FENCING NECESSARY TO PROVIDE PROPER PROTECTION OF THE STREAM BUFFER.



LINE TABLE		
LINE	BEARING	DISTANCE
L1	S48°49'02"E	177.34'
L2	S60°54'43"E	107.84'
L3	S21°59'21"E	106.34'
L4	S26°47'44"E	152.84'
L5	S25°07'59"E	161.50'
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L7	S46°06'59"E	287.76'

CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	1141.41'	396.71'	394.71'	S81°55'30"E	19°54'49"
C2	1136.33'	387.46'	385.59'	N82°26'39"W	19°32'12"

NOTE:

1. PROJECT GRADING SHALL INCLUDE RIGHT-OF-WAY, SIDEWALK, AMENITY AREAS AND OTHER AREAS AS INDICATED HERE. LOTS SHALL BE INDIVIDUALLY CLEARED GRADED AS REQUIRED, AT TIME OF HOME CONSTRUCTION. ALL GRADING ON INDIVIDUAL LOTS SHALL, HOWEVER, RESPECT ALL STREAM, WETLANDS AND OTHER PROJECT BUFFERS INDICATED ON THESE PLANS.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

CALL BEFORE YOU DIG... IT'S THE LAW.

CALL N.C. ONE-CALL(1-800-632-4949)
FOR LOCATION OF UNDERGROUND UTILITIES AT LEAST
2 WORKING DAYS PRIOR TO BEGINNING GRADING OR TRENCHING.
NORTH CAROLINA GENERAL STATUTE 87-102

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

GRADING & STORM DRAINAGE PLAN

REV	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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SHEET NO.

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MAJOR SUBDIVISON PLAN

GRADING & STORM DRAINAGE NOTES:

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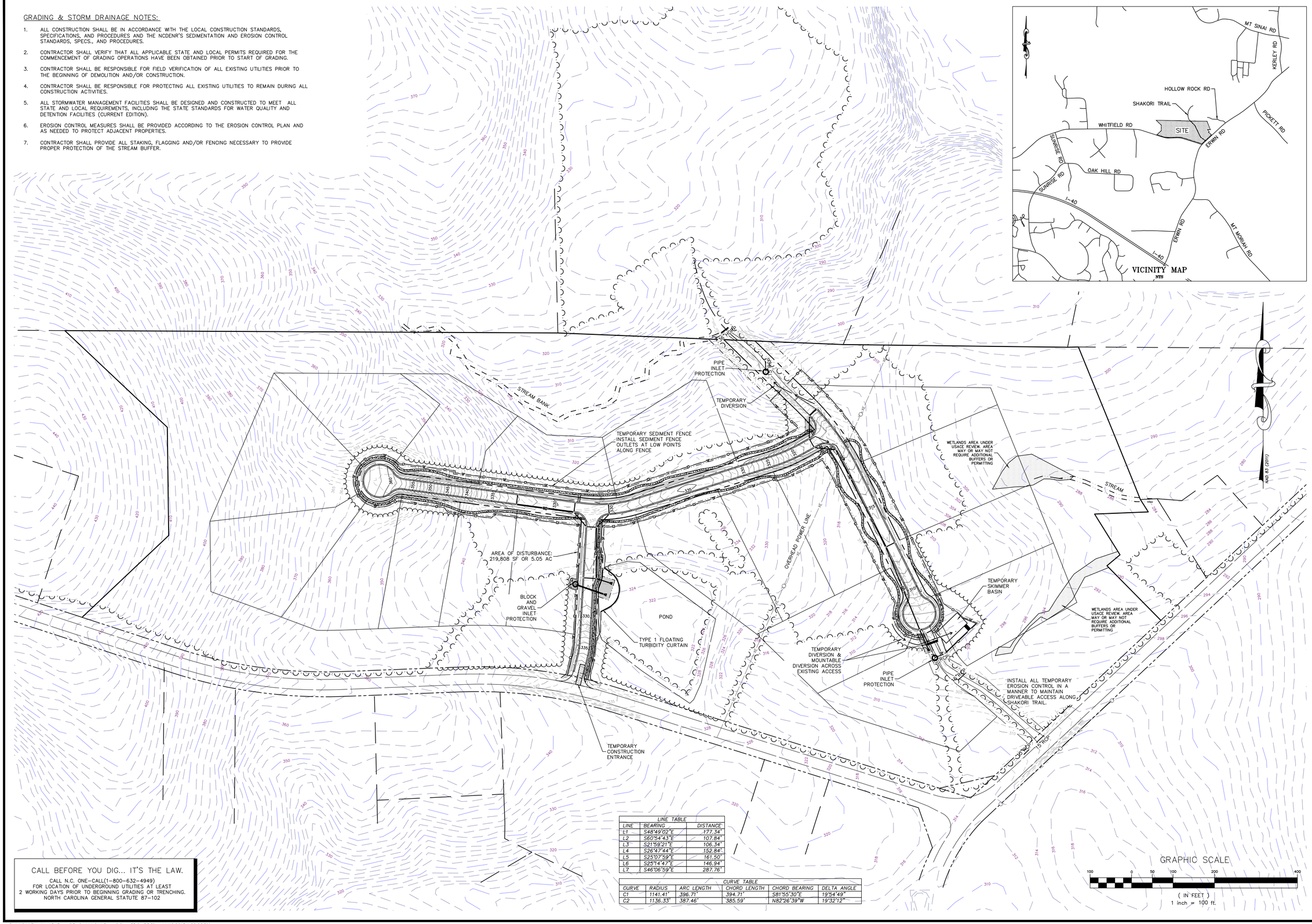

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PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

EROSION & SEDIMENT CONTROL PLAN

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO.:	14-044
DRAWING NAME:	14-044 COUNCIL

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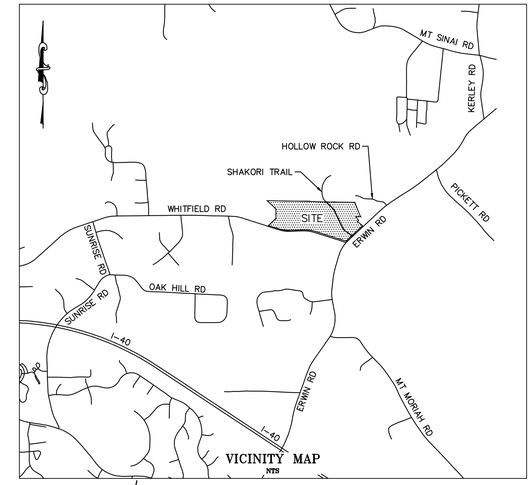
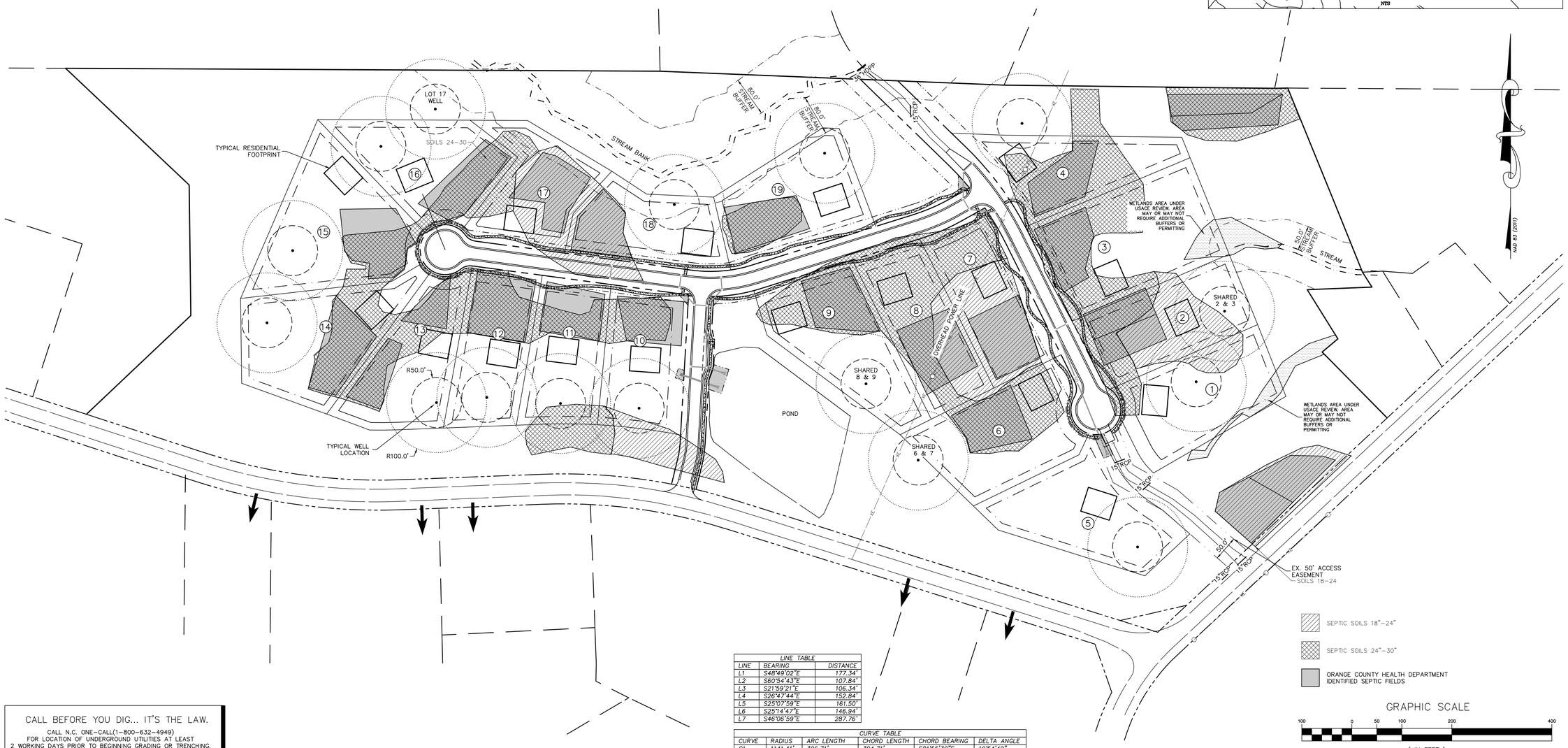
C5.0

MAJOR SUBDIVISON PLAN

SOILS AND UTILITY NOTES:

1. SOILS SURVEY BY S&EC AND LOCATED ON GIS DATA
2. SEPTIC FIELD PERK TESTS AND LOCATES BY ORANGE COUNTY HEALTH DEPARTMENT, LOCATED ON GIS DATA.
3. PRELIMINARY SEPTIC FIELDS ARE SHOWN IN RELATION TO LOT LINES AND POTENTIAL BUILDING LOCATIONS TO DEMONSTRATE THE BASIC VIABILITY OF THE LOT ARRANGEMENT AT THE CURRENT SITE PLAN STAGE.
4. THE APPLICANT UNDERSTANDS THAT PRIOR TO FINAL APPROVAL, ALL LOTS MUST HAVE ADEQUATE SEPTIC FIELDS IDENTIFIED THAT COMPLY WITH ALL SIZE, FLOW, SETBACK AND OTHER ORANGE COUNTY HEALTH DEPARTMENT REGULATIONS.
5. FINAL LOCATIONS AND DIMENSIONS OF SEPTIC FIELDS TO BE DETERMINED BY R.S. JONES & ASSOC. SURVEYORS FROM HEALTH DEPARTMENT FLAGS.
6. LOCATIONS OF WELL SITES INCLUDING SUFFICIENT SETBACKS FROM SEPTIC FIELDS AND OTHER OBSTACLES IS CURRENTLY UNDER EVALUATION BY S&EC WITH ASSISTANCE FROM R.S. JONES & ASSOCIATES SURVEYORS.
7. THE APPLICANT UNDERSTANDS THAT PRIOR TO FINAL APPROVAL, ALL LOTS MUST HAVE ADEQUATE WELL WATER AVAILABILITY DEMONSTRATED TO THE ORANGE COUNTY HEALTH DEPARTMENT.
8. CURRENT WELL LOCATIONS ARE CONCEPTUAL AND ARE DISPLAYED IN ORDER TO DEMONSTRATE THAT SUFFICIENT WELL LOCATIONS ARE AVAILABLE. ANY LOTS WITH REMOTE WELL LOCATIONS WILL SHOW EASEMENTS SUFFICIENT FOR WATER PIPE AND ELECTRICAL MAINTENANCE PURPOSES.
9. RESIDENCE LOCATIONS AND SIZES (CURRENTLY 50' X 60') ARE CONCEPTUAL AND SUBJECT TO CHANGE DUE TO SURVEYED SEPTIC FIELD AND WELL LOCATION SETBACKS.





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NORTH CAROLINA GENERAL STATUTE 87-102

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA
UTILITY PLAN

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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SHEET NO.
C6.0

MAJOR SUBDIVISON PLAN

NOTES:

1. STREET TREES MUST CONSIST OF 6 DIFFERENT SPECIES OF TREES, MINIMUM, WITH MAX OF 30% BEING ONE SPECIES.
2. STREET LIGHTING TO BE PROVIDED BY DUKE ENERGY. FULL LIGHTING PLANS TO BE PROVIDED BY DUKE PRIOR TO CONSTRUCTION PER UDO SECTION 6.11.G.2.

PLANT LIST

		BOTANICAL NAME	COMMON NAME	TYPE	HEIGHT/CALIPER AT TIME OF PLANTING	TOTAL #
	SM	ACER RUBRUM 'FRANK'S RED'	RED SUNSET MAPLE	CT	2.0" CALIPER	12
	LM	ACER SACCHARUM 'LEGACY'	LEGACY SUGAR MAPLE	CT	2.0" CALIPER	11
	RO	QUERCUS RUBRA	RED OAK	CT	2.0" CALIPER	12
	TM	ACER BUEGERANUM	TRIDENT MAPLE	DU	1.0" CAL. & 8' TALL	12
	ER	CERCIS CANADENSIS	EASTERN REDBUD	DU	1.0" CAL. & 8' TALL	12
	CM	LAGERSTROEMIA INDICA	CRAPE MYRTLE	DU	1.0" CAL. & 8' TALL	11
		TOTAL TREES				70

GENERAL LANDSCAPING NOTES:

1) ALL PLANT MATERIAL MUST MEET OR EXCEED THE MINIMUM SIZES SHOWN AT THE TIME OF INSTALLATION.

2) MIN # TREE SPECIES REQ. = 6 (TOTAL TREES = 70 / BETWEEN 41 & 80) & MAX OF 30% (21) SAME SPECIES.

LINE TABLE

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NORTH CAROLINA GENERAL STATUTE 87-102

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

LANDSCAPE & LIGHTING PLAN

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=100'
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
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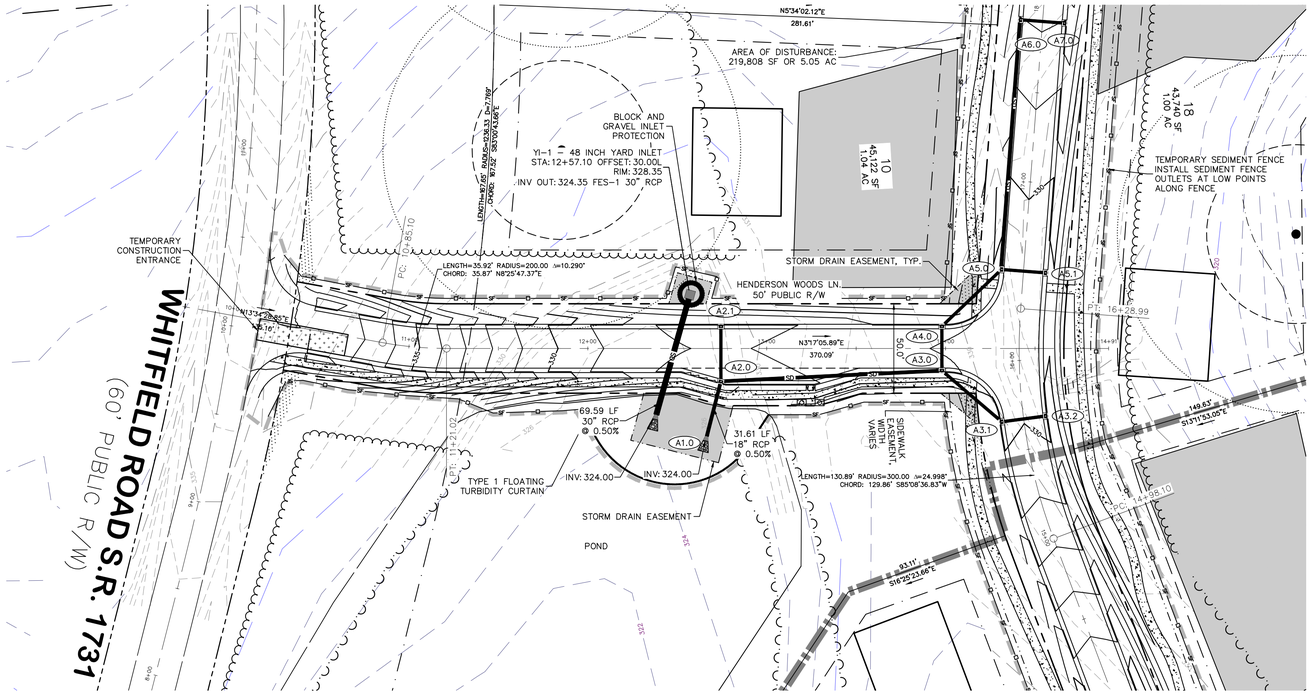
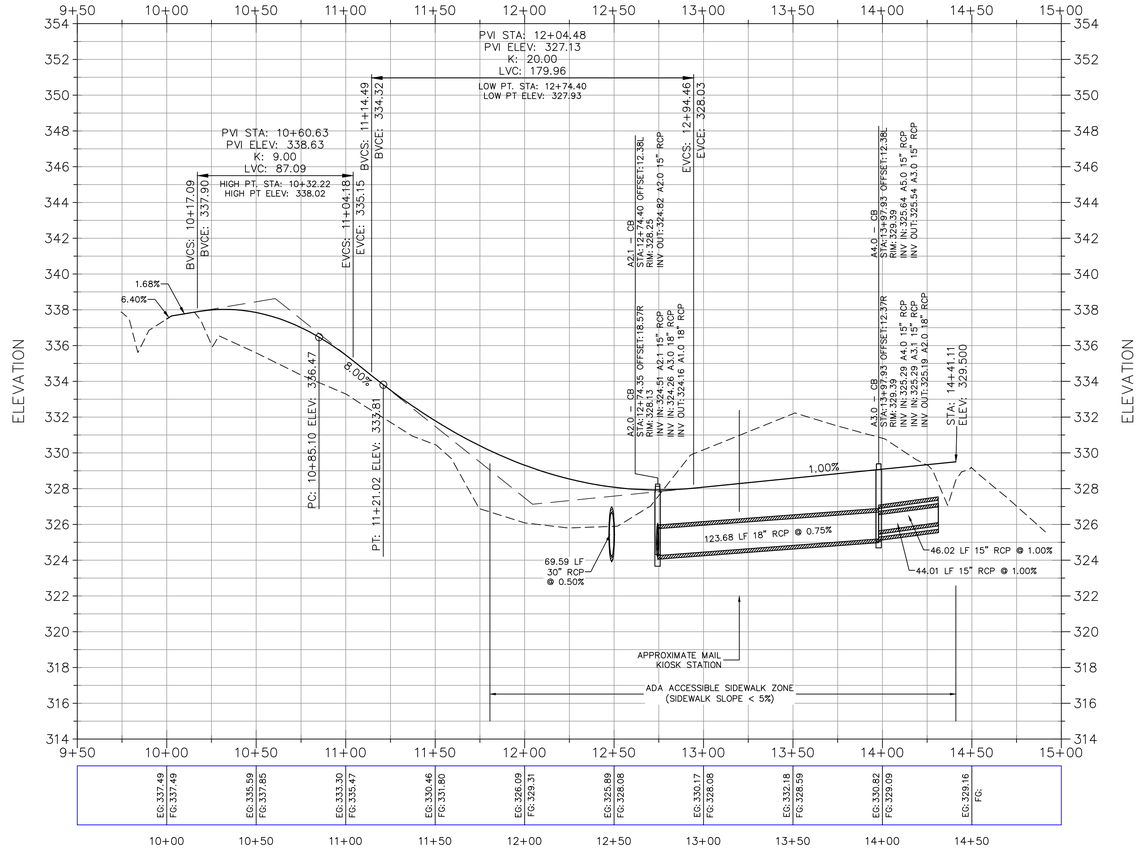
MAJOR SUBDIVISON PLAN



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.



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HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

PLAN & PRO HENDERSON WOODS LN.
STA: 10+00 TO STA: 14+41

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=40'
VERTICAL SCALE:	1"=4'
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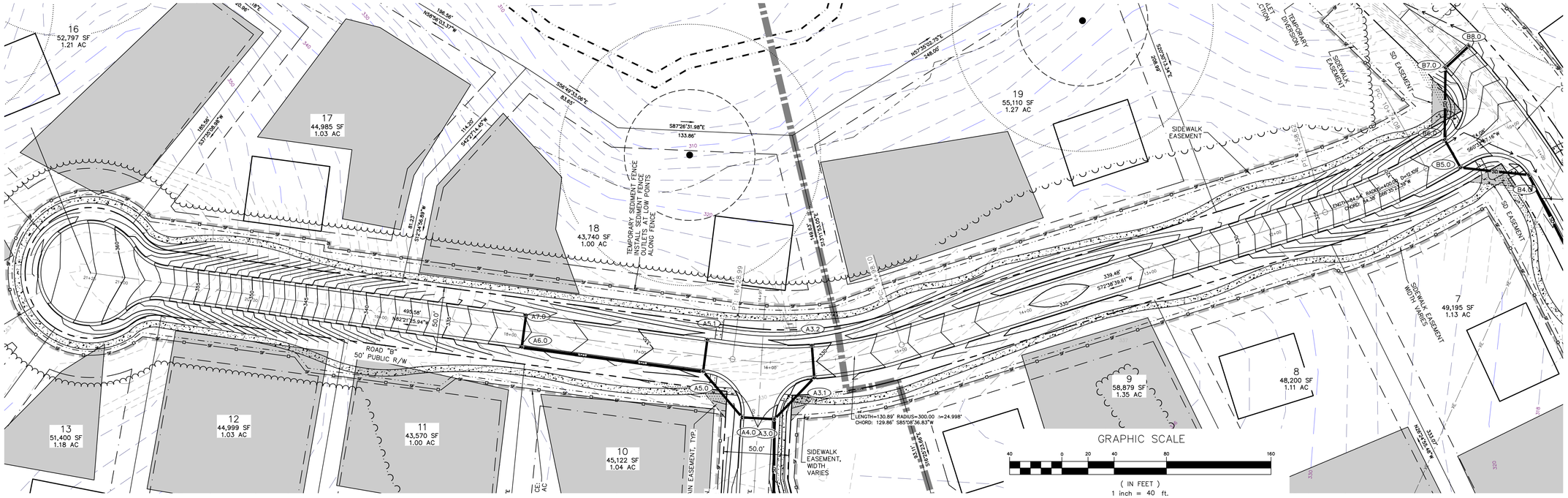
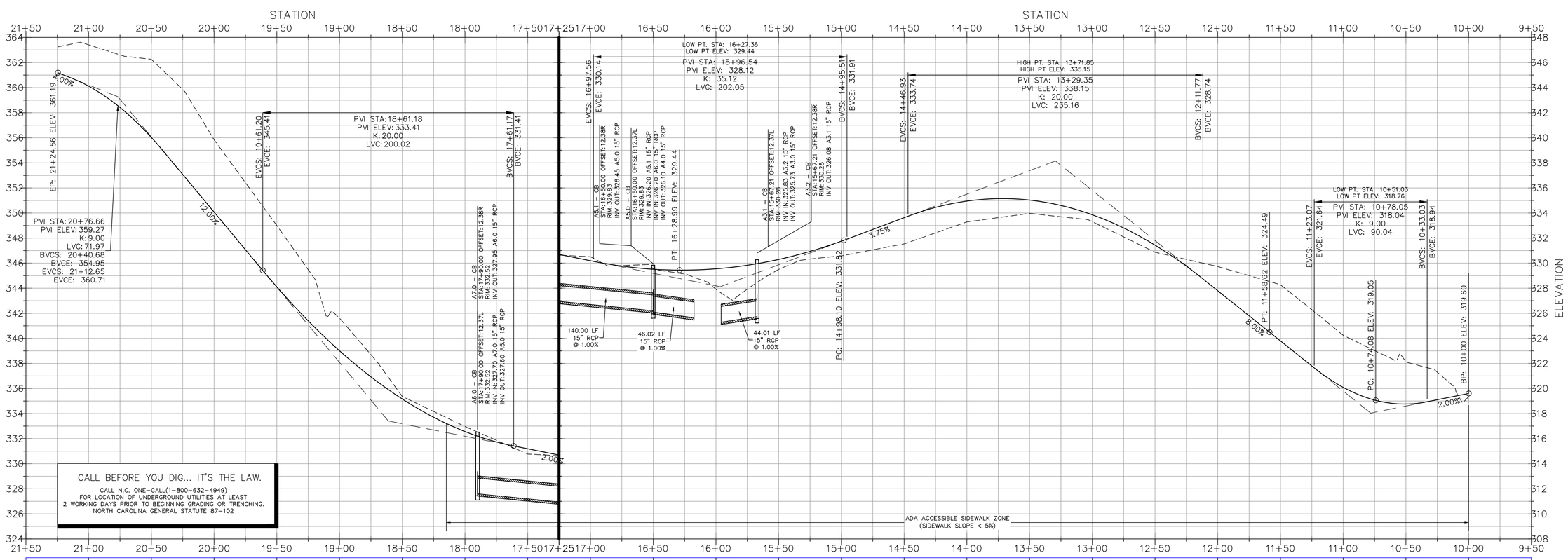
SHEET NO.

P1.0

MAJOR SUBDIVISON PLAN





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STA	EG	FG
21+00	363.41	360.11
20+50	362.25	356.02
20+00	355.84	350.07
19+50	349.00	344.10
19+00	341.61	339.01
18+50	335.37	335.16
18+00	332.97	332.57
17+50	330.77	331.19
17+00	330.51	330.19
16+50	329.54	329.51
16+00	327.91	329.55
15+50	329.49	330.29
15+00	330.58	331.75
14+50	331.53	333.62
14+00	333.28	334.95
13+50	333.97	335.03
13+00	333.30	333.86
12+50	330.87	331.44
12+00	329.73	327.80
11+50	328.27	323.80
11+00	324.25	320.09
10+50	322.13	318.76
10+00	319.35	319.60

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

PLAN & PROFILE MARTIN MADDEN WAY
STA: 10+00 TO STA: 21+25

REV.	DATE	DESCRIPTION	BY
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PROJECT MANAGER:	CPK
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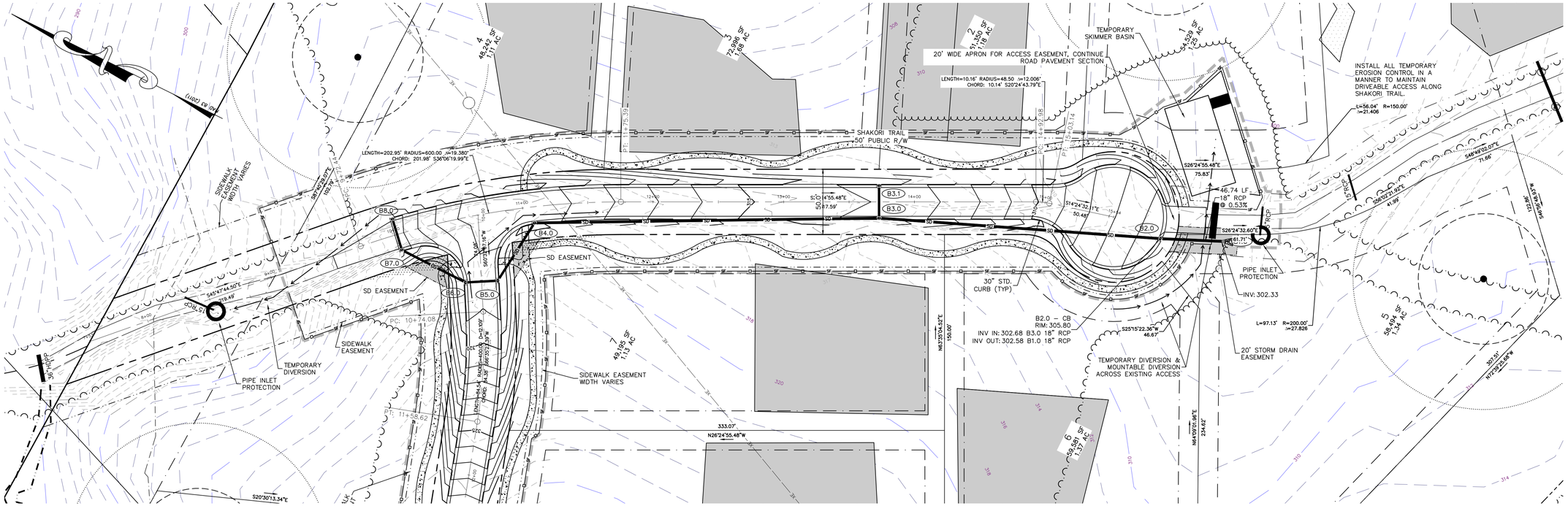
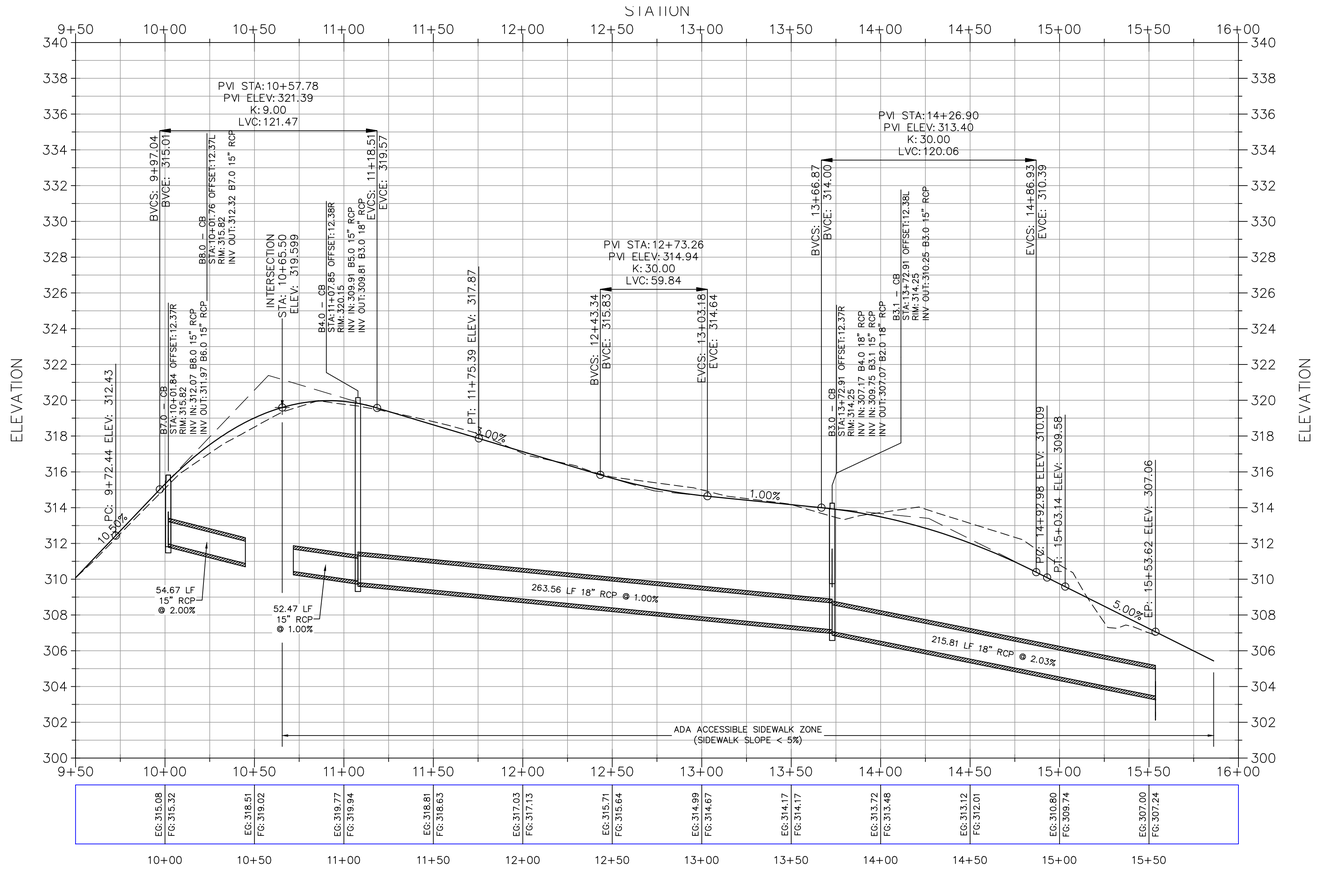
SHEET NO.

P2.0

MAJOR SUBDIVISON PLAN





GRAPHIC SCALE

(IN FEET)
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HENDERSON WOODS
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PLAN & PROFILE SHAKORI TRAIL
STA: 10+00 TO STA: 15+54

REV.	DATE	DESCRIPTION	BY
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2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 2, 2015
HORIZONTAL SCALE:	1"=40'
VERTICAL SCALE:	1"=4'
PROJECT MANAGER:	CPK
DRAWN BY:	TMM
PROJECT NO:	14-044
DRAWING NAME:	14-044 COUNCIL

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SHEET NO.

P3.0

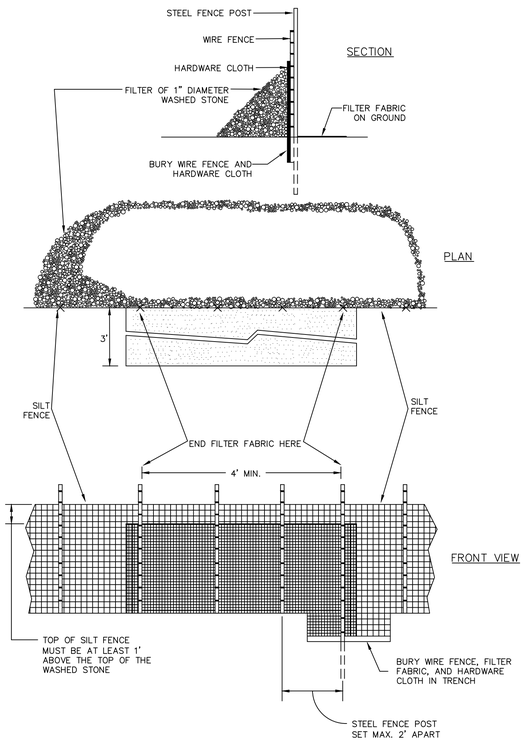
MAJOR SUBDIVISON PLAN

INSTRUCTIONS FOR SILT FENCE OUTLET

INSTALLATION

1. REFER TO THE PLANS FOR LOCATIONS AND SPECIFICATIONS. DURING INSTALLATION OF THE SILT BARRIER OR SILT FENCE, INSPECT THE INSTALLATION TO DETERMINE IF OUTLETS ARE NEEDED ACCORDING TO THE CRITERIA SET FORTH IN THE SPECIFICATIONS FOR THE BARRIER AND FENCE. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OF PROPERLY INSTALLED OUTLETS AS AN AID TO INSTALLATION.

IF THE SILT FENCE OUTLET IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.



SILT FENCE OUTLET

2. DETERMINE THE EXACT LOCATION OF THE OUTLET BEFORE COMPLETING INSTALLATION OF THE SILT BARRIER OR SILT FENCE, TAKING INTO CONSIDERATION:

– INSTALL THE OUTLET AT THE LOWEST POINT(S) IN THE BARRIER OR FENCE WHERE WATER WILL POND.

– INSTALL THE OUTLET WHERE IT IS ACCESSIBLE FOR INSTALLATION, MAINTENANCE, AND REMOVAL.

– ALLOW AT LEAST:

15 FEET BETWEEN THE BARRIER OR FENCE AND SINGLE–STORY BUILDINGS.

25 FEET FOR FORK LIFTS BETWEEN THE BARRIER OR FENCE AND MULTIPLE–STORY BUILDINGS.

10 FEET BETWEEN THE BARRIER OR FENCE AND THE TOE OF FILL SLOPES.

– PLACE THE OUTLET SO THAT WATER FLOWING THROUGH IT WILL NOT CREATE AN EROSION HAZARD BELOW: AVOID STEEP SLOPES BELOW THE OUTLET AND AREAS WITHOUT PROTECTIVE VEGETATION. USE SLOPE DRAINS IF NECESSARY.

– DETERMINE THE LOCATION OF THE OUTLET: FOR A SILT BARRIER, WHEN THE TRENCH IS DUG TO BURY THE BOTTOM OF THE FABRIC BECAUSE THE BARRIER WILL BE OMITTED AT THE OUTLET; FOR A SILT FENCE, WHEN THE WIRE FENCE IS IN PLACE BECAUSE THE FILTER FABRIC WILL BE OMITTED AT THE OUTLET.

3. REFER TO THE ILLUSTRATIONS OF THE OUTLET IN THE PLAN.

4. CLEAR STUMPS AND ROOTS FROM THE LOCATION OF THE OUTLET. CLEAR ADEQUATE ACCESS FOR THE EQUIPMENT NEEDED FOR INSTALLATION, MAINTENANCE, AND REMOVAL.

5. CONSTRUCT OUTLET:

– JUST BELOW THE GAP IN THE BARRIER, PLACE A LAYER OF FILTER FABRIC ON THE GROUND TO PROTECT THE SOIL FROM EROSION BY OUTFLOW FROM THE OUTLET; PLACE 6 INCHES OF THE UPPER EDGE IN THE TRENCH. STAKE THE REMAINING EDGES OF THE FABRIC TO HOLD IT IN PLACE.

– ALONG THE GAP WHERE THE OUTLET WILL GO, PLACE STEEL FENCE POSTS FOR STRENGTH. THE POSTS MUST BE A MAXIMUM OF 2 FEET APART AND DRIVEN INTO SOLID GROUND AT LEAST 18 INCHES.

– PLACE HARDWARE CLOTH (WELDED GALVANIZED SCREEN WITH SQUARE 1/4 – 1/2 – INCH HOLES) ON THE UPHILL SIDE OF THE POSTS TO HOLD THE WASHED STONE IN PLACE. PUT 6 INCHES OF THE BOTTOM OF THE CLOTH IN THE TRENCH AND FASTEN IT TO THE POSTS WITH LENGTHS OF WIRE.

– BURY THE BOTTOM OF THE HARDWARE CLOTH AND THE UPPER EDGE OF THE FILTER FABRIC BELOW THE OUTLET IN THE TRENCH AND COMPACT THE FILL.

– PLACE A FILTER OF 1–INCH DIAMETER WASHED STONE ON THE UPHILL SIDE OF THE OUTLET. PILE THE STONE UP TO THE TOP OF THE HARDWARE CLOTH AND OVER THE JOINT BETWEEN THE OUTLET AND THE BARRIER.

MAINTENANCE

MATERIALS, EQUIPMENT, AND PERSONNEL MUST BE AVAILABLE FOR MAINTENANCE AT ALL TIMES.

1. INSPECT THE SILT FENCE OUTLET:

– DURING CONSTRUCTION: TO DETERMINE IF MACHINERY, FALLING TREES, ETC. HAVE DAMAGED THE BARRIER, FENCE, OR OUTLET; IF DAMAGED, MAKE REPAIRS. TO SEE THAT FILL MATERIAL HAS NOT ACCUMULATED AGAINST THE OUTLET, BLOCKING OUTFLOW; IF IT HAS, REMOVE THE MATERIAL, REPAIR THE DAMAGE, AND MOVE THE FENCE OR FILL SO THAT IT DOES NOT HAPPEN AGAIN.

– AFTER EACH RAINFALL: TO DETERMINE IF RUNOFF FLOWING THROUGH THE OUTLET HAS CAUSED DAMAGE BY UNDERMINING THE FENCE OR OUTLET, OR IF ACCUMULATED WATER HAS COLLAPSED THE OUTLET; IF IT HAS, MAKE REPAIRS OR INSTALL A SEDIMENT TRAP IF NECESSARY TO PREVENT FUTURE FAILURES.

2. CLEAN OUT ACCUMULATED SEDIMENT WHEN IT REACHES A DEPTH OF ONE–HALF THE HEIGHT OF THE OUTLET. PLACE THE SEDIMENT IN A DISPOSAL AREA, OR MIX IT WITH DRY SOIL ON THE SITE IF APPROPRIATE.

DO NOT DISPOSE OF SEDIMENT IN A MANNER THAT WILL CREATE AN EROSION HAZARD.

3. WHEN THE STONE FILTER BECOMES CLOGGED, PREVENTING FLOW THROUGH THE FILTER, REMOVE THE CONTAMINATED STONE, DISPOSE OF IT PROPERLY, AND REPLACE IT WITH CLEAN WASHED STONE.

4. REPAIR THE OUTLET IF DAMAGED BY USE OR DURING MAINTENANCE. REBUILD IT TO THE ORIGINAL CONFIGURATION.

REMOVAL

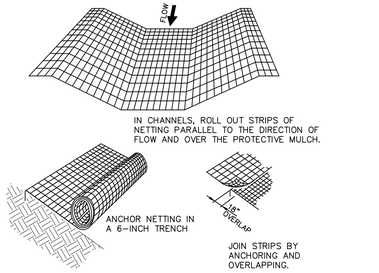
1. WHEN GRADING THE DRAINAGE AREA ABOVE THE OUTLET HAS BEEN COMPLETED AND THE DISTURBED AREA SUFFICIENTLY STABILIZED TO RESTRAIN EROSION, THE OUTLET MUST BE REMOVED.

2. CLEAN OUT ACCUMULATED SEDIMENT AND DISPOSE OF IT PROPERLY.

3. REMOVE POSTS, FENCE, FABRIC, WIRE, AND WASHED STONE; DISPOSE OF THEM PROPERLY.

4. GRADE THE LOCATION AS NECESSARY.

5. STABILIZE THE DISTURBED AREA WHERE THE OUTLET WAS LOCATED.



INSTALLATION OF NETTING AND MATTING

PRODUCTS DESIGNED TO CONTROL EROSION SHOULD BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

ANY MAT OR BLANKET–TYPE PRODUCT USED AS A PROTECTIVE MULCH SHOULD PROVIDE COVER OF AT LEAST 30% OF THE SURFACE WHERE IT IS APPLIED.

1. APPLY LIME, FERTILIZER AND SEED BEFORE LAYING THE NET OR MAT.

2. START LAYING THE NET FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL IT DOWN THE GRADE. ALLOW NETTING TO LAY LOOSELY ON THE SOIL BUT WITHOUT WRINKLES – DO NOT STRETCH.

3. TO SECURE THE NET, BURY THE UPSLOPE END IN A SLOT OR TRENCH NO LESS THAN 6 INCHES DEEP, COVER WITH SOIL, AND TAMP FIRMLY. STAPLE THE NET EVERY 12 INCHES ACROSS THE TOP END AND EVERY 3 FEET AROUND THE EDGES AND BOTTOM. WHERE 2 STRIPS OF NET ARE LAID SIDE BY SIDE, THE ADJACENT EDGES SHOULD BE OVERLAPPED 3 INCHES AND STAPLED TOGETHER. EACH STRIP OF NETTING SHOULD ALSO BE STAPLED DOWN THE CENTER, EVERY 3 FEET. DO NOT STRETCH THE NET WHEN APPLYING STAPLES.

4. TO JOIN TWO STRIPS, CUT A TRENCH TO ANCHOR THE END OF THE NEW NET. OVERLAP THE END OF THE PREVIOUS ROLL 18 INCHES AND STAPLE EVERY 12 INCHES JUST BELOW THE ANCHOR SLOT.

MAINTENANCE

INSPECT ALL MULCHES PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION, OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED, AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.

NETS AND MATS

CONSTRUCTION SEQUENCE

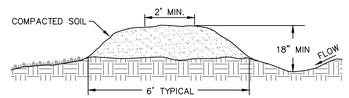
1. EROSION CONTROL MEASURES INCLUDE A GRAVEL CONSTRUCTION EXIT, SEDIMENT TRAPPING MEASURES, STABILIZATION AT PIPE OUTLETS, AND THE STABILIZATION OF DISTURBED AREAS ACCORDING TO THE STABILIZATION TIME TABLE SHOWN BELOW AFTER COMPLETION OF ANY PHASE OF GRADING. STABILIZATION CONSISTS OF EITHER TEMPORARY MULCHING OR PERMANENT VEGETATION ON AREAS THAT ARE NOT PAVED.
2. OBTAIN ALL THE APPROVALS AND PERMITS NECESSARY TO BEGIN AND COMPLETE THE PROJECT. THESE APPROVALS AND PERMITS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING: SITE PLAN APPROVAL, EROSION CONTROL PLAN APPROVAL, AND DRIVEWAY PERMIT APPROVAL.
3. SCHEDULE AND HOLD A PRECONSTRUCTION CONFERENCE BEFORE STARTING ANY ADDITIONAL CLEARING, OR GRADING. ATTENDEES SHALL INCLUDE THE OWNER, THE CONTRACTOR(S) RESPONSIBLE FOR THE DISTURBANCE AND EROSION CONTROL, AND EROSION CONTROL PERSONNEL.
4. INSTALL THE GRAVEL FOR CONSTRUCTION EXIT. CLEAR AREAS AS NECESSARY TO GAIN ACCESS TO SEDIMENT TRAP LOCATION AND POND AREA..
5. INSTALL SEDIMENT TRAP, SEDIMENT FENCE, SILT FENCE OUTLETS, TURBIDITY CURTAIN AND TEMPORARY DIVERSIONS.
6. COMPLETE CLEARING AND GRUBBING.
7. PERFORM ROUGH GRADING.
8. INSTALL STORM DRAINAGE. INSTALL TEMPORARY PIPE AND INLET PROTECTION.
9. FINE GRADE SUBGRADE.
10. INSTALL CURB AND GUTTER.
11. PLACE AND COMPACT STONE.
12. PAVE ROADWAY.
13. INSTALL RIP–RAP OUTLETS.
14. FINE GRADE BACK OF CURB AND GRADE FOR SIDEWALK. INSTALL SIDEWALK.
15. INSTALL SEED AND MULCH AND/OR LANDSCAPING.
16. PROVIDE DISTURBED AREAS WITH GROUND COVER SUFFICIENT TO RESTRAIN EROSION ACCORDING TO THE STABILIZATION TIME TABLE SHOWN BELOW AFTER COMPLETION OF ANY PHASE OF GRADING, WHETHER CLEARING OR ROUGH OR FINISHED GRADING.
17. INSPECT AND MAINTAIN THE EROSION CONTROL DEVICES SO THEY CONTINUE TO FUNCTION PROPERLY. REFER TO THE EROSION CONTROL PLAN FOR SPECIFIC INSTRUCTIONS FOR EACH DEVICE. THE PERSON RESPONSIBLE FOR EROSION CONTROL IS ALSO RESPONSIBLE FOR TAKING THE INITIATIVE IN INSPECTING AND MAINTAINING THESE DEVICES; DO NOT WAIT FOR THE EROSION CONTROL INSPECTOR TO POINT OUT THE NEED FOR MAINTENANCE AND REPAIRS.
18. KEEP MUD AND DEBRIS OFF THE PUBLIC STREET AT ALL TIMES. IF MUD OR DEBRIS IS TRACKED FROM THE SITE, USE A SHOVEL AND BROOM TO REMOVE IT IMMEDIATELY. IF MUD AND DEBRIS ARE NOT KEPT OFF THE STREET ENFORCEMENT ACTIONS (REVOKING THE GRADING PERMIT AND/OR A STOP WORK ORDER) MAY BE TAKEN!!!
19. IF IT IS DETERMINED DURING THE COURSE OF CONSTRUCTION THAT SIGNIFICANT SEDIMENT IS LEAVING THE SITE DESPITE PROPER IMPLEMENTATION AND MAINTENANCE OF THE APPROVED EROSION CONTROL PLAN, THE PERSON RESPONSIBLE FOR THE LAND–DISTURBING ACTIVITY IS OBLIGATED TO TAKE ADDITIONAL PROTECTIVE ACTION.
20. PERMANENTLY STABILIZE ALL DISTURBED AREAS. REFER TO INSTRUCTIONS IN THE PLAN FOR THE TYPE(S) OF STABILIZATION TO BE USED ON THE SITE.
21. WHEN CONSTRUCTION IS COMPLETED, ALL TEMPORARY EROSION CONTROL DEVICES MUST BE REMOVED AFTER THE DRAINAGE AREA ABOVE HAS BEEN SUFFICIENTLY STABILIZED TO RESTRAIN EROSION. REMOVE AND PROPERLY DISPOSE OF ACCUMULATED SEDIMENT AND THE DEBRIS FROM THE DEVICES, AND STABILIZE THE LOCATIONS.
22. ARRANGE A FINAL INSPECTION WITH THE EROSION CONTROL INSPECTOR TO CONFIRM THAT ALL REQUIREMENTS OF THE APPROVED EROSION CONTROL PLAN HAVE BEEN COMPLETED.

CONSTRUCTION SPECIFICATIONS:

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENTS.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.
5. VEGETATE THE RIDGE IMMEDIATELY AFTER CONSTRUCTION, UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS. INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL.

MAINTENANCE:

IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.



TEMPORARY DIVERSION DITCH

NTS

UPON COMPLETION AND ACCEPTANCE OF THE IMPROVEMENTS OUTLINED ON THE SITE PLAN, THE ENTIRE AREA DISTURBED BY PROJECT CONSTRUCTION SHALL BE PROVIDED WITH A PERMANENT VEGETATIVE COVER. THE DISTURBED AREAS SHALL BE FINELY TILLED BY HARROWING. WHERE SOIL CONDITIONS ARE UNFAVORABLE FOR SUCCESSFUL ESTABLISHMENT OF COVER, AVAILABLE TOPSOIL SHALL BE SPREAD. DOLOMITIC LIMESTONE SHALL BE APPLIED AT THE RATE OF 4,000 LBS. PER ACRE AND A 10–10–10 COMMERCIAL FERTILIZER MIX SHALL BE APPLIED AT A RATE OF 1000 LBS., PER ACRE TO THE DISTURBED AREA. IT SHALL BE UNIFORMLY APPLIED TO DISTURBED AREAS ACCORDING TO THE FOLLOWING SCHEDULE BY BROADCASTING WITH A CYCLONE SEEDER OR CLOSE DRILL. SEED SHALL BE LIGHTLY COVERED AND SOIL SHALL BE FIRMED. STRAW MULCH SHALL BE APPLIED TO THE SEEDED AREA AT THE RATE OF 1–1/2 BALES PER 1000 SQ. FT. AND TACKED.

DATES	RATE #/ACRE
JANUARY 1 – MAY 1	
LIMESTONE	2000
FERTILIZER (10–10–10)	750
RYE (GRAIN)	120
MULCH – STRAW & TACK	4000
MAY 1 – AUGUST 15	
LIMESTONE	2000
FERTILIZER (10–10–10)	750
GERMAN MILLET	40
MULCH – STRAW & TACK	4000
AUGUST 15 – JANUARY 1	
LIMESTONE	2000
FERTILIZER (10–10–10)	1000
RYE (GRAIN)	120
MULCH – STRAW & TACK	4000

DATES	RATE #/ACRE
NOVEMBER 1 – JANUARY 31	
TALL FESCUE	100
RYE	50
FEBRUARY 1 – APRIL 30	
TALL FESCUE	80
BLUEGRASS	60
MAY 1 – JULY 31	
TALL FESCUE	70
WEEPING LOVEGRASS	20
AUGUST 1 – OCTOBER 31	
TALL FESCUE	100
SUDAN HYBRID	50

SCHEDULE FOR PROVIDING PERMANENT VEGETATIVE COVER

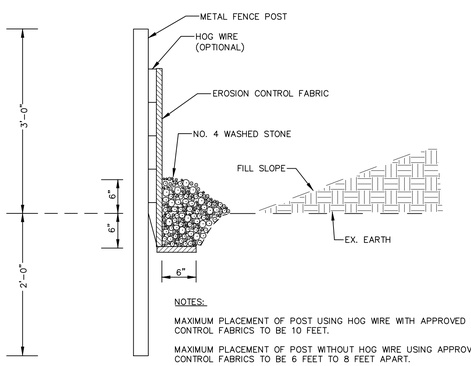
STABILIZATION TIME TABLE

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES > 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS & HQW ZONES

ST–10

PERMANENT & TEMPORARY SEEDING SPECIFICATIONS

SCALE :N.T.S. | DATE : 4/28/06 | DRAWN BY: MHW



NOTES:

MAXIMUM PLACEMENT OF POST USING HOG WIRE WITH APPROVED EROSION CONTROL FABRICS TO BE 10 FEET.

MAXIMUM PLACEMENT OF POST WITHOUT HOG WIRE USING APPROVED EROSION CONTROL FABRICS TO BE 6 FEET TO 8 FEET APART.

POST METAL T–POST 5 FEET OR 6 FEET IN HEIGHT DEPENDING ON FILL SLOPE.

FABRIC 36 INCHES IN WIDTH (MUST MEET ENGINEERS SPECIFICATIONS FOR EROSION CONTROL).

STONE NO. 4 WASHED STONE TO BE PLACED 12 INCHES DEEP AT SILT FENCE.

TEMPORARY SILT FENCE

NTS

NPDES PERMIT REQUIREMENTS

THIS PROJECT IS SUBJECT TO THE REQUIREMENTS OF NPDES PERMIT FOR CONSTRUCTION ACTIVITIES (PERMIT NO. NCG010000). THE ITEMS NOTED ARE SOME OF THE OBLIGATIONS ASSOCIATED WITH THE NPDES PERMIT PROCESS.

CONTROLS FOR STORMWATER DISCHARGES

1. THE PERMITTEE SHALL IMPLEMENT THE SOIL AND EROSION CONTROL PLAN, WHICH HAS BEEN APPROVED BY THE APPROVAL AUTHORITY. THE APPROVED PLAN IS CONSIDERED A REQUIREMENT OR CONDITION OF NPDES PERMIT. DEVIATION FROM THE APPROVED PLAN, OR APPROVED AMENDMENT TO THE PLAN, SHALL CONSTITUTE A VIOLATION OF THE TERMS AND CONDITIONS OF THIS GENERAL PERMIT EXCEPT THAT DEVIATION FROM THE APPROVED PLAN WILL BE ALLOWED TO CORRECT AN EMERGENCY SITUATION WHERE SEDIMENTS ARE BEING DISCHARGED OFF THE SITE, EVEN THOUGH THE APPROVED PLAN IS IN EFFECT. SUCH A DEVIATION FROM THE APPROVED PLAN SHALL BE NOTED ON THE APPROVED PLAN MAINTAINED AT THE JOB SITE. A SIGNED COPY OF THE APPROVED PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
2. EQUIPMENT UTILIZED DURING THE CONSTRUCTION ACTIVITY ON A SITE MUST BE OPERATED AND MAINTAINED IN SUCH A MANNER AS TO PREVENT THE POTENTIAL OR ACTUAL POLLUTION OF THE SURFACE OR GROUND WATERS OF THE STATE. FUELS, LUBRICANTS, COOLANTS, AND HYDRAULIC FLUIDS, OR ANY OTHER PETROLEUM PRODUCTS, SHALL NOT BE DISCHARGED ONTO THE GROUND OR INTO SURFACE WATERS. SPENT FLUIDS SHALL BE DISPOSED OF IN A MANNER SO AS NOT TO ENTER THE WATERS, SURFACE OR GROUND, OF THE STATE AND IN ACCORDANCE WITH APPLICABLE STATE AND FEDERAL DISPOSAL REGULATIONS. ANY SPILLED FLUIDS SHALL BE CLEANED UP TO THE EXTENT PRACTICABLE AND DISPOSED OF IN A MANNER SO AS NOT TO ALLOW THEIR ENTRY INTO THE WATERS, SURFACE OR GROUND, OF THE STATE.
3. HERBICIDE, PESTICIDE, AND FERTILIZER USAGE DURING THE CONSTRUCTION ACTIVITY SHALL BE RESTRICTED TO THOSE MATERIALS APPROVED BY EPA AND SHALL BE IN ACCORDANCE WITH LABEL RESTRICTIONS.
4. ALL WASTES COMPOSED OF BUILDING MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH NORTH CAROLINA GENERAL STATUTES.
5. THE PERMITTEE SHALL REPORT TO THE CENTRAL OFFICE OR THE APPROPRIATE REGIONAL OFFICE ANY NONCOMPLIANCE WHICH MAY ENDANGER HEALTH OR THE ENVIRONMENT. ANY INFORMATION SHALL BE PROVIDED ORALLY WITHIN 24 HOURS FROM THE TIME THE PERMITTEE BECAME AWARE OF THE CIRCUMSTANCES. A WRITTEN SUBMISSION SHALL ALSO BE PROVIDED WITHIN 5 DAYS OF THE TIME THE PERMITTEE BECOMES AWARE OF THE CIRCUMSTANCES.

   THE WRITTEN SUBMISSION SHALL CONTAIN A DESCRIPTION OF THE NONCOMPLIANCE, AND ITS CAUSES; THE PERIOD OF NONCOMPLIANCE, INCLUDING EXACT DATES AND TIMES, AND IF THE NONCOMPLIANCE HAS NOT BEEN CORRECTED, THE ANTICIPATED TIME IT IS EXPECTED TO CONTINUE; AND STEPS TAKEN OR PLANNED TO REDUCE, ELIMINATE, AND PREVENT REOCCURRENCE OF THE NONCOMPLIANCE (SEE SPECIFIC PERMIT REQUIREMENTS FOR REPORTING INFORMATION).

MINIMUM MONITORING AND REPORTING REQUIREMENTS

MINIMUM MONITORING AND REPORTING REQUIREMENTS ARE AS FOLLOWS UNLESS OTHERWISE APPROVED IN WRITING BY THE DIRECTOR OF THE DIVISION OF ENVIRONMENTAL MANAGEMENT.

1. ALL SEDIMENTATION AND EROSION CONTROL FACILITIES SHALL BE INSPECTED BY OR UNDER THE DIRECTION OF THE PERMITTEE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THEN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD.
2. STORMWATER RUNOFF DISCHARGES SHALL BE INSPECTED BY OBSERVATION FOR STORMWATER DISCHARGE CHARACTERISTICS AS DEFINED BELOW AT THE ABOVE FREQUENCY TO EVALUATE THE EFFECTIVENESS OF THE POLLUTION CONTROL FACILITIES OR PRACTICES. IF ANY VISIBLE OFF–SITE SEDIMENTATION IS LEAVING THE SITE, CORRECTIVE ACTION SHALL BE TAKEN TO REDUCE THE DISCHARGE OF SEDIMENTS.

Stormwater Discharge Characteristics	Monitoring Type1	Monitoring Location2
Color		SDO
Odor		SDO
Clarity		SDO
Floating Solids		SDO
Suspended Solids		SDO
Foam		SDO
Oil Sheen		SDO
Other obvious indicators of stormwater pollution		SDO

FOOTNOTES:

1 MONITORING TYPE: THE MONITORING REQUIRES A QUALITATIVE OBSERVATION OF EACH STORMWATER OUTFALL. NO ANALYTICAL TESTING OR SAMPLING IS REQUIRED.

2 SAMPLE LOCATION: STORMWATER DISCHARGE OUTFALL (SDO)

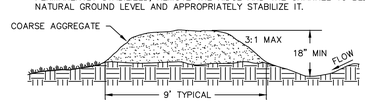
3. THE OPERATOR SHALL KEEP A RECORD OF INSPECTIONS. VISIBLE SEDIMENTATION FOUND OFF THE SITE SHALL BE RECORDED WITH A BRIEF EXPLANATION AS TO THE MEASURES TAKEN TO PREVENT FUTURE RELEASES AS WELL AS ANY MEASURES TAKEN TO CLEAN UP THE SEDIMENT THAT HAS LEFT THE SITE. THIS RECORD SHALL BE MADE AVAILABLE TO DEM OR AUTHORIZED AGENT UPON REQUEST. REPORTS SHALL BE MAINTAINED ONSITE AT ALL TIMES.
4. PERMITTEE SHALL AT ALL TIMES PROVIDE THE OPERATION AND MAINTENANCE NECESSARY TO OPERATE THE PERMITTED STORMWATER CONTROLS AT OPTIMUM EFFICIENCY.

CONSTRUCTION SPECIFICATIONS

1. REMOVE AND PROPERLY DISPOSE OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. ENSURE THAT THE MINIMUM CONSTRUCTED CROSS SECTION MEETS ALL DESIGN REQUIREMENTS.
3. ENSURE THAT THE TOP OF THE DIKE IS NOT LOWER AT ANY POINT THAN THE DESIGN ELEVATION PLUS THE SPECIFIED SETTLEMENTS.
4. PROVIDE SUFFICIENT ROOM AROUND DIVERSIONS TO PERMIT MACHINE REGRADING AND CLEANOUT.

MAINTENANCE

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.



MOUNTABLE GRAVEL DIVERSION

NTS

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HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

EROSION CONTROL DETAILS

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 1, 2015
HORIZONTAL SCALE:	N/A
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	SCS
PROJECT NO:	14-044
DRAWING NAME:	14-044 DETAILS

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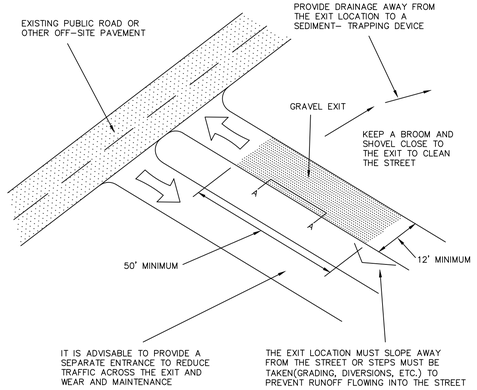
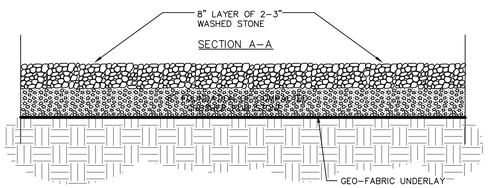
PRELIMINARY





CONSTRUCTION EXIT

NTS

INSTRUCTIONS FOR
GRAVEL CONSTRUCTION EXIT

INSTALLATION

1. REFER TO PLANS FOR LOCATION AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION OR METHODS OF INSTALLATION CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND PHOTOGRAPHS OF PROPERLY INSTALLED EXITS AS AN AID TO INSTALLATION.

   IF THE CONSTRUCTION EXIT IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.

2. DETERMINE THE LOCATION ON THE GROUND, TAKING INTO CONSIDERATION:

   * THE CONSTRUCTION EXIT MUST BE IN PLACE DURING ALL PHASES OF CONSTRUCTION; IF THE LOCATION IS TO BE GRADED, THE EXIT MUST BE INSTALLED FOR THE INITIAL WORK, REMOVED TO ALLOW GRADING OF THE LOCATION, AND REPLACED IMMEDIATELY AFTER GRADING SO THAT IT IS IN PLACE AND FUNCTIONING AT ALL TIMES.

   * IF THE SITE WILL HAVE A LARGE NUMBER OF VEHICLES USING THE EXIT, IT IS ADVISABLE TO HAVE A DIVIDED ENTRANCE THAT DIRECTS ENTERING TRAFFIC THROUGH A SEPARATE TRAVELWAY PARALLEL TO THE GRAVEL CONSTRUCTION EXIT IN ORDER TO REDUCE THE NUMBER OF TRIPS OVER THE STONE, INCREASING THE LIFE TO THE GRAVEL, AND REDUCING MAINTENANCE. REFER TO THE ILLUSTRATION FOR DETAILS.

   * RUNOFF AND SEDIMENT FROM THE SITE MUST BE DIRECTED AWAY FROM THE EXIT SO THAT IT DOES NOT FLOW INTO THE STREET OR OTHER OFFSITE AREA; CHOOSE A LOCATION FOR THE EXIT THAT WILL MAKE IT EASY TO DIVERT THE RUNOFF TO SEDIMENT-TRAPPING DEVICES.

   * IF THE GRAVEL CONSTRUCTION EXIT DOES NOT FUNCTION TO KEEP MUD AND DUST ON-SITE, THEN ANY SOIL OR DEBRIS TRACKED FROM THE SITE MUST BE PHYSICALLY REMOVED FROM THESE AREAS BY FIRST USING A SHOVEL AND BROOM AND THEM WASHING THE PAVEMENT.

   * IF THE PERSON RESPONSIBLE FOR THE DISTURBANCE FAILS TO TAKE INITIATIVE TO KEEP SOIL AND DEBRIS ON THE SITE ENFORCEMENT ACTION MAY BE TAKEN AGAINST THE SITE AND THE GRADING PERMIT REVOKED AND/OR A STOP WORK ORDER ISSUED.

3. CLEAR THE LOCATION OF THE EXIT, REMOVING STUMPS, ROOTS, AND OTHER VEGETATION IN ORDER TO PROVIDE A FIRM FOUNDATION SO THAT THE STONE IS NOT PRESSED INTO SOFT GROUND. CLEAR ENOUGH WIDTH TO ALLOW PASSAGE OF LARGE VEHICLES, BUT CLEAR ONLY WHAT IS NECESSARY FOR THE EXIT. DO NOT CLEAR ADJACENT AREAS UNTIL THE REQUIRED EROSION CONTROL DEVICES ARE IN PLACE.

   IF THE SOIL AT THE LOCATION IS SOFT IT IS ADVISABLE TO PLACE A 6 TO 8 INCH LAYER OF CRUSHER RUN STONE DOWN FIRST TO PROVIDE A FIRM FOUNDATION AND PREVENT THE WASHED STONE BEING PRESSED INTO THE GROUND.

4. AT THE LOCATION OF THE EXIT, PLACE AN 8-INCH LAYER OF WASHED STONE 2 TO 3 INCHES IN DIAMETER AT LEAST 50 FEET LONG AND AS WIDE AS THE FULL WIDTH OF THE EXIT OR AT LEAST 10 FEET WIDE. FLARE THE END OF THE STONE WHERE IT MEETS THE PAVEMENT SO THAT THE WHEELS OF TURNING VEHICLES REMAIN ON STONE AND DO NOT TRAVEL OVER UNPROTECTED SOIL.

5. A SQUARE-EDGED SHOVEL AND BROOM WITH STIFF BRISTLES MUST BE PROVIDED AT THE EXIT FOR REMOVING ANY MUD THAT MAY BE TRACKED INTO THE STREET.

USE

1. AS VEHICLES LEAVING THE SITE DRIVE ACROSS THE WASHED STONE THE ABRASIVE ACTION OF THE WASHED STONE SHOULD REMOVE SEDIMENT FROM THE TIRES. IT MAY BE NECESSARY TO USE A SHOVEL TO REMOVE MUD TRAPPED BETWEEN DUAL WHEELS.

2. ANY SOIL TRACKED FROM THE SITE MUST BE REMOVED IMMEDIATELY. A SHOVEL AND BROOM MUST BE USED TO REMOVE AS MUCH SOIL AS POSSIBLE BEFORE WASHING THE PAVEMENT.

MAINTENANCE

MATERIALS, EQUIPMENT, AND PERSONNEL MUST BE AVAILABLE FOR MAINTENANCE AT ALL TIMES.

1. WHEN THE STONE IN THE EXIT BECOMES CONTAMINATED WITH SOIL AND ITS FUNCTION IS REDUCED TO WHERE SEDIMENT IS BEING TRACKED INTO THE STREET, A 4-INCH LAYER OF CLEAN STONE MUST BE ADDED.

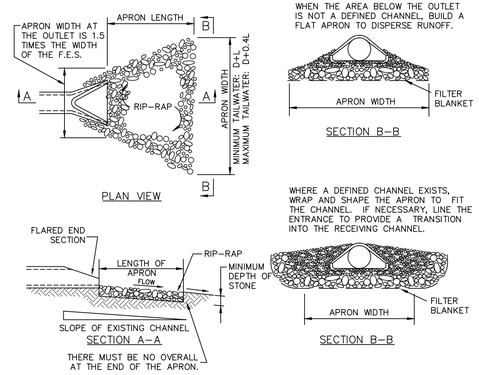
2. DIVERSIONS USED TO DIRECT RUNOFF AWAY FROM THE EXIT TO SEDIMENT-TRAPPING DEVICES MUST BE MAINTAINED ACCORDING TO SPECIFICATIONS FOR THOSE DEVICES.

3. CONTINUAL MAINTENANCE AND/OR REFRESHING OF THE STONE WILL BE REQUIRED TO PREVENT SEDIMENT FROM BEING TRACKED OFF SITE. PROBLEMS MUST BE ANTICIPATED AND THE PROPER PREVENTIVE MAINTENANCE MUST BE PERFORMED.

REMOVAL

1. WHEN THE GRAVEL CONSTRUCTION EXIT IS NO LONGER NEEDED, WHEN THE TRAVELWAYS HAVE BEEN STABILIZED AND THE POTENTIAL FOR TRACKING SOIL AND DEBRIS INTO THE STREET HAS BEEN REMOVED, THE GRAVEL CONSTRUCTION EXIT MAY BE REMOVED.

2. THE STONE AND ANY SEDIMENT SHOULD BE REMOVED AND PROPERLY DISPOSED OF WHERE THEY WILL NOT CREATE AN EROSION HAZARD.



RIP RAP APRON

NTS

INSTRUCTIONS FOR
RIP RAP APRON /
STONE APRON OUTLET PROTECTION

INSTALLATION

1. REFER TO THE PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OR PROPERLY INSTALLED APRONS AS A AID TO INSTALLATION.

   IF THE STONE APRON IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.

2. DETERMINE THE LOCATION ON THE GROUND TAKING INTO CONSIDERATION:

   * DECIDE HOW EQUIPMENT AND MATERIAL WILL REACH THE LOCATION TO CONSTRUCT THE APRON. DO NOT "PAINT YOURSELF INTO A CORNER" AND PLACE FILL, STRUCTURES, ETC. THAT COULD BLOCK ACCESS.

   * THE LOCATION OF THE APRON MUST BE SOLID GROUND. IT MAY BE NECESSARY TO EXCAVATE THE LOCATION TO REMOVE MUD AND THEN BACKFILL WITH GOOD MATERIAL. THIS IS NECESSARY SO THE STONE DOES NOT DISAPPEAR INTO THE MUD, WHICH WOULD REQUIRE MUCH MORE STONE TO COMPLETE THE APRON AND MAKE INSTALLATION DIFFICULT.

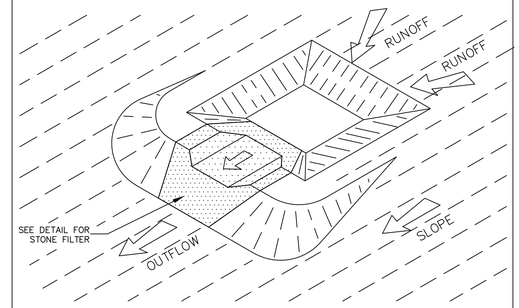
3. CLEAR THE LOCATION OF THE APRON. LEAVE AS MUCH OF THE EXISTING VEGETATION AS POSSIBLE AROUND THE LOCATION TO HOLD THE SOIL IN PLACE AND REDUCE THE AREA THAT WILL HAVE TO BE STABILIZED AFTERWARD.

4. EXCAVATE THE BOTTOM TO THE REQUIRED DEPTH TO ACCEPT THE STONE AND THE FILTER BLANKET. WHEN FINISHED, THE BOTTOM OF THE APRON MUST BE LEVEL WITH THE BOTTOM OF THE CHANNEL; THERE CANNOT BE AN OVERALL AT THE END OF THE APRON.

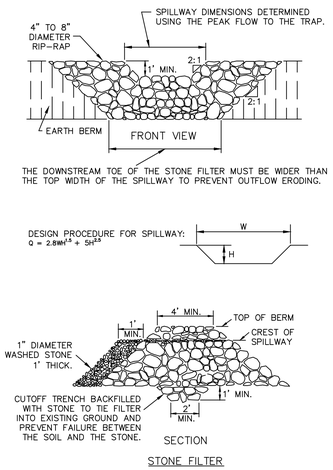
5. PLACE THE FILTER BLANKET, AS SPECIFIED IN THE PLAN, OVER THE LOCATION AND UNDER THE LIP OF THE FLARED END SECTION.

6. PLACE THE SPECIFIED STONE TO THE REQUIRED DIMENSIONS AND SHAPE IT TO THE CONFIGURATION SHOWN IN THE PLAN.

7. STABILIZE THE AREA AROUND THE APRON THAT WAS DISTURBED DURING CONSTRUCTION. USE ADDITIONAL STONE OR VEGETATION, WHICHEVER IS APPROPRIATE FOR THE SITUATION.



ISOMETRIC VIEW OF TYPE-B SEDIMENT TRAP



STONE FILTER

TYPE-B SEDIMENT TRAP

NTS

INSTRUCTIONS FOR
TYPE-B SEDIMENT TRAP

INSTALLATION

1. REFER TO THE PLANS FOR LOCATION, DIMENSIONS, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHODS OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OF PROPERLY INSTALLED SEDIMENT TRAPS AS AN AID TO INSTALLATION.

   IF THE SEDIMENT TRAP IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.

2. DETERMINE THE LOCATION ON THE GROUND, TAKING INTO CONSIDERATION:

   * ALLOW SUFFICIENT SPACE FOR THE PIT AND BERM TO BE BUILT TO THE SPECIFIED DIMENSIONS.

   * ALLOW ACCESS TO THE TRAP WHEN IT IS FINISHED TO MAINTAIN AND REMOVE IT, TAKING INTO ACCOUNT FINISHED GRADES, FILL SLOPES, BUILDINGS, UTILITIES, ETC.

   * ALLOW AT LEAST:

   15 FEET BETWEEN THE SEDIMENT TRAP AND SINGLE-STORY BUILDINGS.

   25 FEET FOR FORK LIFTS BETWEEN THE SEDIMENT TRAP AND MULTIPLE-STORY BUILDINGS.

   15 FEET BETWEEN THE SEDIMENT TRAP AND THE TOE OF FILL SLOPES.

   * MAKE SURE RUNOFF FROM THE DISTURBED AREAS ABOVE THE TRAP WILL FLOW INTO AND THROUGH THE SEDIMENT TRAP AND NOT BY-PASS IT. PLACE THE TRAP WHERE DIVERSIONS, SILT FENCE, ETC. CAN DIRECT RUNOFF TO THE TRAP LOCATION.

3. CLEAR THE LOCATION OF THE TRAP, REMOVING TOP SOIL, STUMPS, ROOTS, LARGE ROCKS, AND OTHER OBJECTIONABLE MATERIAL.

4. EXCAVATE THE PIT AS NECESSARY TO CREATE THE REQUIRED VOLUME. KEEP IN MIND:

   * POSITIVE DRAINAGE OUT OF THE PIT MUST BE MAINTAINED TO KEEP STANDING WATER TO A MINIMUM AND ALLOW ACCUMULATED SEDIMENT TO DRY OUT.

   * MAXIMUM 2.5:1 SLOPES ON CUT AND FILL SLOPES, EXCEPT THE OUTLET SIDE, WHICH MUST BE 3:1 OR FLATTER.

5. WHERE THE TRAP IS BEING BUILT ON A SLOPE, FILL AND COMPACT THE EARTH BERM USING GOOD SOIL THAT IS FREE OF VEGETATION AND ROOTS.

   DO NOT USE TOPSOIL, MUD, STUMPS, ETC. FROM THE EXCAVATION IN THE BERM.

6. WHERE THE TRAP IS BEING BUILT ACROSS A SLOPE, CUT OUT A NOTCH IN THE EARTH BERM LARGE ENOUGH TO ACCOMMODATE THE REQUIRED LENGTH OF THE STONE FILTER OUTLET.

7. EXCAVATE A CUTOFF TRENCH IN THE BOTTOM AND SIDES OF THE BERM OR STREAM CHANNEL TO HOLD THE FILTER IN PLACE. REFER TO THE ILLUSTRATION.

8. PLACE RIPRAP IN THE NOTCH OF THE EARTH BERM OR ACROSS THE CHANNEL, SHAPING THE STONE INTO THE OUTLET AS SHOWN IN THE ILLUSTRATION AND TO THE REQUIRED WIDTH. PLACE STONE SO THAT SOIL IN THE EARTH BERM AND BELOW THE OUTLET IS PROTECTED FROM EROSION BY OUTFLOW.

9. PLACE A 1-FOOT LAYER OF 1-INCH DIAMETER WASHED STONE ON THE UPSTREAM FACE OF THE RIPRAP TO CREATE THE FILTER.

10. INSTALL THE BAFFLES AS SPECIFIED IN THE PLAN. REFER TO THE ILLUSTRATIONS AND INSTRUCTIONS FOR BAFFLES. INSTALL THE 4-INCH STAKE IN THE CENTER OF THE PIT SHOWING THE TOP OF THE SEDIMENT STORAGE VOLUME.

11. SEED AND MULCH THE SEDIMENT TRAP AND DISTURBED AREAS AROUND IT DURING SPRING, SUMMER, AND FALL. IN WINTER, COVER THESE AREAS WITH A HEAVY LAYER OF STRAW MULCH.

MAINTENANCE

MATERIALS, EQUIPMENT, AND PERSONNEL MUST BE AVAILABLE FOR MAINTENANCE AT ALL TIMES.

1. INSPECT THE SEDIMENT TRAP:

   * DURING CONSTRUCTION: TO SEE IF THE TRAP HAS BEEN DAMAGED BY EQUIPMENT, GRADING ETC. OR PARTIALLY FILLED BY GRADING. IF DAMAGED, REPAIR IT. IF THE VOLUME IS REDUCED, REMOVE THE FILL.

   * AFTER EACH RAINFALL: TO SEE HOW MUCH SEDIMENT HAS ACCUMULATED, IF THE STONE FILTER HAS BECOME COVERED OR CLOGGED WITH SEDIMENT, IF THE OUTLET IS ERODED, OR IF RUNOFF IS BY-PASSING THE TRAP. IF THE OUTLET IS ERODED OR RUNOFF IS BY-PASSING THE TRAP, MAKE THE NECESSARY REPAIRS AND CHANGES. INSPECT THE BAFFLES AND REPAIR THEM IF DAMAGED.

2. CLEAN OUT THE PIT WHEN SEDIMENT HAS ACCUMULATED TO THE TOP OF THE SEDIMENT STORAGE VOLUME AS INDICATED BY THE TOP OF THE 4-INCH STAKE IN THE MIDDLE OF THE TRAP. REMOVE THE SEDIMENT AND PLACE IT IN A DISPOSAL AREA OR, IF APPROPRIATE, MIX IT WITH DRY SOIL ON THE SITE. DO NOT DISPOSE OF SEDIMENT IN A MANNER THAT WILL CREATE AN EROSION HAZARD.

3. WHEN THE WASHED STONE ON THE FILTER BERM BECOMES COVERED WITH SEDIMENT SO THAT WATER CANNOT FLOW THROUGH THE FILTER, SCRAPE THE CONTAMINATED STONE OFF, DISPOSE OF IT PROPERLY, AND REPLACE IT WITH A 1-FOOT LAYER OF CLEAN WASHED STONE.

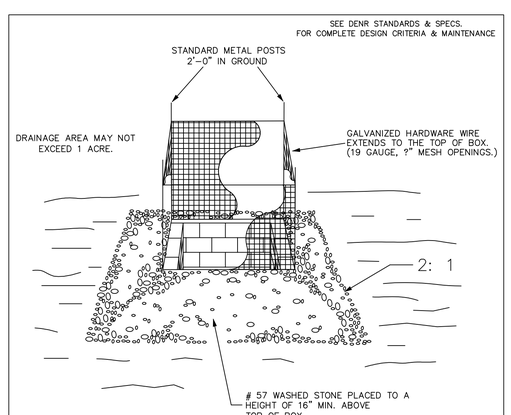
4. MAINTAIN DRAINAGE TO THE SEDIMENT TRAP SO THAT RUNOFF DOES NOT BY-PASS IT. MAINTAIN ALL DIVERSIONS AND SILT FENCE DIRECTING RUNOFF TO THE TRAP ACCORDING TO REQUIREMENTS FOR THOSE PRACTICES.

REMOVAL

1. WHEN THE PROJECT IS COMPLETE AND THE DRAINAGE AREA ABOVE THE TRAP IS STABILIZED, THE SEDIMENT TRAP MUST BE REMOVED.

2. REMOVE THE ACCUMULATED SEDIMENT, EARTH BERMS, AND STONE, THEN GRADE THE AREA. DISPOSE OF THE SEDIMENT AND TRAP COMPONENTS PROPERLY.

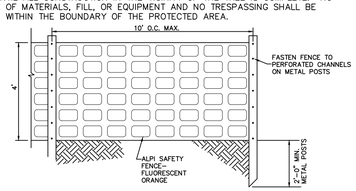
3. STABILIZE THE DISTURBED AREA WITH VEGETATION OR STONE, AS SPECIFIED IN THE PLAN.



STANDARD CATCH BASIN/YARD INLET PROTECTION

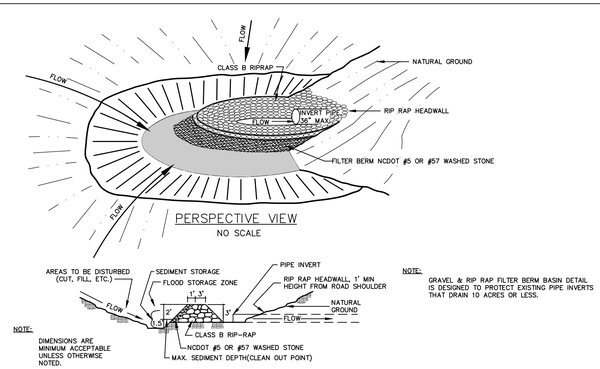
PROTECTION OF EXISTING VEGETATION:

AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THE CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREE IS COMPLETE. NO STORAGE OF MATERIALS, FILL, OR EQUIPMENT AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE PROTECTED AREA.



TREE PROTECTION FENCE DETAIL

NTS



SECTION THRU BASIN, FILTER AND CULVERT PIPE

NO SCALE

(EXISTING PIPE INVERTS)

ROCK PIPE INLET PROTECTION

STD. No. 6.55.2

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

EROSION CONTROL

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 1, 2015
HORIZONTAL SCALE:	N/A
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	SCS
PROJECT NO:	14-044
DRAWING NAME:	14-044 DETAILS

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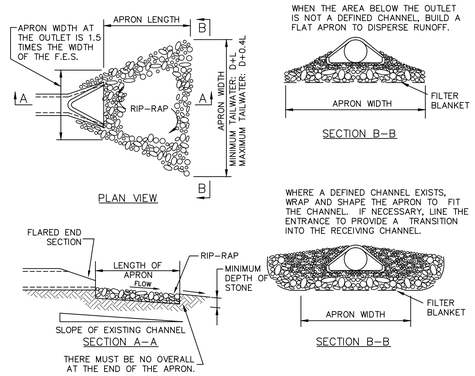
SHEET NO.

D1.1

PRELIMINARY



RIP RAP APRON

NTS

INSTRUCTIONS FOR
RIP RAP APRON /
STONE APRON OUTLET PROTECTION

INSTALLATION

1. REFER TO THE PLANS FOR LOCATION, EXTENT, AND SPECIFICATIONS. IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, OR METHOD OF INSTALLATION, CONTACT THE ENGINEER, ARCHITECT, OR RESPONSIBLE PERSONNEL ON THE SITE FOR ASSISTANCE. EROSION CONTROL PERSONNEL HAVE COPIES OF INSTRUCTIONS AND MAY HAVE PHOTOGRAPHS OR PROPERLY INSTALLED APRONS AS A AID TO INSTALLATION.

   IF THE STONE APRON IS NOT INSTALLED CORRECTLY THE FIRST TIME, IT WILL HAVE TO BE REBUILT.

2. DETERMINE THE LOCATION ON THE GROUND TAKING INTO CONSIDERATION:

   * DECIDE HOW EQUIPMENT AND MATERIAL WILL REACH THE LOCATION TO CONSTRUCT THE APRON. DO NOT "PAINT YOURSELF INTO A CORNER" AND PLACE FILL, STRUCTURES, ETC. THAT COULD BLOCK ACCESS.

   * THE LOCATION OF THE APRON MUST BE SOLID GROUND. IT MAY BE NECESSARY TO EXCAVATE THE LOCATION TO REMOVE MUD AND THEN BACKFILL WITH GOOD MATERIAL. THIS IS NECESSARY SO THE STONE DOES NOT DISAPPEAR INTO THE MUD, WHICH WOULD REQUIRE MUCH MORE STONE TO COMPLETE THE APRON AND MAKE INSTALLATION DIFFICULT.

3. CLEAR THE LOCATION OF THE APRON. LEAVE AS MUCH OF THE EXISTING VEGETATION AS POSSIBLE AROUND THE LOCATION TO HOLD THE SOIL IN PLACE AND REDUCE THE AREA THAT WILL HAVE TO BE STABILIZED AFTERWARD.

4. EXCAVATE THE BOTTOM TO THE REQUIRED DEPTH TO ACCEPT THE STONE AND THE FILTER BLANKET. WHEN FINISHED, THE BOTTOM OF THE APRON MUST BE LEVEL WITH THE BOTTOM OF THE CHANNEL; THERE CANNOT BE AN OVERALL AT THE END OF THE APRON.

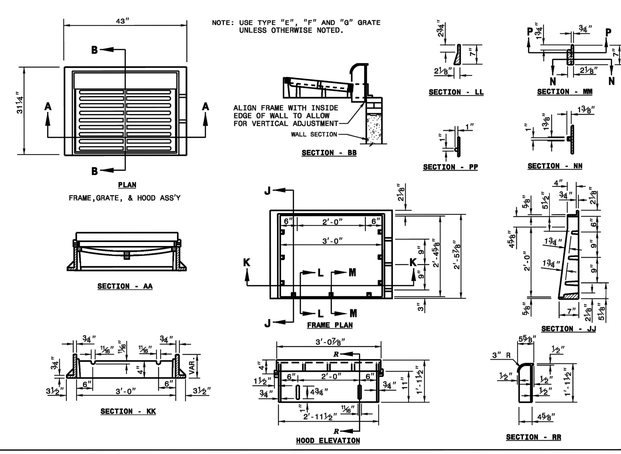
5. PLACE THE FILTER BLANKET, AS SPECIFIED IN THE PLAN, OVER THE LOCATION AND UNDER THE LIP OF THE FLARED END SECTION.

6. PLACE THE SPECIFIED STONE TO THE REQUIRED DIMENSIONS AND SHAPE IT TO THE CONFIGURATION SHOWN IN THE PLAN.

7. STABILIZE THE AREA AROUND THE APRON THAT WAS DISTURBED DURING CONSTRUCTION. USE ADDITIONAL STONE OR VEGETATION, WHICHEVER IS APPROPRIATE FOR THE SITUATION.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

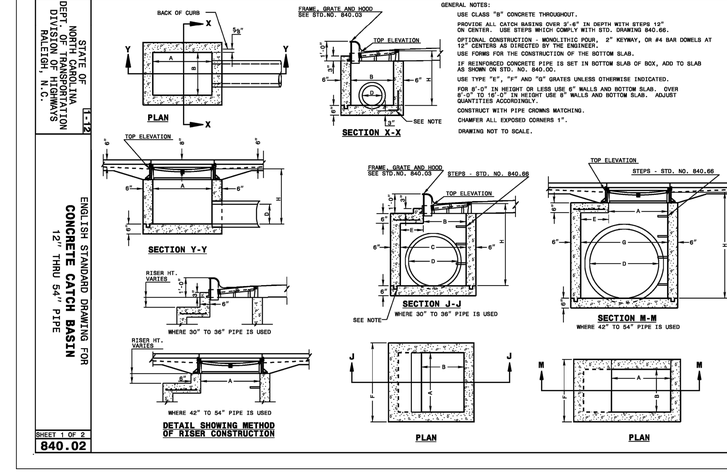
ENGLISH STANDARD DRAWING FOR **FRAME, GRATES, AND HOOD** FOR USE ON STANDARD CATCH BASIN



SHEET 1 OF 2 — 840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

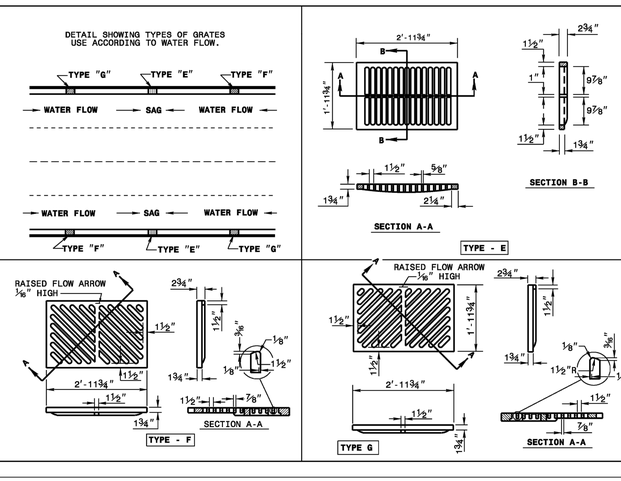
ENGLISH STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE



SHEET 1 OF 2 — 840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

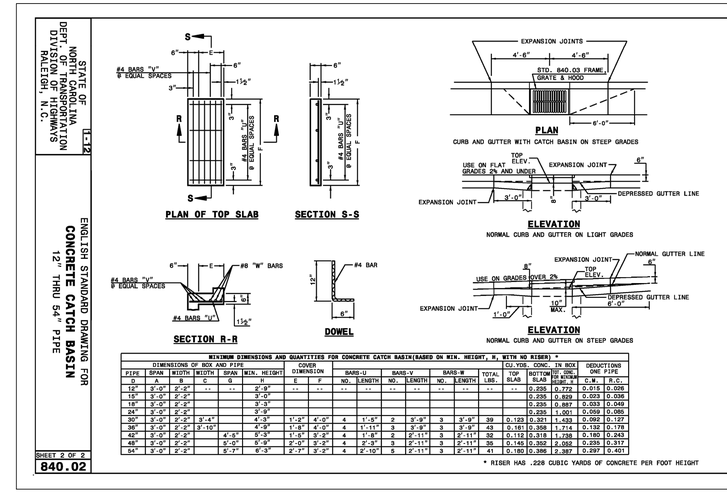
ENGLISH STANDARD DRAWING FOR **FRAME, GRATES, AND HOOD** FOR USE ON STANDARD CATCH BASIN



SHEET 2 OF 2 — 840.03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

ENGLISH STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE



MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE							COVER DIMENSION		BARS-U		BARS-V		BARS-W		TOTAL LBS.	CU.YDS. CONC. IN BOX (TOP SLAB, BOTTOM SLAB, & WALLS)		DEDUCTIONS ONE PIPE	
PIPE D	SPAN A	WIDTH B	WIDTH C	SPAN G	MIN. HEIGHT H		E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH		TOP SLAB	BOTTOM SLAB	C.Y.	R.C.
12"	3'-0"	2'-2"	--	--	2'-9"		--	--	--	--	--	--	--	--	--		0.235	0.772	0.015	0.026
15"	3'-0"	2'-2"			3'-0"												0.235	0.829	0.033	0.036
18"	3'-0"	2'-2"			3'-3"												0.235	0.887	0.033	0.049
24"	3'-0"	2'-2"			3'-9"												0.235	1.001	0.059	0.086
30"	3'-0"	2'-2"	3'-4"		4'-3"		1'-2"	4'-0"	4	1'-5"	2	3'-9"	3	3'-9"	39	0.123	0.321	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"		4'-9"		1'-8"	4'-0"	4	1'-11"	3	3'-9"	3	3'-9"	43	0.161	0.358	1.714	0.132	0.178
42"	3'-0"	2'-2"		4'-5"	5'-3"		1'-9"	3'-3"	4	1'-8"	2	2'-11"	3	2'-11"	32	0.112	0.318	1.788	0.160	0.243
48"	3'-0"	2'-2"		5'-0"	5'-9"		2'-0"	3'-3"	4	2'-3"	3	2'-11"	3	2'-11"	35	0.145	0.352	2.052	0.235	0.317
54"	3'-0"	2'-2"		5'-7"	6'-3"		2'-7"	3'-3"	4	2'-10"	3	2'-11"	3	2'-11"	41	0.180	0.386	2.387	0.297	0.401

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

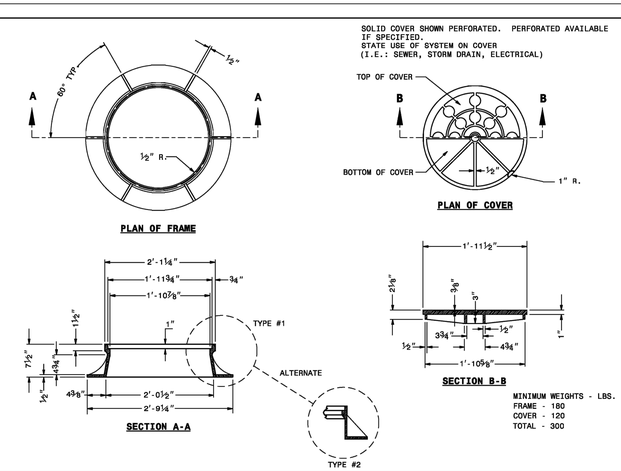
SHEET 2 OF 2 — 840.02

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

ENGLISH STANDARD DRAWING FOR **CONCRETE CATCH BASIN** 12" THRU 54" PIPE

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

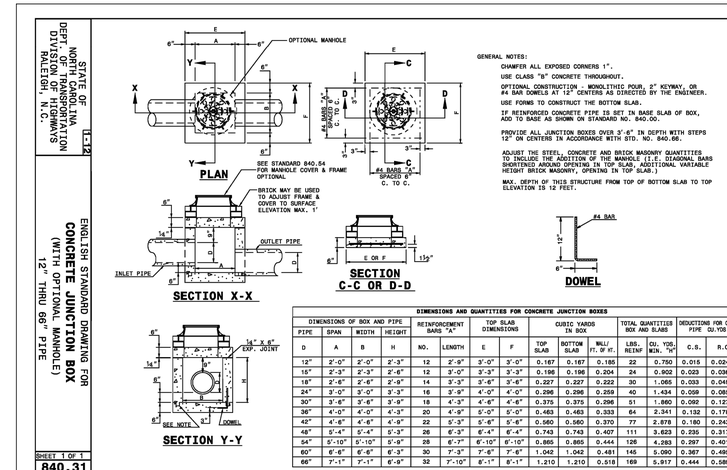
ENGLISH STANDARD DRAWING FOR **MANHOLE FRAME AND COVER**



SHEET 1 OF 1 — 840.54

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C. — 1-12

ENGLISH STANDARD DRAWING FOR **CONCRETE JUNCTION BOX** (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE



DIMENSIONS AND QUANTITIES FOR CONCRETE JUNCTION BOXES

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS "A"		TOP SLAB DIMENSIONS		CUBIC YARDS IN BOX		TOTAL QUANTITIES BOX AND SLABS		DEDUCTIONS FOR ONE PIPE CU.YDS.	
PIPE D	SPAN A	WIDTH B	HEIGHT H	NO.	LENGTH	E	F	TOP SLAB	BOTTOM SLAB	WALL FT. OF H.	LBS. REINF	CU. YDS. CONC. "W"	C.S.	R.C.
12"	2'-0"	2'-0"	2'-3"	12	2'-9"	3'-0"	3'-0"	0.167	0.167	0.185	22	0.750	0.015	0.024
15"	2'-3"	2'-3"	2'-6"	12	3'-0"	3'-3"	3'-3"	0.196	0.196	0.204	24	0.902	0.023	0.036
18"	2'-6"	2'-6"	2'-9"	14	3'-3"	3'-6"	3'-6"	0.227	0.227	0.222	30	1.065	0.033	0.049
24"	3'-0"	3'-0"	3'-3"	18	3'-8"	4'-0"	4'-0"	0.296	0.296	0.259	40	1.434	0.059	0.085
30"	3'-6"	3'-6"	3'-9"	18	4'-3"	4'-6"	4'-6"	0.375	0.375	0.296	51	1.860	0.092	0.127
36"	4'-0"	4'-0"	4'-3"	20	4'-9"	5'-0"	5'-0"	0.463	0.463	0.333	64	2.341	0.132	0.178
42"	4'-6"	4'-6"	4'-9"	22	5'-3"	5'-6"	5'-6"	0.560	0.560	0.370	77	2.878	0.180	0.243
48"	5'-4"	5'-4"	5'-3"	26	6'-3"	6'-4"	6'-4"	0.743	0.743	0.407	111	3.623	0.235	0.317
54"	5'-10"	5'-10"	5'-9"	28	6'-7"	6'-10"	6'-10"	0.865	0.865	0.444	126	4.283	0.297	0.401
60"	6'-6"	6'-6"	6'-3"	30	7'-3"	7'-6"	7'-6"	1.042	1.042	0.481	145	5.090	0.367	0.495
66"	7'-1"	7'-1"	6'-9"	32	7'-10"	8'-1"	8'-1"	1.210	1.210	0.518	169	5.917	0.444	0.599

SHEET 1 OF 1 — 840.31

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

STORMWATER DETAILS

DATE:	JULY 1, 2015
HORIZONTAL SCALE:	N/A
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	SCS
PROJECT NO:	14-044
DRAWING NAME:	14-044 DETAILS

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SHEET NO.

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PRELIMINARY

DUKE ENERGY.

Outdoor Lighting

Sanibel LED

The beauty of the stylish Sanibel LED is its remarkable versatility. Its sleek simplicity, with a gently curved bracket that helps cast light downward, is at home virtually anywhere – from more formal traditional neighborhoods to beachfront communities and other casual locales.

LED *(Light Emitting Diode)*	70 watts
Mounting heights	15', 20'
Colors	Black Green
Poles	Style A, C

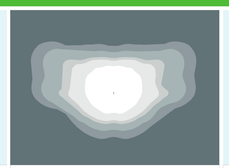
For additional information, visit
duke-energy.com/OutdoorLighting
or call us toll free:
800.544.6900 (OH and KY)
800.521.2232 (IN)

DUKE ENERGY.

Outdoor Lighting

Sanibel LED

Light source: LED *(white)*
Wattage: 70
Lumens: 5,500
Light pattern: IESNA Type III *(oval)*
IESNA cutoff classification: Full-cutoff
Color temperature: 4,000K



light distribution pattern

Pole available:

Name	*Mounting height*	*Color*
Aluminum	15', 20'	Black Green

Features	Benefits
No installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

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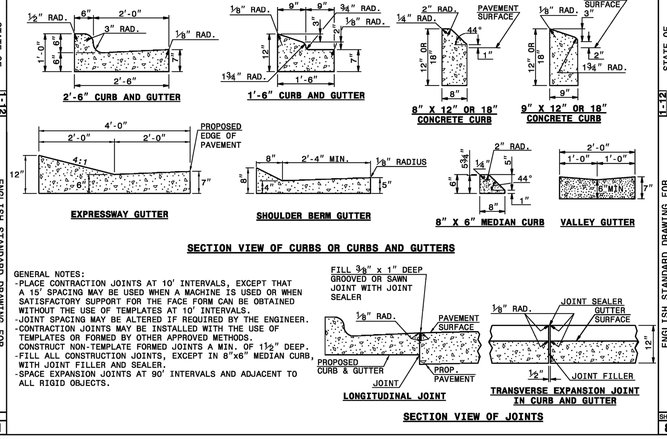
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

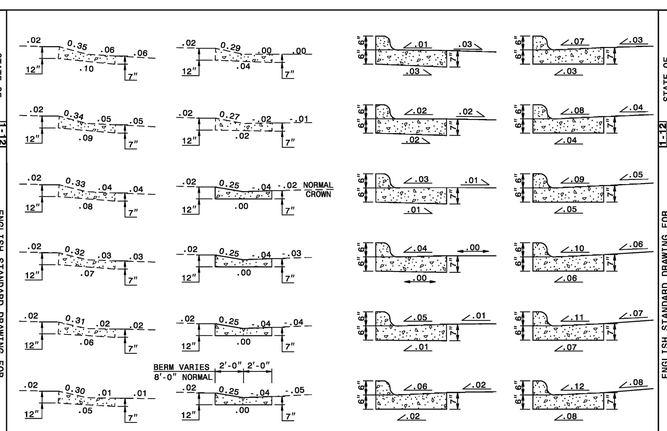


ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 1 OF 3 846.01

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

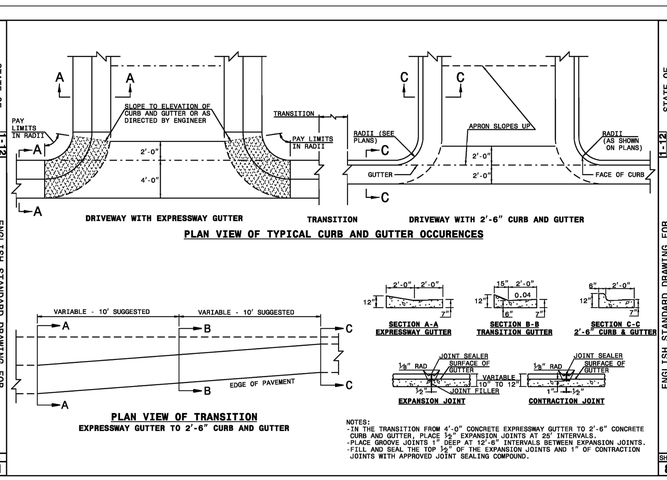


ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 2 OF 3 846.01

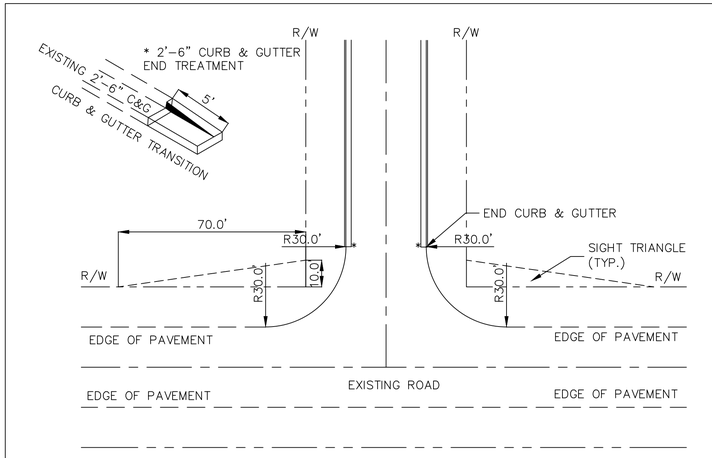
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12



ENGLISH STANDARD DRAWING FOR CONCRETE CURB, GUTTER AND CURB & GUTTER

SHEET 3 OF 3 846.01

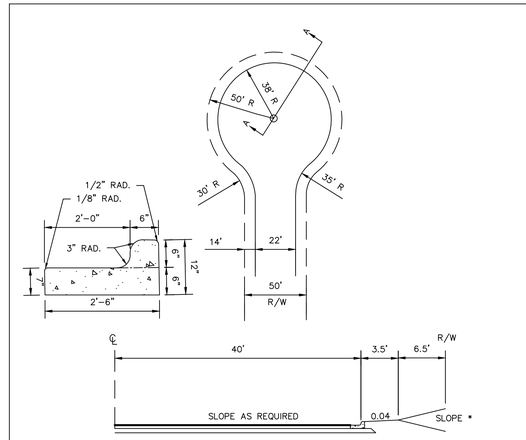


NOTE: DRAINAGE EASEMENTS MAY BE REQUIRED TO ACCOMODATE DRAINAGE BEYOND THE RIGHT-OF-WAY.

FIGURE 3

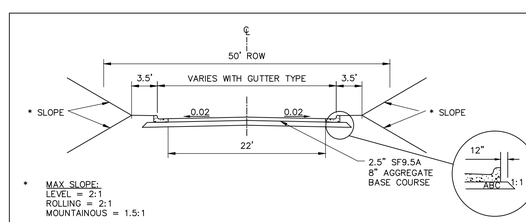
RECOMMENDED ROAD CONNECTION TO STATE MAINTAINED SYSTEM

NEW RESIDENTIAL LOCAL ROAD OR RESIDENTIAL COLLECTOR ROAD WITH CURB & GUTTER AND EXISTING STATE MAINTAINED ROAD WITH SHOULDER SECTION



* TERRAIN	MAX SLOPE
LEVEL	2:1
ROLLING	2:1
HILLY	1.5:1

FIGURE 7 (MOD.)
SYMMETRICAL CUL-DE-SAC
CURB & GUTTER



* MAX SLOPE:
LEVEL = 2:1
ROLLING = 2:1
MOUNTAINOUS = 1.5:1

RESIDENTIAL LOCAL ROAD
TYPICAL CURB & GUTTER SECTION (MOD.)
SCALE: 1"=10'

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PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

SITE, PAVING & LIGHTING DETAILS

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

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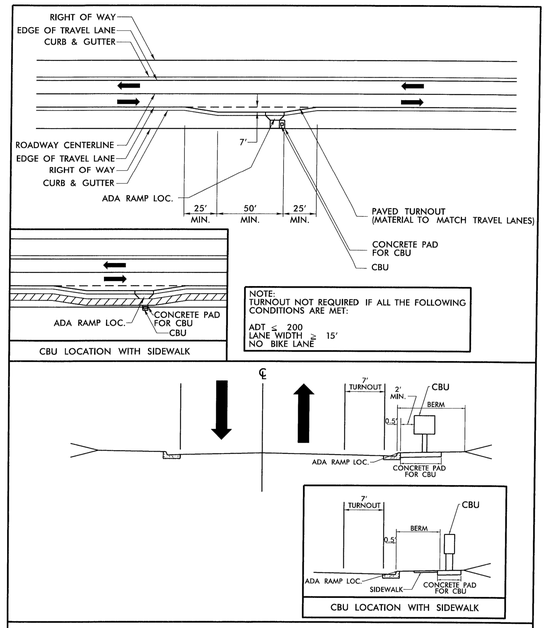

FIGURE 2
CBU PLACEMENT FOR C & G SECTION RESIDENTIAL LOCAL AND COLLECTOR SUBDIVISION STREETS

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NORTH AMERICA'S COMMERCIAL & RESIDENTIAL MAILBOX LEADER!
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Search

Cluster Box Units Type 1 (CBU) Front Loading, 8 Tenant Doors - H1570-8AF

Item Id: 6693316
Colors : Sandstone - Stock Color
Select Use : For USPS Use/Access (Post Office Installs Postal Master Lock)
Qty : 1
Add Item

[enlarge]

[enlarge]

FREE SHIPPING THIS MONTH - PROMOTION EXPIRES MONTH END
Type 1 CBU Front Loading 8 Tenant Doors
plus Two Parcel Lockers, One Outgoing Mail Compartment and Pedestal;
Door size: 12-7/8" W x 3-1/4" H x 17-7/8" D;
Parcel Lockers:
(1) 12-7/8" W x 13-3/4" H x 17-7/8" D;
(1) 12-7/8" W x 10-1/4" H x 17-7/8" D
Unit Size: 30-1/2" W x 62" H (installed height) x 17-7/8" D
Pedestal Height: 28-1/2" H
(Price includes pedestal)
WHOLESALE PRICE: Qty 1-2 $1067.50; Qty 3+ Call

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Search

Cluster Box Units Type 2 (CBU) Front Loading, 12 Tenant Doors - H1570-12AF

Item Id: 6693324
Colors : Sandstone - Stock Color
Select Use : For USPS Use/Access (Post Office Installs Postal Master Lock)
Qty : 1
Add Item

[enlarge]

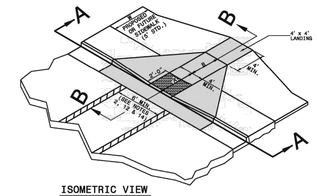
[enlarge]

FREE SHIPPING THIS MONTH - PROMOTION EXPIRES MONTH END
Type 2 CBU Front Loading 12 Tenant Doors
plus One Parcel Locker, One Outgoing Mail Compartment and Pedestal;
Door size: 12-7/8" W x 3-1/4" H x 17-7/8" D;
Parcel Locker: 12-7/8" W x 10-1/4" H x 17-7/8" D
Unit Size: 30-1/2" W x 62" H (installed height) x 17-7/8" D
Pedestal Height: 28-1/2" H
(Price includes pedestal)
WHOLESALE PRICE: Qty 1-2 $1088.50; Qty 3+ Call

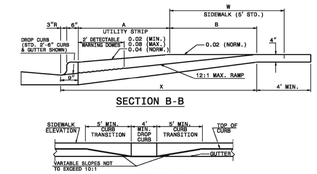
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER



ISOMETRIC VIEW

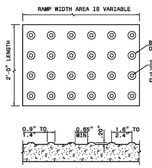


SECTION B-B

SECTION A-A

PAY LIMITS FOR CURB RAMP

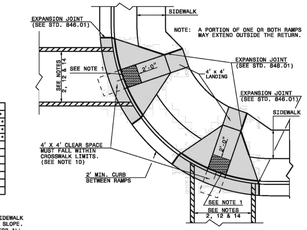
NOTES:
1. DETECTABLE WARNING DOMES WILL COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. DETECTABLE WARNING DOMES WILL CONTRAST VISIBILITY WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



DETECTABLE WARNING DOMES

W	A	W+A+9"	X	B
5'	0.0'	5.8'	5.8'	5.0'*
6'	0.0'	6.8'	6.5'	6.0'**
7'	0.0'	7.8'	7.3'	6.9'**
8'	0.0'	8.8'	7.9'	8.9'**
9'	0.0'	7.8'	7.8'	8.0'
5'	2.5'	8.3'	8.1'	4.8'
6'	3.0'	8.8'	8.3'	4.4'
8'	3.5'	9.3'	8.4'	4.1'
9'	4.0'	9.8'	8.6'	3.8'
8'	4.5'	10.3'	8.7'	3.4'
9'	5.0'	10.8'	8.9'	3.1'

B = X-(A+9")
B = DISTANCE FROM FRONT EDGE OF SIDEWALK TO BACK POINT OF 12:1 (8.33%) SLOPE.
* BACK OF SIDEWALK DROP REQUIRED FOR ALL SIDEWALK SLOPES.
** BACK OF SIDEWALK DROP REQUIRED FOR SIDEWALK SLOPES 0.04.



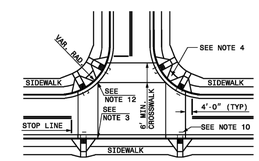
PLAN VIEW
DUAL RAMPS
ANY RADII
(4' MIN. FLOOR WIDTH)

SHEET 1 OF 3
848.05

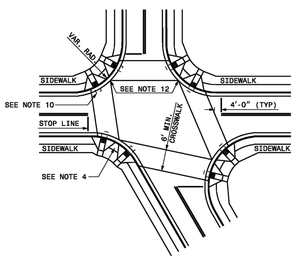
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CURB RAMP
PROPOSED CURB AND GUTTER



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES

ROADWAY PLAN SYMBOL
CR
FOR PROPOSED CURB RAMP

PROPOSED CURB RAMP W/ LANDING
PROPOSED OR FUTURE SIDEWALK

ALLOWABLE LOCATIONS
DUAL RAMP RADII.....ANY

SHEET 2 OF 3
848.05

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CURB RAMPS
NOTES

NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGHT THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'X5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A ½" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

SHEET 3 OF 3
848.05

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ECE Incorporated

PRINCIPAL ENGINEER
PHIL KOCH - NCPE #22634

HENDERSON WOODS
ORANGE COUNTY, NORTH CAROLINA

USPS CLUSTER BOX UNIT AREA DETAILS

REV.	DATE	DESCRIPTION	BY
1	09/09/2015	ORANGE CO. COMMENTS	TMM
2	09/16/2015	SOLID WASTE COMMENTS	SCS
3	11/18/2015	WETLANDS DELINEATION	TMM

DATE:	JULY 1, 2015
HORIZONTAL SCALE:	N/A
VERTICAL SCALE:	N/A
PROJECT MANAGER:	CPK
DRAWN BY:	SCS
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DRAWING NAME:	14-044 DETAILS

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SHEET NO.
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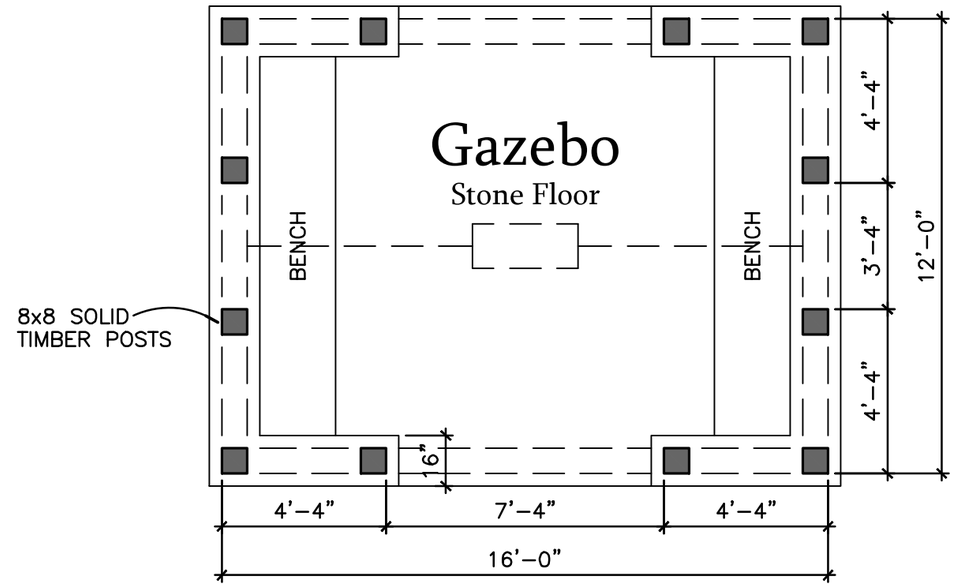
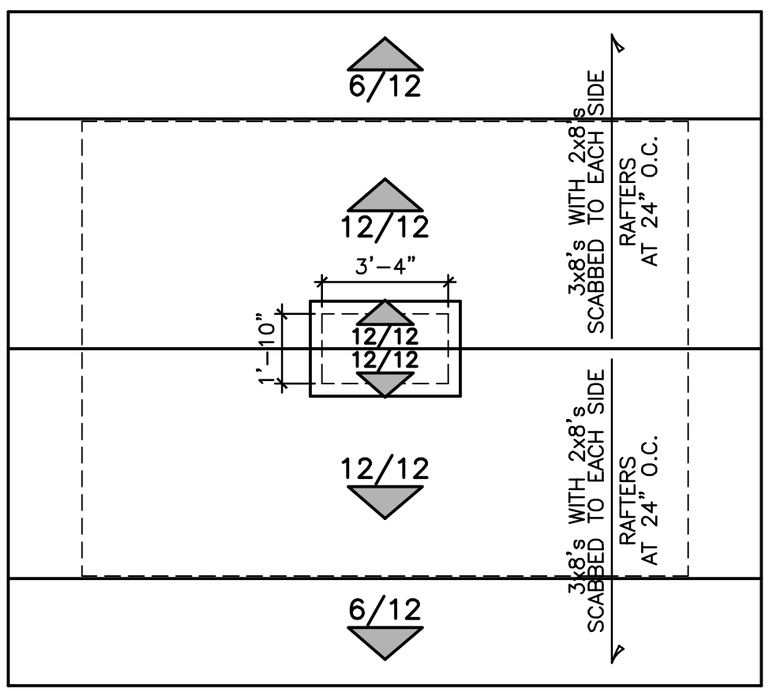
PRELIMINARY



Floor Plan

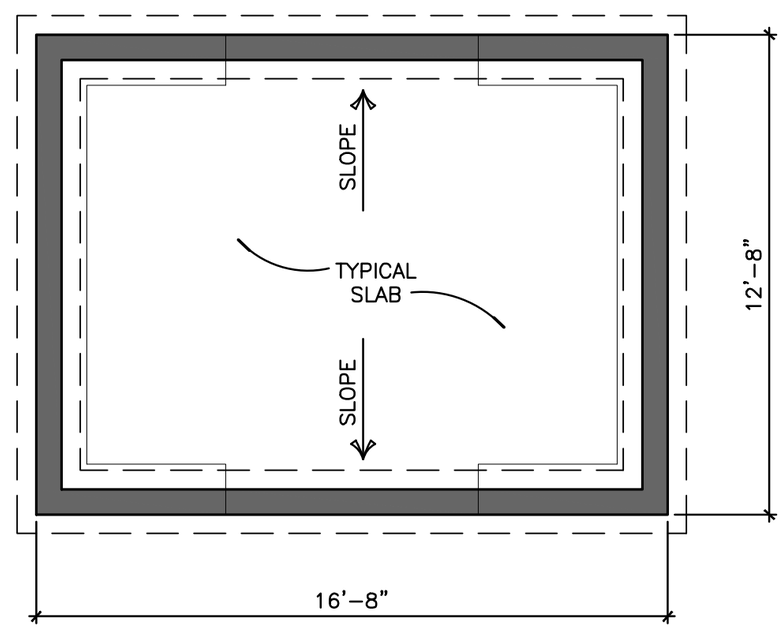
1/4" = 1'-0"

192 square feet



Roof Plan

1/4" = 1'-0"



Foundation Plan

1/4" = 1'-0"

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Henderson Woods - Gazebo

Chapel Hill, North Carolina

KDK Design Group, LLC
506 Wayne Drive
Raleigh, NC 27608
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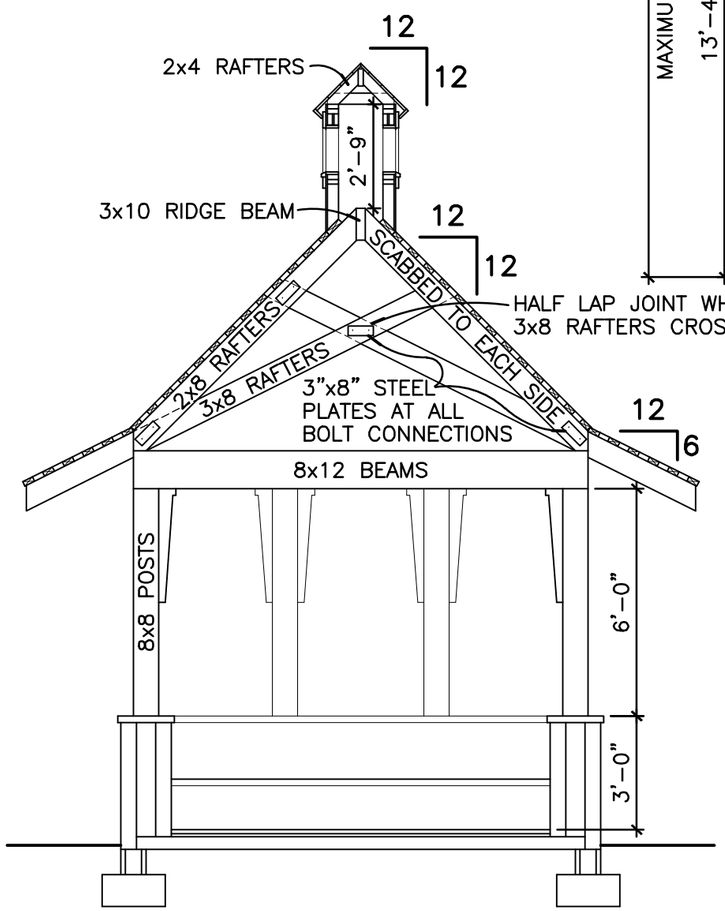
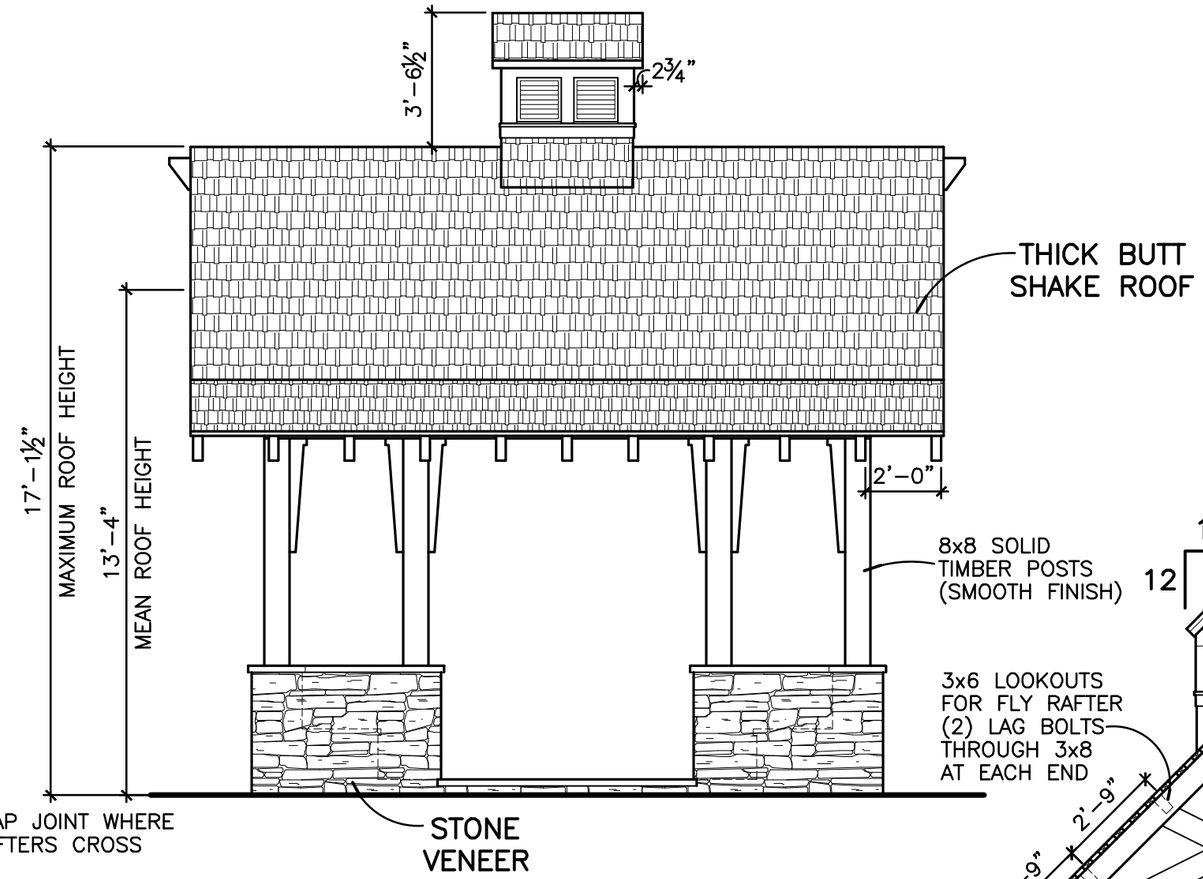


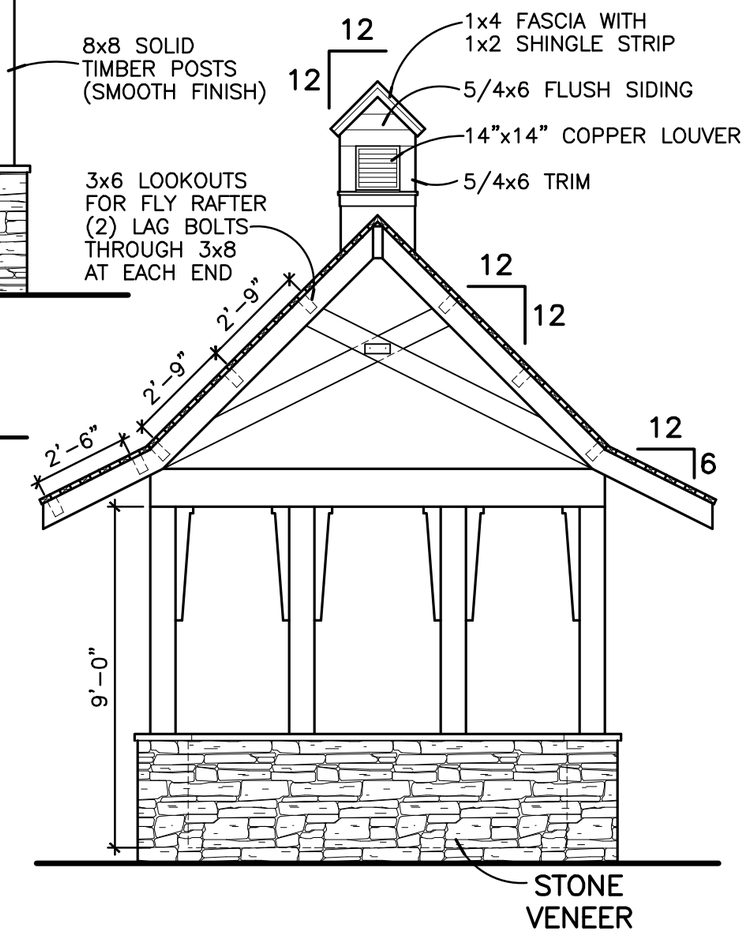
1 Building Section

1/4" = 1'-0"



Front and Rear Elevations

1/4" = 1'-0"



End Elevations

1/4" = 1'-0"

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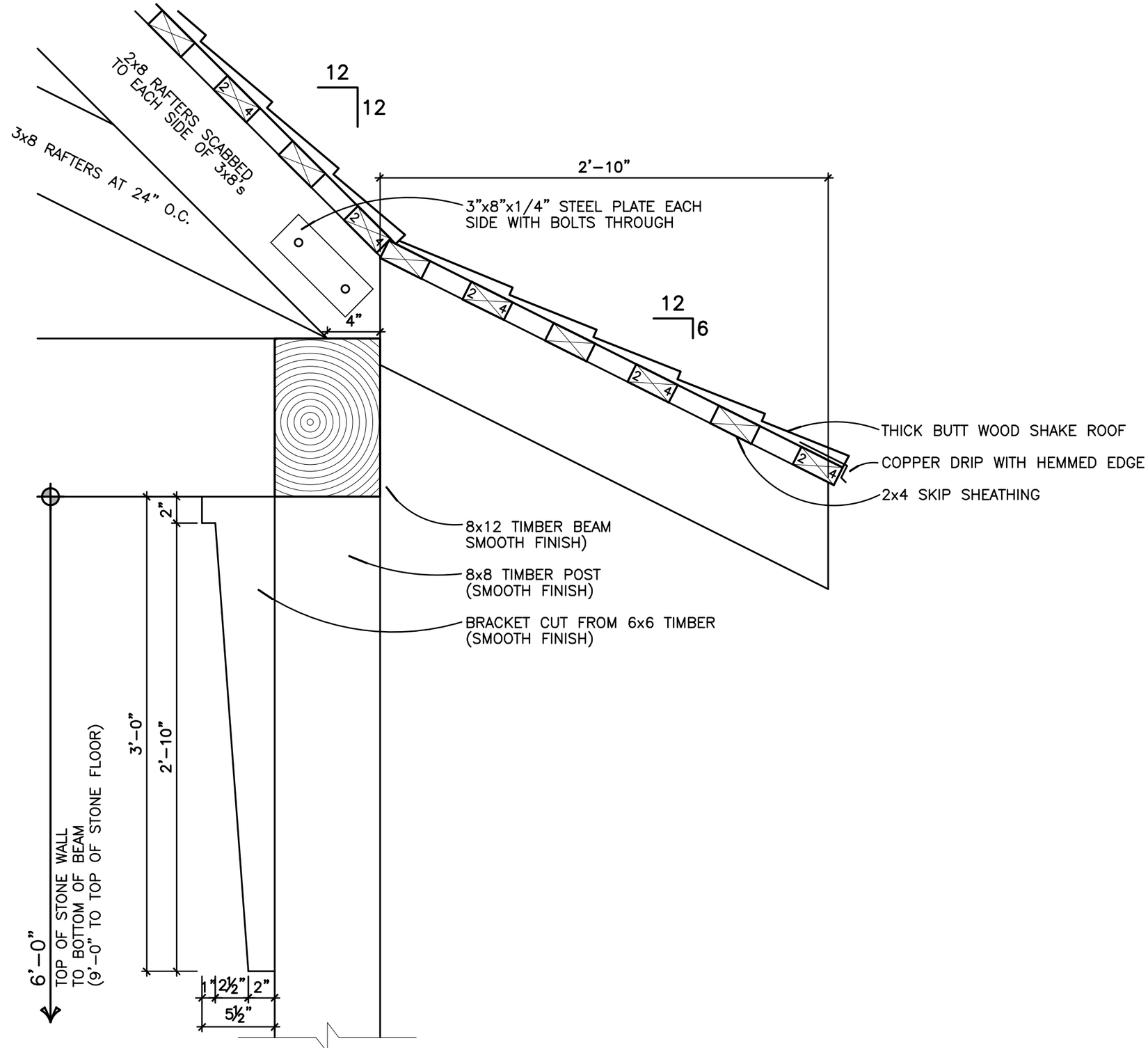

1 Cornice Detail

1-1/2" = 1'-0"

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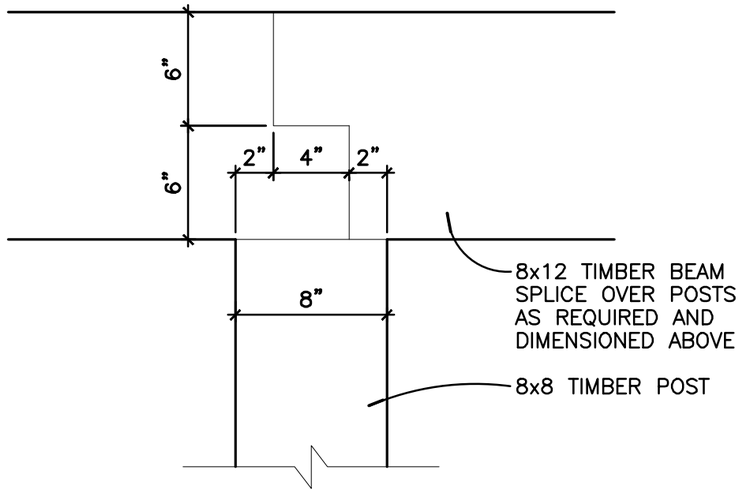
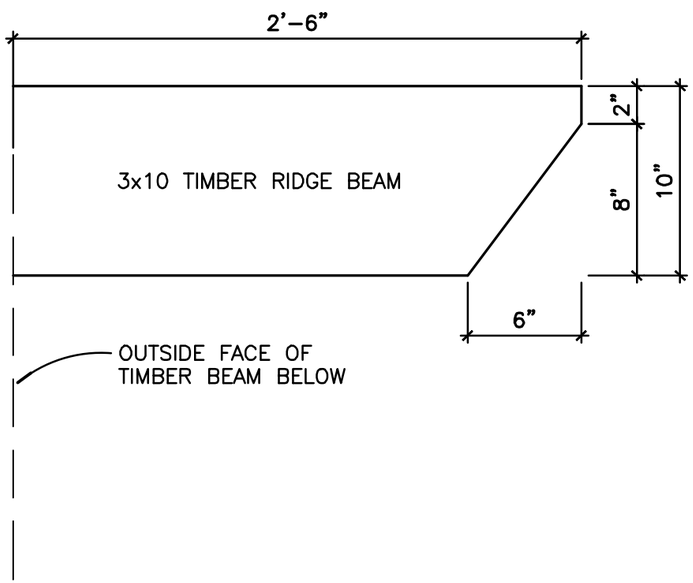


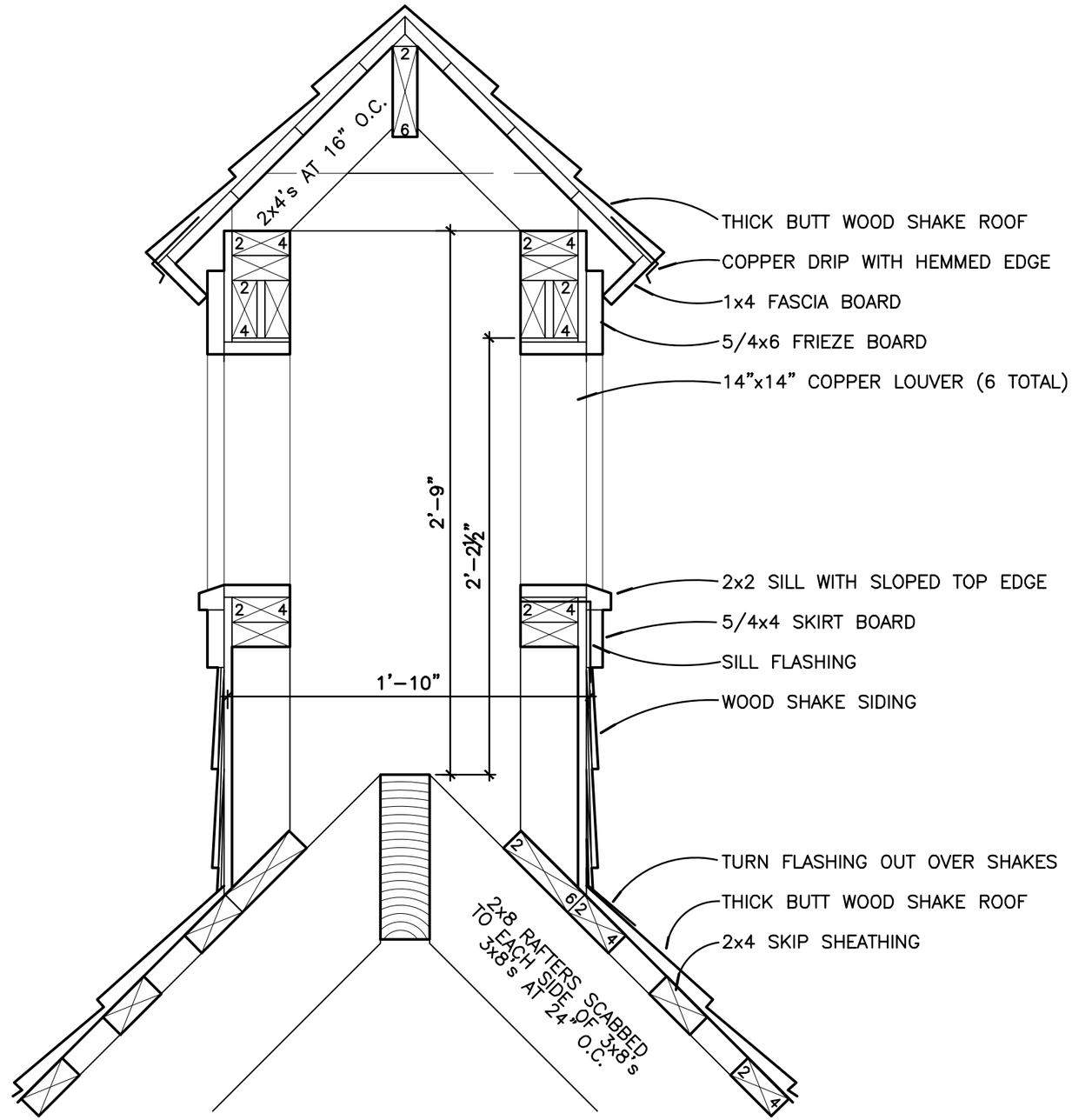
1 Timber Beam Half-Lap Detail

1-1/2" = 1'-0"



2 Timber Ridge Beam End

1-1/2" = 1'-0"



3 Cupola Detail

1-1/2" = 1'-0"

typical

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