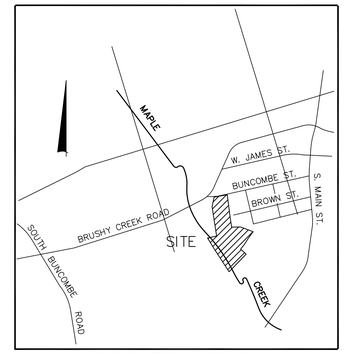
STORMWATER REVIEW COMPLETED
FOR CONSTRUCTION AS IT RELATES TO
STORMWATER MANAGEMENT AND SEDIMENT
EROSION CONTROL
DATE: 5-11-2016 (major modification)
SC DHEC PERMIT COVERAGE
SCR 108225
CITY OF GREER GRADING PERMIT
#
PLAN REVIEWER L. Hartley

Site Development Plans
for

CITY OF GREER
Recycle Facility
Phase II

Buncombe St.
Greer, South Carolina



LOCATION MAP
N.T.S.

I _____
CERTIFY THAT THE LAND DISTURBING ACTIVITY WILL BE ACCOMPLISHED TO THE PLAN APPROVED BY THE CITY OF GREER AND SC DHEC.

I _____
ACKNOWLEDGE AS THE PROPERTY OWNER AND PERSON ULTIMATELY RESPONSIBLE FOR THE LAND DISTRUBING ACTIVITY AT THIS SITE, THE RIGHT OF THE CITY OF GREER OR SC DHEC TO CONDUCT ON-SITE INSPECTIONS.

INDEX

811 Know what's below. Call before you dig.

SITE ANALYSIS

TAX MAP #	G004000102500
CURRENT USE	INDUSTRIAL
PROPOSED USE	INDUSTRIAL
OWNER	CITY OF GREER 301 E. POINSETT ST. GREER, SC 29651
ENGINEER	BLUE LINE CONSULTING, LLC ERIK HORTON, P.E. 4503 N. HWY. 14 GREER, SC 29651
PARCEL AREA	9.8 ACRES
DISTURBED AREA	1.3 ACRES
TOTAL IMPERVIOUS AREA	1.9 ACRES
RECEIVING STREAM	MAPLE CREEK
ULT. RECEIVING STREAM	S. TYGER RIVER

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION BLUE LINE CONSULTING NO. CO3690 — CORPORATE SEAL

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER ERIK HORTON NO. 26135 5-2-16 — ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

REVISION

NO.	DATE
1	
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PROJECT: City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE: Title Sheet

SCALE: NTS | PROJECT NO. 11012
DRAWN: MEH | SHEET NO.
DATE: 2-11-2016

T-1

CONSTRUCTION SCHEDULE:
A. INSTALL EROSION AND SEDIMENT PERIMETER CONTROLS
B. CONTACT CITY OF GREER STORMWATER INSPECTOR AT 416-0100 FOR INSPECTION
C. PERFORM SITE GRADING AND STORM DRAINAGE SYSTEM CONSTRUCTION
D. INSTALL PAVING PER PHASING PLAN
D. STABILIZE ALL DISTURBED AREAS PER THE GRASSING SCHEDULE
E. MAINTAIN ALL SEDIMENT CONTROL MEASURES UNTIL ALL DISTURBED AREAS HAVE STABILIZED
F. INSTALL CRYSTAL STREAM UNITS.
G. REMOVE TEMPORARY EROSION CONTROL MEASURES.

Know what's below. Call before you dig.

SURVEY SITE GRID NORTH

ZONE AE
LIMIT OF FLOODWAY
MAPLE CREEK
BASE FLOOD ELEV. 903
BASE FLOOD ELEV. 906
BASE FLOOD ELEV. 900
DUKE POWER 68' POWERLINE RIGHT OF WAY
BRUSHY CREEK ROAD
N 5435.89
E 4780.34
IPF #5RB
TBM 2

INSTALL FREEZELESS ANTI-SIPHON HOSE BIBB WITH BACKFLOW PREVENTER FOR K-9 TRUCK WASHOUT (WOODFORD MODEL R34-2)
NEW CONCRETE CURBING
EX.SSMH TOP 911.63 IE 904.93
SHADED AREAS REPRESENT ALL NEW CONCRETE PAVING IN THIS PHASE
RELOCATED CANOPY
GATE
INSTALL FREEZELESS ANTI-SIPHON HOSE BIBB WITH BACKFLOW PREVENTER FOR SWEEPER WASHOUT (WOODFORD MODEL R34-2)
18" ROLLED C&G
NO CURB
18" RCG
NEW CONCRETE PAVEMENT (SEALED - SEE DETAIL)
ROOF DRAINS OF EXISTING BUILDING TO BE PIPED TO STORM DRAINS
DRAIN TOP 908.1
TOP 907.11 WEIR ±905.7
CONCRETE PAD WITH CONCRETE TRAFFIC BARRIER CONTAINMENT WALLS FOR SWEEPER WASHOUT. DRAIN TO OIL/WATER SEPARATOR AND CANOPY TO BE INCLUDED.
PROPOSED RETAINING WALL (DESIGN BY OTHERS)
D.I. TOP 923.1 IE 922.4
NEW 4' CHAIN LINK FENCE ALONG TOP OF SLOPE
SAWCUT AND PATCH EXISTING ASPHALT AS SHOWN
15" RCP 921.4
TBM 1
ASPHALT
ANTENNA POLE
ASPHALT BERM TO SEPARATE STORMWATER FLOWS
CRYSTAL STREAM WATER QUALITY UNIT #1
NEW GPD KENNELS
GATE
15"RCP IE 921.1
ROOF DRAINS PIPED DIRECTLY TO STORM DRAINS
BOLLARDS AT CORNERS OF BUILDING AS SHOWN (COORD W/ ARCH)
TBM 1
MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61
18"CMP TOP 930.1 FILLED WITH DEBRIS
CB TOP 934.6 IE 931.1
ASPHALT
GATE
30"OAK
BROWN STREET EXT.
BUNCOMBE STREET

TBM 1: MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61

TBM 2: BRASS DISC
ON HEADWALL
N 5517.72
E 5000.00
ELEV.=914.09

Legend of Symbols & Abbreviations

IPF	IRON PIN FOUND	EP	EDGE OF PAVEMENT
IPS	IRON PIN SET	R/W	RIGHT-OF-WAY
NCF	NAIL & CAP FOUND	BL	BUILDING LINE
NCS	NAIL & CAP SET	FOC	FIBER OPTIC CABLE
PT	POINT	RCP	REINFORCED CONCRETE PIPE
CT	CRIMPED TOP	CMP	CORRUGATED METAL PIPE
OT	OPEN TOP	SS	SANITARY SEWER
RB	REBAR	SD	STORM DRAIN
SR	SOLID ROD	T	TELEPHONE
UG	UNDERGROUND	G	GAS LINE
CLF	CHAIN LINK FENCE	TBM	TEMPORARY BENCH MARK
WPF	WOOD PRIVACY FENCE	CO	CLEAN-OUT
UGE	UNDERGROUND ELECTRIC	GM	GAS METER
OHP	OVERHEAD POWER	EM	ELECTRICAL METER
	STORM DRAIN	CATV	CABLE TELEVISION PEDESTAL
SS	SANITARY SEWER		
SF	SILT FENCE		
	LIMITS OF DISTURBANCE		
	INLET PROTECTION		
	FENCE		
	STORMWATER FLOW DIRECTION		
	ASPHALT BERM		
	PIPE FLOW DIRECTION		
	DIVERSION DITCH		
SS	DENOTES FLOW TO SANITARY		

FH	FIRE HYDRANT
PP	POWER POLE
LP	LIGHT POLE
CB	CATCH BASIN
DI	DROP INLET
SSMH	SEWER MANHOLE
SDMH	STORM DRAIN MANHOLE
T	TELEPHONE MANHOLE
WM	WATER METER
TPED	TELEPHONE PEDESTAL
GV	GAS VALVE
WV	WATER VALVE
PIV	POST INDICATOR VALVE
	ELECTRIC TRANSFORMER

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

SOUTH CAROLINA NO. 3690 BLUE LINE CONSULTING CERTIFICATE OF AUTHORIZATION
CORPORATE SEAL

SOUTH CAROLINA NO. 26136 ERIK HORTON PROFESSIONAL ENGINEER
5-2-16
ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
2		
3		
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7		

PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE:
Phase II
Site Plan

SCALE: 1"=40' PROJECT NO. 11012
DRAWN: MEH SHEET NO.
DATE: 2-11-2016

CV-1

NOTES:
1. ALL PROJECT LITTER, CONSTRUCTION AND DEMOLITION DEBRIS MUST BE COLLECTED, STORED, RECYCLED AND/OR DISPOSED IN ACCORDANCE WITH SCDHEC SOLID WASTE REGULATIONS AND CITY OF GREER NUISANCE ORDINANCE.
2. CONTRACTOR MUST STOP WORK AND NOTIFY PERMITTEE IF WASTE MATERIALS OR HAZARDOUS MATERIALS ARE UNEARTHED.

811 Know what's below. Call before you dig.

SURVEY SITE GRID NORTH

TBM 1: MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61

TBM 2: BRASS DISC
ON HEADWALL
N 5517.72
E 5000.00
ELEV.=914.09

TBM 1 MAG.NAIL N 5195.80 E 4478.83 ELEV. 924.61

N 5435.89 E 4780.34 IPF #5RB

CONTOURS TAKEN FROM GREENVILLE COUNTY GIS

Legend of Symbols & Abbreviations

IPF	IRON PIN FOUND	EP	EDGE OF PAVEMENT
IPS	IRON PIN SET	R/W	RIGHT-OF-WAY
NCF	NAIL & CAP FOUND	BL	BUILDING LINE
NCS	NAIL & CAP SET	FOC	FIBER OPTIC CABLE
PT	POINT	ROP	REINFORCED CONCRETE PIPE
CT	CRIMPED TOP	CMP	CORRUGATED METAL PIPE
OT	OPEN TOP	SS	SANITARY SEWER
RB	REBAR	SD	STORM DRAIN
SR	SOLID ROD	T	TELEPHONE
UG	UNDERGROUND	G	GAS LINE
CLF	CHAIN LINK FENCE	TBM	TEMPORARY BENCH MARK
WPF	WOOD PRIVACY FENCE	CO	CLEAN-OUT
UGE	UNDERGROUND ELECTRIC	GM	GAS METER
OHP	OVERHEAD POWER	EM	ELECTRICAL METER
	STORM DRAIN	CATV	CABLE TELEVISION PEDESTAL
	SANITARY SEWER		
SF	SILT FENCE		
	LIMITS OF DISTURBANCE		
	INLET PROTECTION		
	FENCE		
	STORMWATER FLOW DIRECTION		
	ASPHALT BERM		
	PIPE FLOW DIRECTION		
	DIVERSION DITCH		
X	DENOTES DEMO ITEMS		

FH	FIRE HYDRANT		
PP	POWER POLE		
LP	LIGHT POLE		
CB	CATCH BASIN		
DI	DROP INLET		
SSMH	SEWER MANHOLE		
SDMH	STORM DRAIN MANHOLE		
T	TELEPHONE MANHOLE		
WM	WATER METER		
TPED	TELEPHONE PEDESTAL		
GV	GAS VALVE		
WV	WATER VALVE		
PIV	POST INDICATOR VALVE		
	ELECTRIC TRANSFORMER		

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

SOUTH CAROLINA NO. 3690 BLUE LINE CONSULTING CERTIFICATE OF AUTHORIZATION CORPORATE SEAL

SOUTH CAROLINA NO. 26136 ERIK HORTON 5-2-16 ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
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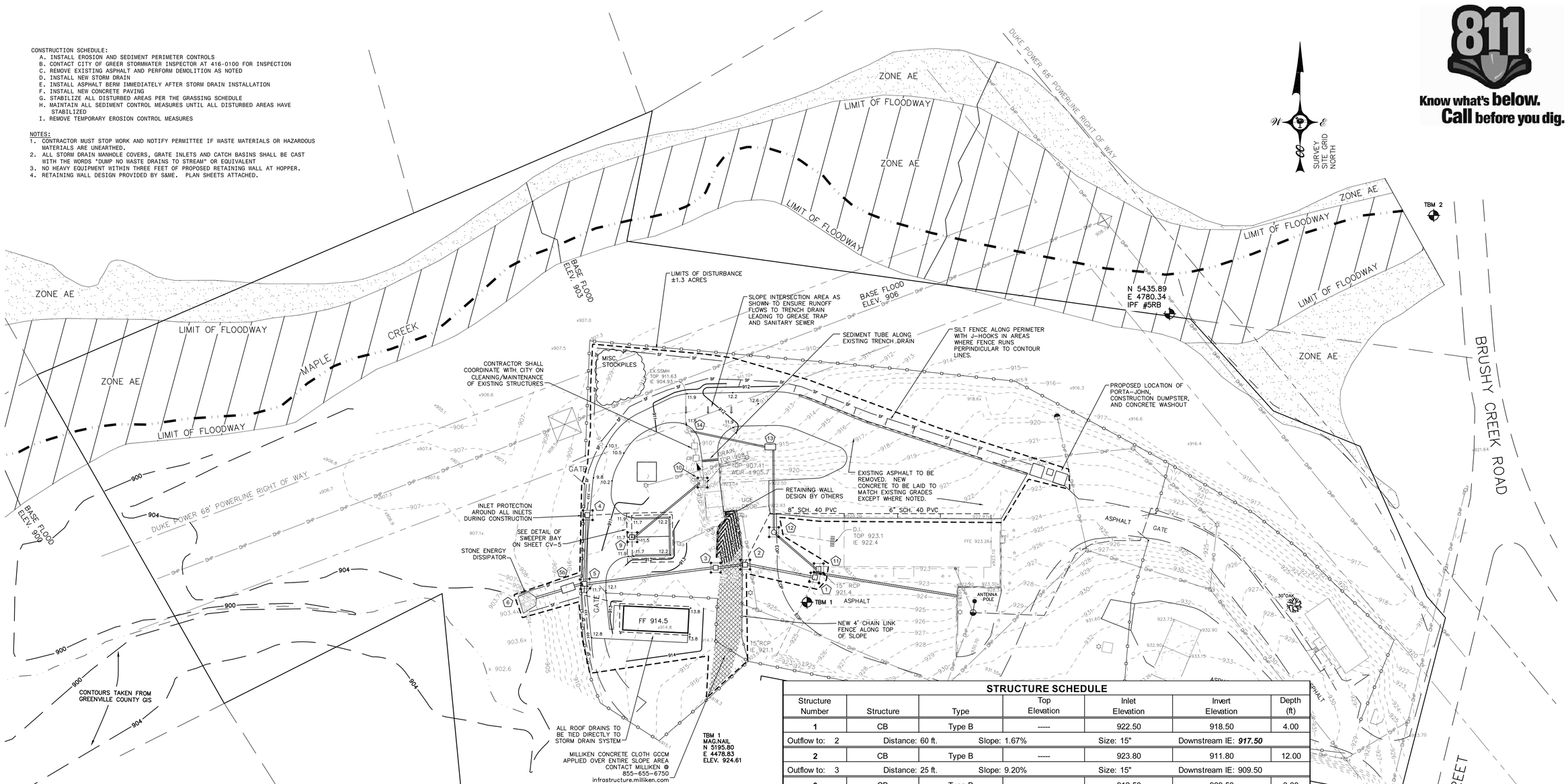
PROJECT: City of Greer Recycle Facility - Phase II, Greer, South Carolina

SHEET TITLE: Phase II Demolition Plan

SCALE: 1"=40' | PROJECT NO. 11012
DRAWN: MEH | SHEET NO. CV-2
DATE: 2-11-2016

CONSTRUCTION SCHEDULE:
A. INSTALL EROSION AND SEDIMENT PERIMETER CONTROLS
B. CONTACT CITY OF GREER STORMWATER INSPECTOR AT 416-0100 FOR INSPECTION
C. REMOVE EXISTING ASPHALT AND PERFORM DEMOLITION AS NOTED
D. INSTALL NEW STORM DRAIN
E. INSTALL ASPHALT BERM IMMEDIATELY AFTER STORM DRAIN INSTALLATION
F. INSTALL NEW CONCRETE PAVING
G. STABILIZE ALL DISTURBED AREAS PER THE GRASSING SCHEDULE
H. MAINTAIN ALL SEDIMENT CONTROL MEASURES UNTIL ALL DISTURBED AREAS HAVE STABILIZED
I. REMOVE TEMPORARY EROSION CONTROL MEASURES

NOTES:
1. CONTRACTOR MUST STOP WORK AND NOTIFY PERMITTEE IF WASTE MATERIALS OR HAZARDOUS MATERIALS ARE UNEARTHED.
2. ALL STORM DRAIN MANHOLE COVERS, GRATE INLETS AND CATCH BASINS SHALL BE CAST WITH THE WORDS "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT
3. NO HEAVY EQUIPMENT WITHIN THREE FEET OF PROPOSED RETAINING WALL AT HOPPER.
4. RETAINING WALL DESIGN PROVIDED BY S&ME. PLAN SHEETS ATTACHED.



TBM 1: MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61

TBM 2: BRASS DISC
ON HEADWALL
N 5517.72
E 5000.00
ELEV.=914.09

Legend of Symbols & Abbreviations

IPF	IRON PIN FOUND	EP	EDGE OF PAVEMENT
IPS	IRON PIN SET	R/W	RIGHT-OF-WAY
NCF	NAIL & CAP FOUND	BL	BUILDING LINE
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PT	POINT	RCP	REINFORCED CONCRETE PIPE
CT	CRIMPED TOP	CMP	CORRUGATED METAL PIPE
OT	OPEN TOP	SS	SANITARY SEWER
RB	REBAR	SD	STORM DRAIN
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UG	UNDERGROUND	G	GAS LINE
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UGE	UNDERGROUND ELECTRIC	GM	GAS METER
OHP	OVERHEAD POWER	EM	ELECTRICAL METER
	STORM DRAIN	CATV	CABLE TELEVISION PEDESTAL
SS	SANITARY SEWER		
SF	SILT FENCE		
	LIMITS OF DISTURBANCE		
	INLET PROTECTION		
	FENCE		
	STORMWATER FLOW DIRECTION		
	ASPHALT BERM		
	PIPE FLOW DIRECTION		
	DIVERSION SWALE		

FH	FIRE HYDRANT		
PP	POWER POLE		
LP	LIGHT POLE		
CB	CATCH BASIN		
DI	DROP INLET		
SSMH	SEWER MANHOLE		
SDMH	STORM DRAIN MANHOLE		
T	TELEPHONE MANHOLE		
WM	WATER METER		
TPED	TELEPHONE PEDESTAL		
GV	GAS VALVE		
WV	WATER VALVE		
PIV	POST INDICATOR VALVE		
	ELECTRIC TRANSFORMER		

-ALL STORM DRAIN MANHOLE COVERS, GRATE INLETS AND CATCH BASINS SHALL BE CAST WITH THE WORDS "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT

STRUCTURE SCHEDULE

	Structure Number	Structure	Type	Top Elevation	Inlet Elevation	Invert Elevation	Depth (ft)
	1	CB	Type B	-----	922.50	918.50	4.00
	Outflow to: 2	Distance: 60 ft.	Slope: 1.67%		Size: 15"	Downstream IE: ***917.50***	
	2	CB	Type B	-----	923.80	911.80	12.00
	Outflow to: 3	Distance: 25 ft.	Slope: 9.20%		Size: 15"	Downstream IE: 909.50	
	3	CB	Type B	-----	912.50	909.50	3.00
	Outflow to: 5	Distance: 110 ft.	Slope: 2.82%		Size: 15"	Downstream IE: 906.40	
	4	CB	Type B	-----	909.20	906.70	2.50
	Outflow to: 5	Distance: 57 ft.	Slope: 0.53%		Size: 15"	Downstream IE: 906.40	
	5	CB	Type B	-----	911.50	906.40	5.10
	Outflow to: 5b	Distance: 10 ft.	Slope: 2.00%		Size: 18"	Downstream IE: 906.20	
	5b	Crystal Stream #1	-----	910.70	-----	906.00	-----
	Outflow to: 6	Distance: 22 ft.	Slope: 2.27%		Size: 18"	Downstream IE: 905.50	
	6	End of Pipe	-----	-----	-----	905.50	-----
	Outflow to:	Distance: -----	Slope: -----		Size: -----	Downstream IE: -----	
Sanitary	**9**	CB	Type B	-----	911.50	908.50	3.00
	Outflow to: 10	Distance: 74 ft.	Slope: FV		Size: 12"	Downstream IE: FV	
Sanitary	**10**	Ex CB	Type 9	907.11	905.70	Field Verify	FV
	Outflow to: -----	Distance: -----	Slope: -----		Size: -----	Downstream IE: -----	
Sanitary	**11**	CB	Type B	-----	921.40	918.40	3.00
	Outflow to: 12	Distance: 48 ft.	Slope: 2.29%		Size: 12"	Downstream IE: 917.30	
Sanitary	**12**	MH	Type C	-----	923.30	917.30	6.00
	Outflow to: 13	Distance: 70 ft.	Slope: 5.43%		Size: 12"	Downstream IE: 913.50	
Sanitary	**13**	Grease Trap	1000 Gal	915.50	913.50	908.83	6.67
	Outflow to: 14	Distance: 64 ft.	Slope: 6.10%		Size: 12"	Downstream IE: 904.93	
Sanitary	**14**	Ex MH	Sanitary	-----	911.63	904.93	6.70
	Outflow to: -----	Distance: -----	Slope: -----		Size: 12"	Downstream IE: -----	

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

Know what's below. Call before you dig.

SOUTH CAROLINA NO. 3690 BLUE LINE CONSULTING NO. CO3690 CERTIFICATE OF AUTHORIZATION
CORPORATE SEAL

SOUTH CAROLINA NO. 26136 ERIK HORTON REGISTERED PROFESSIONAL ENGINEER
5-2-16
ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
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PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE:
Phase II Grading and Erosion Control Plan

SCALE:	1"=40'
PROJECT NO.	11012
DRAWN:	MEH
SHEET NO.	
DATE:	2-11-2016

CV-3

CONSTRUCTION SCHEDULE:
A. INSTALL EROSION AND SEDIMENT PERIMETER CONTROLS
B. CONTACT CITY OF GREER STORMWATER INSPECTOR AT 416-0100 FOR INSPECTION
C. PERFORM GRADING AS NOTED
D. INSTALL UTILITIES
E. CONSTRUCT BUILDING
F. STABILIZE ALL DISTURBED AREAS PER THE GRASSING SCHEDULE
G. MAINTAIN ALL SEDIMENT CONTROL MEASURES UNTIL ALL DISTURBED AREAS HAVE STABILIZED
H. REMOVE TEMPORARY EROSION CONTROL MEASURES.

Know what's below. Call before you dig.

SURVEY SITE GRID NORTH

ZONE AE
LIMIT OF FLOODWAY
MAPLE CREEK
DUKE POWER 68' POWERLINE RIGHT OF WAY
BASE FLOOD ELEV. 903
BASE FLOOD ELEV. 906
BASE FLOOD ELEV. 909
KENNEL CONSTRUCTION LIMITS OF DISTUBANCE ±0.5 ACRES
N 5435.89
E 4780.34
IPF #5RB
TBM 2
BRUSHY CREEK ROAD
REMOVE EX. KENNEL AFTER CONSTRUCTION OF NEW FACILITY. THIS WILL REQUIRE A CITY DEMOLITION PERMIT AND ASBESTOS LETTER.
EX.SSMH TOP 911.63 IE 904.81
APPROX. LOCATION OF EXISTING WATER SERVICE
NEW 3/4" SERVICE TO DOG KENNEL
GATE
ASPHALT
SILT FENCE AROUND PERIMETER OF SITE
DRAIN TOP 905 TOP 907.1 WEIR 906.5
UCE DROP
PROVIDE SEDIMENT TUBE INLET PROTECTION AT EXISTING CATCH BASIN
D.I. TOP 923.1 IE 922.4
EXISTING LINE TO BE ABANDONED AND METER RELOCATED PER ARCH PLANS
15" RCP 921.4
TBM 1
ASPHALT
PROPOSED CONNECTION POINT FOR SERVICE TO NEW GPD KENNEL
FF 914.5
GAS
15"RCP IE 921.1
NEW GAS SERVICE FOR PROPOSED DOG KENNEL (COORD W/ ARCH)
ALL ROOF DRAINS TO BE PIPED TO DAYLIGHT UNDER DRIVE AS SHOWN IN PREPARATION FOR FUTURE TIE INTO STORM DRAIN SYSTEM
BOLLARDS AT CORNERS OF BUILDING AS SHOWN (COORD W/ ARCH)
TBM 1 MAG.NAIL N 5195.80 E 4478.83 ELEV. 924.61
15"CMP IE 920.17
ANTENNA POLE
30"OAK
FUEL PUMP ISLAND
U/G TANK
VENT
18"CMP TOP 930.1 FILLED WITH DEBRIS
CB TOP 934.6 IE 931.1
BROWN STREET EXT.
BUNCOMBE STREET
CONTOURS TAKEN FROM GREENVILLE COUNTY GIS

TBM 1: MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61

TBM 2: BRASS DISC ON HEADWALL
N 5517.72
E 5000.00
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Legend of Symbols & Abbreviations

IPF IRON PIN FOUND	EP EDGE OF PAVEMENT	FH FIRE HYDRANT
IPS IRON PIN SET	R/W RIGHT-OF-WAY	PP POWER POLE
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PT POINT	RCP REINFORCED CONCRETE PIPE	DI DROP INLET
CT CRIMPED TOP	CMP CORRUGATED METAL PIPE	SSMH SEWER MANHOLE
OT OPEN TOP	SS SANITARY SEWER	SDMH STORM DRAIN MANHOLE
RB REBAR	SD STORM DRAIN	TELEPHONE MANHOLE
SR SOLID ROD	T TELEPHONE	WM WATER METER
UG UNDERGROUND	G GAS LINE	TPED TELEPHONE PEDESTAL
CLF CHAIN LINK FENCE	TBM TEMPORARY BENCH MARK	GV GAS VALVE
WPF WOOD PRIVACY FENCE	CO CLEAN-OUT	WV WATER VALVE
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OHP OVERHEAD POWER	EM ELECTRICAL METER	ELECTRIC TRANSFORMER
STORM DRAIN	CATV CABLE TELEVISION PEDESTAL	
SANITARY SEWER		
SILT FENCE		
LIMITS OF DISTURBANCE		
INLET PROTECTION		
FENCE		
STORMWATER FLOW DIRECTION		
ASPHALT BERM		
PIPE FLOW DIRECTION		
DIVERSION SWALE		

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

CORPORATE SEAL
SOUTH CAROLINA NO. 3690 BLUE LINE CONSULTING CERTIFICATE OF AUTHORIZATION

ENGINEER SEAL
SOUTH CAROLINA NO. 26136 ERIK HORTON PROFESSIONAL ENGINEER
5-2-16

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PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE:
Kennel Plans

SCALE: 1"=40' PROJECT NO. 11012
DRAWN: MEH SHEET NO.
DATE: 2-11-2016

CV-3a

Know what's below. Call before you dig. 811

SURVEY SITE GRID NORTH

ZONE AE
LIMIT OF FLOODWAY
MAPLE CREEK
BASE FLOOD ELEV. 903
BASE FLOOD ELEV. 906
BASE FLOOD ELEV. 900
DUKE POWER 68' POWERLINE RIGHT OF WAY

EX.SSMH TOP 909.4 IE 897.14
EX.SSMH TOP 911.63 IE 904.93
EX.SSMH TOP 920.9 IE 906.05
EX.SSMH TOP 918.1 IE 908.60
EX.SSMH TOP 933.63
EX.SSMH TOP 925.0 IE 920.77

N 5435.89
E 4780.34
IPF #5RB

TBM 2

BRUSHY CREEK ROAD

APPROX. LOCATION OF EXISTING WATER SERVICE
NEW SERVICE TO HOSE BIBB
NEW 3/4" SERVICE TO DOG KENNEL
GATE
OIL/WATER SEPARATOR
DRAIN TOP 905.4
TOP 907.11 WEIR ±905.7
NEW SERVICE TO HOSE BIBB
ALL OVERHEAD POWER LINES AROUND COMPACTOR AREA TO BE BURIED (COORD W/ CPW)
UGE DROP
D.I. TOP 923.1 IE 922.4
SS SERVICE
OPEN CUT TRENCHES FOR ALL UTILITIES IN EXISTING PAVEMENT. PATCH PER PAVING DETAIL.
15" RCP 921.4
TBM 1
ASPHALT
ANTENNA POLE
NEW 6" SANITARY SERVICE
FF 914.5
GAS
15" RCP IE 921.1
NEW GAS SERVICE FOR PROPOSED DOG KENNEL (COORD W/ ARCH)
TBM 1
MAG.NAIL
N 5195.80
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18"CMP TOP 930.1 FILLED WITH DEBRIS
CB TOP 934.6 IE 931.1
ASPHALT
GATE
FUEL PUMP ISLAND
U/G TANK
VENTS
30" OAK
NEW SANITARY SEWER SERVICE WITH CLEAN OUT
BROWN STREET EXT.
BUNCOMBE STREET

TBM 1: MAG.NAIL
N 5195.80
E 4478.83
ELEV. 924.61

TBM 2: BRASS DISC
ON HEADWALL
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ELEV.=914.09

Legend of Symbols & Abbreviations

IPF	IRON PIN FOUND	EP	EDGE OF PAVEMENT
IPS	IRON PIN SET	R/W	RIGHT-OF-WAY
NCF	NAIL & CAP FOUND	BL	BUILDING LINE
NCS	NAIL & CAP SET	FOC	FIBER OPTIC CABLE
PT	POINT	RCP	REINFORCED CONCRETE PIPE
CT	CRIMPED TOP	CMP	CORRUGATED METAL PIPE
OT	OPEN TOP	SS	SANITARY SEWER
RB	REBAR	SD	STORM DRAIN
SR	SOLID ROD	T	TELEPHONE
UG	UNDERGROUND	G	GAS LINE
CLF	CHAIN LINK FENCE	TBM	TEMPORARY BENCH MARK
WPF	WOOD PRIVACY FENCE	CO	CLEAN-OUT
UGE	UNDERGROUND ELECTRIC	GM	GAS METER
OHP	OVERHEAD POWER	EM	ELECTRICAL METER
	STORM DRAIN	CATV	CABLE TELEVISION PEDESTAL
SS	SANITARY SEWER		
SF	SILT FENCE		
	LIMITS OF DISTURBANCE		
	INLET PROTECTION		
	FENCE		
	STORMWATER FLOW DIRECTION		
	ASPHALT BERM		
	PIPE FLOW DIRECTION		
	DIVERSION DITCH		

FH	FIRE HYDRANT		
PP	POWER POLE		
LP	LIGHT POLE		
CB	CATCH BASIN		
DI	DROP INLET		
SSMH	SEWER MANHOLE		
SDMH	STORM DRAIN MANHOLE		
T	TELEPHONE MANHOLE		
WM	WATER METER		
TPED	TELEPHONE PEDESTAL		
GV	GAS VALVE		
WV	WATER VALVE		
PIV	POST INDICATOR VALVE		
	ELECTRIC TRANSFORMER		

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

SOUTH CAROLINA NO. CO3690 BLUE LINE CONSULTING CERTIFICATE OF AUTHORIZATION
CORPORATE SEAL

SOUTH CAROLINA ERIK HORTON NO. 26136 REGISTERED PROFESSIONAL ENGINEER
5-2-16
ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
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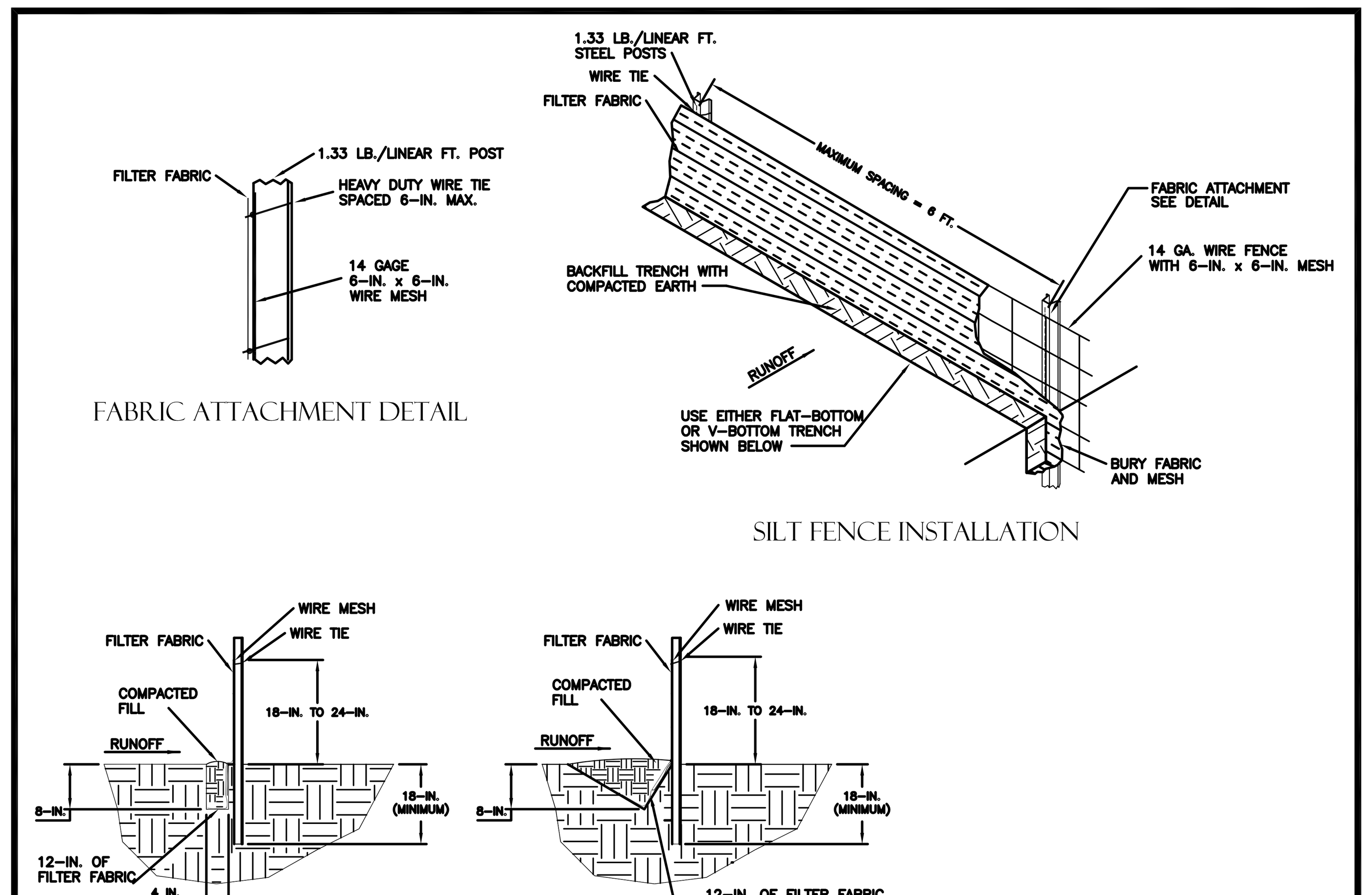
PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

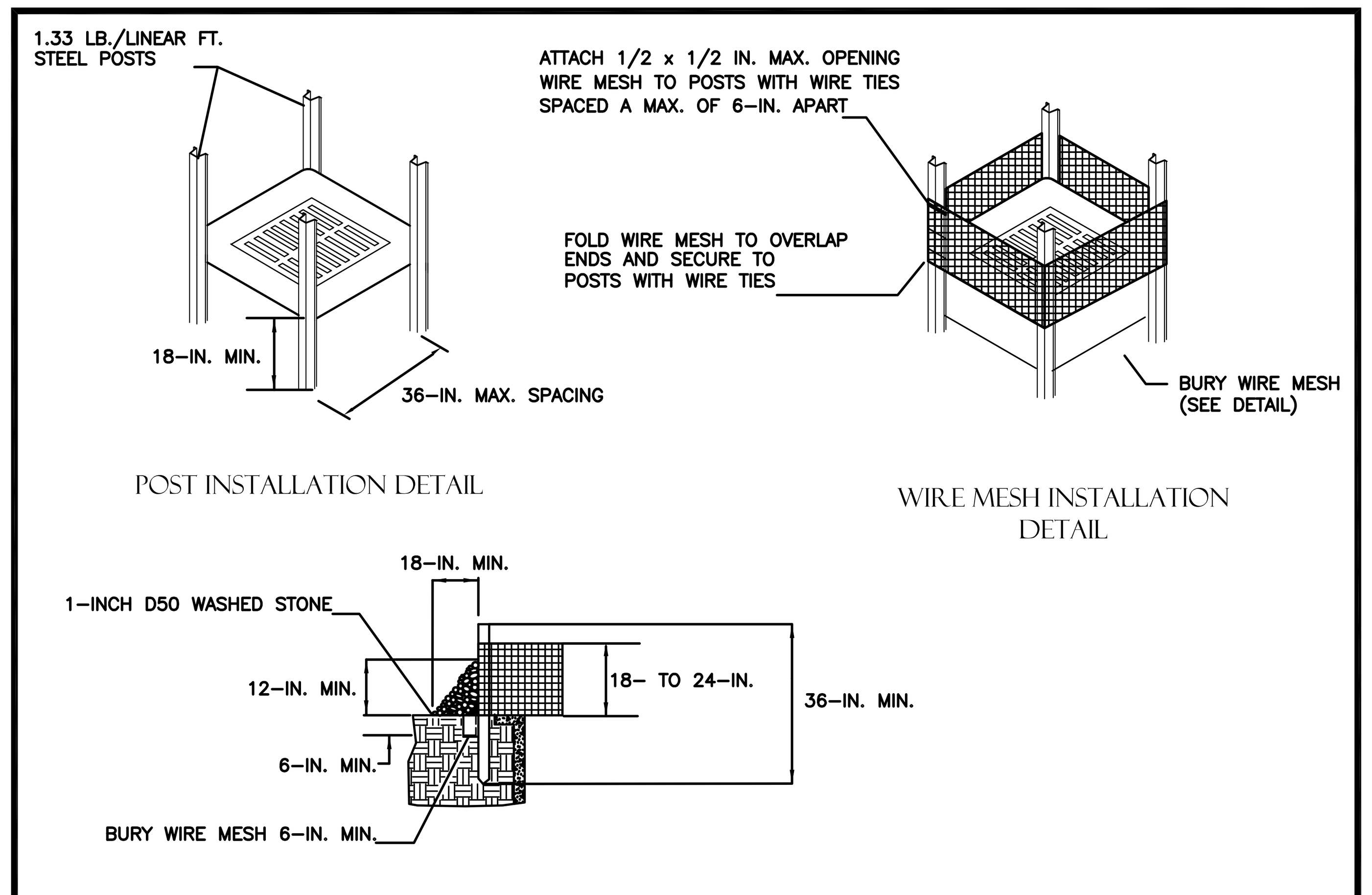
SHEET TITLE:
Phase II
Utility Plan

SCALE:	1"=40'	PROJECT NO.	11012
DRAWN:	MEH	SHEET NO.	
DATE:	2-11-2016		

CV-4



REINFORCED SILT FENCE
STANDARD DRAWING NO. EC-04 Page 1 of 3



WIRE MESH AND STONE INLET PROTECTION
STANDARD DRAWING NO. Page 1 of 2

REINFORCED SILT FENCE

Installation:

The fence should be placed across the slope along a line of uniform elevation (perpendicular to the direction of flow). The fence should be located at least 10–feet from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.

A flat–bottom trench approximately 4–inches wide and 8–inches deep, or a V–shaped trench 8–inches deep should be excavated.

Place 12–inches of extra–strength filter fabric (50 pounds / linear inch minimum tensile strength) into the 8–inch deep trench, extending the remaining 4–inches towards the up–slope side of the trench.

Extend the 6–inch by 6–inch 14–gage wire mesh into the trench a minimum depth of 8–inches.

Backfill the trench with soil or gravel and compact.

On the downslope side of the trench, drive the 1.33 lb./linear foot steel posts at least 18–inches into the ground, spacing them no further than 6–feet apart.

Posts should be installed, with 1– to 2–inches of the post protruding above the top of the fabric and no more than 36–inches of the post should protrude above the ground. The minimum fence height (height of filter fabric) above grade shall be 18–inches. The maximum fence height (height of filter fabric) above grade shall be 24–inches.

Filter fabric should be purchased in a continuous roll and cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter fabric should be wrapped together only at a support post with both ends securely fastened to the post, with a minimum 6–inch overlap.

Heavy duty wire ties spaced a maximum of 6–inches apart, should be used to attach the fabric and wire mesh to the steel posts.

REINFORCED SILT FENCE
STANDARD DRAWING NO. EC-04 Page 2 of 3

WIRE MESH AND STONE INLET PROTECTION

Installation:

A trench shall be excavated 4–inches wide and 6–inches deep around the outside perimeter of the posts.

Hardware cloth or comparable wire mesh with a maximum of ½–inch openings shall be used as the supporting material and shall be extended a minimum 6–inches into the trench.

The trench shall be backfilled with soil or crushed stone and compacted over the wire mesh.

Posts shall be 1.33 lb./linear foot steel posts with a minimum post length of 36–inches. The height of the wire barrier above grade shall be a minimum of 18–inches and shall not exceed 24–inches.

The steel posts shall be spaced a maximum of 36–inches apart around the perimeter of the inlet and driven into the ground a minimum of 18–inches.

Heavy duty wire ties spaced a maximum of 6–inches apart shall be used to attach the wire mesh material to the steel posts.

The stone shall consist of 1–inch D50 Washed Stone, shall extend to a minimum height of 12–inches, and shall not exceed 24–inches.

Inspection and Maintenance:

Inspections should be made every seven (7) calendar days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation. Any needed repairs should be handled immediately.

Sediment should be removed when it reaches approximately 1/3 the height of the structure. If a sump is used, sediment should be removed when it fills approximately 1/3 the depth of the hole. Maintain the pool area, always providing adequate sediment storage volume for the next storm.

If the stone becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of gravel at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.

Storm drain inlet protection structures should be removed only after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

WIRE MESH AND STONE INLET PROTECTION
STANDARD DRAWING NO. Page 2 of 2

REINFORCED SILT FENCE

Inspection and Maintenance:

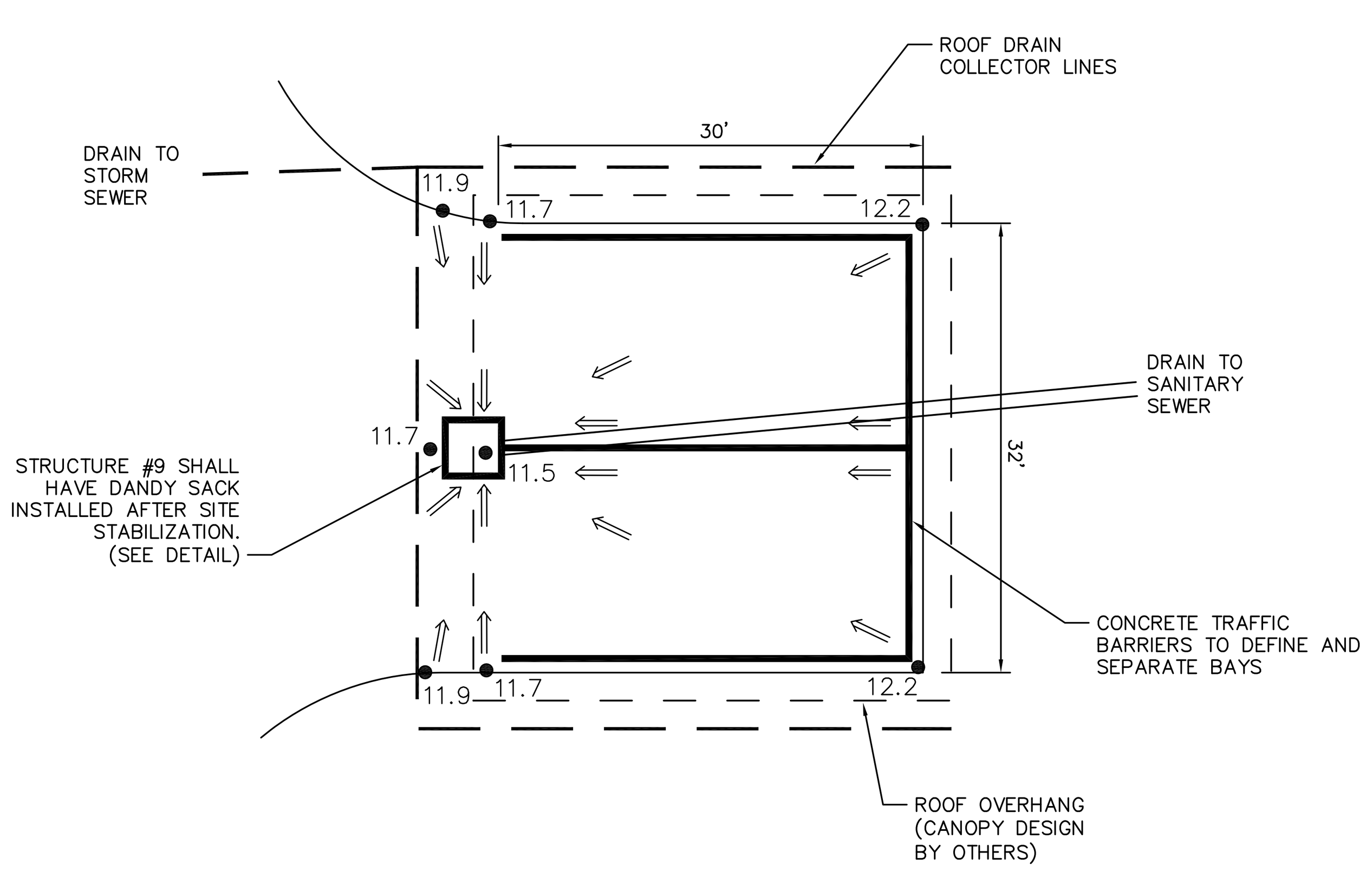
Inspect silt fence every seven (7) calendar days and within 24–hours after each rainfall event that produces ½–inches or more of precipitation. Check for areas where runoff has eroded a channel beneath the fence, or where the fence was caused to sag or collapse by runoff overtopping the fence.

If the fence fabric tears, begins to decompose, or in any way becomes ineffective, replace the affected section of fence immediately.

Sediment must be removed when it reaches approximately 1/3 the height of the fence, especially if heavy rains are expected.

Reinforced silt fence should be removed within 30 days after final site stabilization is achieved or after temporary BMPs are no longer needed. Trapped sediment should be removed or stabilized on site. Disturbed areas resulting from fence removal shall be permanently stabilized.

REINFORCED SILT FENCE
STANDARD DRAWING NO.



SWEEPER BAY DETAIL
NO SCALE

SITE NOTES:

DISTURBED AREA = 1.3 ACRES
INCREASE IN IMPERVIOUS AREA = 0.4 AC

CONSTRUCTION SCHEDULE:
A. INSTALL EROSION AND SEDIMENT PERIMETER CONTROLS
B. CONTACT CITY OF GREER STORMWATER INSPECTOR AT 416-0100 FOR INSPECTION
C. PERFORM SITE GRADING AND STORM DRAINAGE SYSTEM CONSTRUCTION
D. INSTALL PAVING PER PHASING PLAN
D. STABILIZE ALL DISTURBED AREAS PER THE GRASSING SCHEDULE
E. MAINTAIN ALL SEDIMENT CONTROL MEASURES UNTIL ALL DISTURBED AREAS HAVE STABILIZED
F. INSTALL CRYSTAL STREAM UNITS
G. REMOVE TEMPORARY EROSION CONTROL MEASURES

- SOIL TYPE IS - MIXTURE OF CECIL (CeB, CeC) AND WEHADKEE (Wd), HYDROLOGICAL CLASS "B" SOILS

- OWNER: CITY OF GREER
301 E. POINSETT ST.
GREER, SC 29651

CITY OF GREER STANDARD NOTES

1. ONCE EROSION CONTROL MEASURES ARE IN PLACE CONTACT THE CITY OF GREER STORMWATER INSPECTOR AT 416-0100 FOR AN INSPECTION.

2. WEEKLY EROSION CONTROL/STORMWATER POLLUTION PREVENTION INSPECTIONS MUST BE CONDUCTED BY A CERTIFIED CEPSCI INSPECTOR OR A QUALIFIED LICENSED PROFESSIONAL ENGINEER.

3. A PERMIT BOX WITH A RAIN GAUGE MUST BE INSTALLED AND KEPT ON SITE.

4. ALL CONTRACTORS, SUBCONTRACTORS AND BUILDERS WHOSE ACTIVITIES MAY IMPACT STORMWATERDISCHARGES MUST SIGN AND SUBMIT CO-PERMITTEE AGREEMENTS TO THE CITY OF GREER.

5. ALL WORK ON A CITY OF GREER RIGHT OF WAY REQUIRES A CITY ENCROACHMENT PERMIT. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING CITY ENCROACHMENT PERMITS PRIOR TO CONDUCTING ANY WORK IN THE RIGHT OF WAY. ENCROACHMENT PERMITS MAY BE OBTAINED AT THE CITY OF GREER PUBLIC SERVICES OFFICE.

6. ALL SILT FENCING MUST BE CONSTRUCTED WITH WIRE-BACKING AND METAL POSTS. SILT FENCE FABRICS MUST MEET SC DOT SPECIFICATIONS.

7. ALL CATCH BASINS, STORM DRAIN MANHOLE COVERS, GRATE INLETS, ETC. MUST BE CAST WITH THE WORDS, "DUMP NO WASTE DRAINS TO STREAM" OR EQUIVALENT.

8. ALL SOIL STOCKPILES OR BORROW AREAS CONSTITUTE LAND DISTURBANCE AND ARE ALLOWED ONLY IN PERMITTED AREAS. COPIES OF PERMITS FOR OFFSITE BORROW, STOCKPILE OR FILL AREAS MUST BE PROVIDED TO THE CITY OF GREER, ENGINEERING/STORMWATER DIVISION BEFORE USE.

9. ALL EROSION CONTROLS FOR STOCKPILING OF DIRT SHALL COMPLY WITH SC DHEC STANDARDS. PERIMETER SILT FENCING MUST BE INSTALLED ON THE DOWNHILL SIDES OF THE STOCKPILE. SILT FENCING SHOULD BE OFFSET FROM THE TOE OF THE SLOPE ACCORDING TO THE FOLLOWING SCHEDULE:

Height of Fill	Fill Slope	Minimum Offset From Toe of Slope	Minimum Right of Way From Toe of Slope
(feet)	(hor:vert)	(feet)	(feet)
<6	2:1	2	3
	4:1		
	6:1		
6-10	2:1	12	13
6-10	4:1	3	4
6-10	6:1	3	4
> 10	2:1	12	13
> 10	4:1	4	5
> 10	6:1	4	5

IN ADDITION TO PERIMETER SILT FENCE INSTALLATION, AFTER 14 DAYS ALL SOIL STOCKPILES SHOULD BE PROPERLY TRACKED IN AND TEMPORARILY STABILIZED.

10. DUST MUST BE CONTAINED WITHIN THE SITE BOUNDARY. VEGETATIVE COVER AND PROPER APPLICATION OF MULCH OR WATER ARE ACCEPTABLE METHODS OF DUST CONTROL.

11. ALL SILT FENCING MUST BE CLEANED OR REPLACED WHEN SEDIMENT LEVELS REACH 1/3 THE HEIGHT OF THE SILT FENCE.

12. SILT FENCE CHECKS, (TIE BACKS) ARE RECOMMENDED ON DOWNHILL SLOPES ACCORDING TO THE FOLLOWING SCHEDULE:

2% - EVERY 100 FT.
3% - EVERY 100 FT.
4% - EVERY 50 FT.
5% - EVERY 50 FT.
LOW POINTS MAY REQUIRE MORE SILT CHECKS AS DIRECTED BY THE ENGINEER.

13. MUD TRACKED ONTO PUBLIC STREETS WILL BE REMOVED DAILY BY SWEEPING OR VACUUMING.

14. STORMWATER MUST ENTER CATCH BASINS PRIOR TO FINAL PAVING IN ORDER TO OBTAIN DESIGNED TRAPPING EFFICIENCY AND MAINTAIN PROPER STORMWATER RUNOFF CONTROL.

15. ALL LITTER, TRASH AND CONSTRUCTION DEBRIS SHALL BE COLLECTED, STORED AND DISPOSED OF IN ACCORDANCE WITH SC DHEC SOLID WASTE REGULATIONS AND THE CITY OF GREER NUISANCE ORDINANCE.

16. TEMPORARY SANITARY FACILITIES SHALL BE LOCATED ON A FLAT SURFACE AWAY FROM DRAINAGE FACILITIES, CATCH BASINS, WATERCOURSES AND TRAFFIC CIRCULATION. UPON DISCOVERY, ANY SPILLED MATERIAL SHALL BE CLEANED UP IMMEDIATELY. ALL COLLECTED MATERIAL, CONTAMINATED RAGS AND ABSORBENT MATERIALS SHALL BE DISPOSED OF APPROPRIATELY. LIME SHALL BE SPREAD ON THE CONTAMINATED AREA.

17. CEMENT WASTE AND WASHOUT SHALL NOT BE ALLOWED TO DISCHARGE TO STORM DRAINS, DETENTIONPONDS OR WATER COURSES. IT SHOULD BE BE COLLECTED IN A DEPRESSED BERMED AREA AND ALLOWED TO HARDEN. IT SHALL NOT BE ALLOWED TO DISCHARGE TO STORM DRAINS, STORMWATER DETENTION FACILITIES OR WATERCOURSES.

18. FIRE HYDRANT FLUSHING - FLUSHING WATER FROM FIRE HYDRANT FLUSHING SHOULD BE DIRECTED AWAY FROM ERODIBLE SOILS OR UN-STABILIZED AREAS. ALL FLUSHING WATER SHOULD BE DIRECTED TO PAVED AREAS OR A STORM DRAIN THAT IS ROUTED TO A DETENTION BASIN.

19. WATER LINE FLUSHING, (SUPER CHARGED WITH CHLORINE) - DIRECT FLOW (YOU CAN USE A DIFFUSER) TO MAKE SURE WATER LINE FLUSHING DOES NOT DAMAGE SEDIMENT AND EROSION CONTROLS. ATTEMPT TO DISCHARGE WATER ACROSS PAVEMENT AND THEN THROUGH THE STORM DRAIN SYSTEM TO DISSIPATE ENERGY AND CHLORINE CONTENT PRIOR TO DISCHARGE.

20. INDIVIDUAL LOTS IN RESIDENTIAL SUBDIVISIONS REQUIRE APPROPRIATE EROSION CONTROL WHICH INCLUDES GRAVEL ENTRANCES AND PROPERLY TRENCHED SILT FENCING ON DOWNWARD SLOPES.

21. HOUSES IN RESIDENTIAL SUBDIVISIONS SHALL BE CONSTRUCTED TO PROVIDE A MINIMUM OF 6 INCHES OF FALL WITHIN THE FIRST 10 FEET OF THE HOME SO THAT STORMWATER DRAINS AWAY FROM THE HOUSE.

22. AN INSPECTION OF THE INSTALLATION OF THE STORMWATER INFRASTRUCTURE MUST BE COMPLETED BY THE CITY OF GREER PRIOR TO RELEASING BUILDING PERMITS IN RESIDENTIAL SUBDIVISIONS.

23. THE SUBGRADE AND BASE COURSES OF SITES INVOLVING CONSTRUCTION OF PUBLIC STREETS MUST COMPLY WITH SECTION 208 AND 300 OF THE SC STATE HIGHWAY DEPT. STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

24. PUBLIC STREET DESIGN MUST COMPLY WITH THE CITY OF GREER LAND DEVELOPMENT REGULATIONS. "STREETS MUST BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF GREER LAND DEVELOPMENT REGULATIONS."

25. A REGISTERED ENGINEER MUST INSPECT ALL PHASES OF CONSTRUCTION OF PUBLIC STREETS AND CERTIFY SATISFACTORY COMPLETION ACCORDING TO THE STATEMENT PROVIDED ON PAGE 119 OF THE CITY OF GREER LAND DEVELOPMENT REGULATIONS.

SCDHEC STANDARD NOTES

1. IF NECESSARY, SLOPES THAT EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDRO-SEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW:
   - -WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   - -WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY SEVEN (7) DAYS. IF SITE INSPECTIONS IDENTIFY BMP'S THAT ARE DAMAGED OR ARE NOT OPERATING EFFICTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE AND BEFORE THE NEXT STOMR EVENT WHENEVER PRACTICABLE.

4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENTS BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.

5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACVIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.

7. RESIDENTIAL SUBDIVISIONS REQUIRE EEROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C. REG. 72-300 ET SEQ. AND SCR100000.

8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVER SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50- FOOT BUFFER CANNOT BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BULLDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BY CALLING PALMETTO UTILITY LOCATION SERVICE AT 1-800-922-0983 AT LEAST THREE (3) DAYS PRIOR TO CONSTRUCTION.

2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SHOULD ANY DISCREPANCIES BE DISCOVERED AT THE SITE OR ON THE DRAWINGS.

3. EARTHWORK SHALL BE TO THE LINES AND GRADES SHOWN. ALL PROPOSED ELEVATIONS SHOWN ARE FINISH GRADE ELEVATIONS. THE GRADING CONTRACTOR SHALL DEDUCT FOR APPROPRIATE SUBGRADE.

4. EXCAVATION SHALL BE CLASSIFIED AS FOLLOWS:

   MASS ROCK: ANY MATERIAL WHICH CANNOT BE EXCAVATED WITH A SINGLE TOOTH RIPPER DRAWN BY A CRAWLER TRACTOR HAVING A MINIMUM DRAW PULL RATED AT NOT LESS THAN 56,000 LBS. (CAT D-8 OR EQUIVALENT) AND OCCUPYING AN ORIGINAL VOLUME OF AT LEAST 1 CUBIC YARD OR MORE.

   TRENCH ROCK: ANY MATERIAL WHICH CANNOT BE EXCAVATED WITH A TRACK MOUNTED BACKHOE WITH A BUCKET CURLING FORCE OF NOT LESS THAN 20,760 LBS. (CAT 325 OR EQUIVALENT) AND OCCUPYING AN ORIGINAL VOLUME OF AT LEAST 1/2 CUBIC YARD OR MORE.

   COMMON: MATERIAL WHICH DOES NOT FALL INTO THE CLASSIFICATIONS AS CLASSIFIED ABOVE.

5. SHOULD ROCK, AS DEFINED IN NOTE 4 ABOVE, BE ENCOUNTERED, ENGINEER SHALL BE NOTIFIED PRIOR TO EXCAVATION OF ROCK FOR ESTABLISHMENT OF MEASUREMENT AND PAYMENT PROCEDURES.

6. FILL MATERIAL SHALL BE COMPACTED TO A MINMUM OF 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AT A MOISTURE CONTENT OF ±2% OF OPTIMUM

7. THE UPPER 12 INCHES OF SUBGRADE IN FLOOR SLAB AND PAVMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 98% OF THE STANDARD PROCTOR.

8. COMPACTED FILL SHALL BE TESTED DURING PLACEMENT TO ENSURE PROPER DEGREE OF COMPACTION.

9. COMPACTION TESTS SHALL BE PERFORMED AT A MINIMUM OF ONE TEST PER TWO VERTICAL FEET OF FILL MATERIAL PLACED.

10 THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE COMPACTION TESTS AND SUPPLY RESULTS TO THE ENGINEER AS A CONDITION TO PRELIMINARY AND/OR FINAL APPROVALS. INITIAL COMPACTION TESTS SHALL BE CONDUCTED AT THE OWNER'S EXPENSE. RETESTING REQUIRED DUE TO POOR COMPACTION SHALL BE CONDUCTED AT THE CONTRACTOR'S EXPENSE.

11. CONTRACTOR SHALL PROOF ROLL THE CONSTRUCTION AREA WITH HEAVY PNEUMATIC THE PRESENCE OF THE GEOTECHNICAL PROFESSIONAL PRIOR TO PLACING PAVING MATERIAL. ALL SOFT SPOTS SHALL BE UNDERCUT, REPLACED WITH STRUCTURAL FILL MATERIAL AND RECOMPACTED TO THE REQUIRED DENSITIES.

12. CONTRACTOR SHALL REMOVE TOPSOIL AS NECESSARY (MINIMUM OF 4" OR AS DIRECTED BY GEOTECHNICAL ENGINEER) TO PROVIDE ADEQUATE SUBGRADE.

13. PAVING PER DETAILS.

14. THE CONTRACTOR SHALL CONDUCT ALL WORK IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.

15. ALL STORM DRAINAGE FOR UNDERGROUND DETENTION SYSTEM SHALL BE ADS N-12 IN CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AASHTO M 294 (LATEST EDITION) TYPE S, UNLESS OTHERWISE NOTED.

16. ALL WORK IN OR ON STATE OR COUNTY RIGHT-OF-WAY REQUIRES AN ENCROACHMENT PERMIT FROM THE APPROPRIATE AGENCY.

17. CONTOUR INTERVAL IS 1'.

18. ALL EROSION CONTROL MEASURES SHOWN AND STATED ON THIS PLAN ARE TO BE IMPLEMENTED THROUGH FINAL INSPECTION.

19. GRASSING SHALL BE IN ACCORDANCE WITH THE LANDSCAPING NOTES PRIOR TO CONSIDERATION FOR PROGRESS PAYMENTS AND/OR FINAL APPROVAL/ACCEPTANCE.

20. FINAL PAYMENT TO THE CONTRACTOR WILL NOT BE RELEASED UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE OWNER, ENGINEER AND THE LOCAL AGENCY HAVING JURISDICTION.

21. GRASS SWALES SHALL HAVE A MINIMUM SLOPE OF 1%.

22. ALL BUILDING PADS SHALL BE GRADED SUCH THAT POSITIVE DRAINAGE IS MAINTAINED.

23. COMPACTION TESTS DURING CONSTRUCTION WILL BE REQUIRED FOR POND SLOPES.

CORPORATE SEAL
ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. Hwy. 14
Greer, SC 29651
(864) 884-2158

NO.	DATE	REVISION
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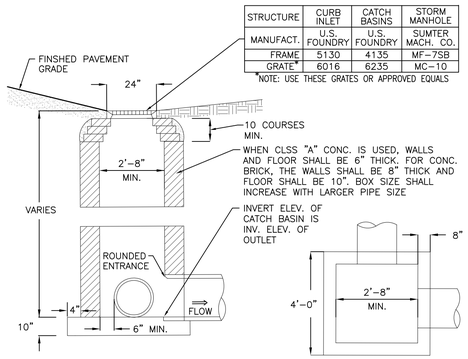
PROJECT: City of Greer Recycle Facility - Phase II Greer, South Carolina

SHEET TITLE: Details

SCALE:	1"=40'	PROJECT NO.	11012
DRAWN:	MEH	SHEET NO.	
DATE:	2-11-2016		

CV-5



STRUCTURE	CURB INLET	CATCH BASINS	STORM MANHOLE
MANUFACT.	U.S. FOUNDRY	U.S. FOUNDRY	SUMTER MACH. CO.
FRAME	5130	4135	MF-7SB
GRATE*	6016	6235	MC-10

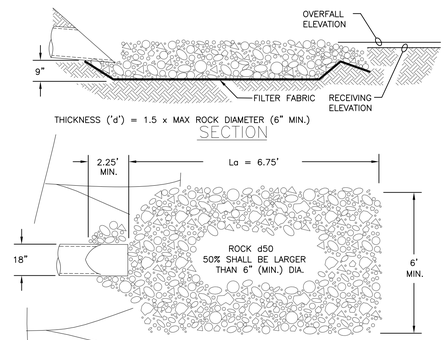
*NOTE: USE THESE GRATES OR APPROVED EQUALS

SECTION PLAN VIEW

TYPE B – STANDARD CATCH BASIN
TYPE C – STORM DRAIN MANHOLE

NO SCALE

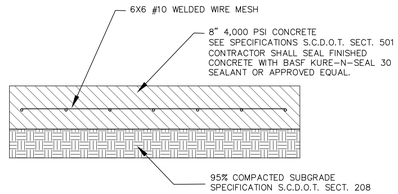
NOTE:
ALL STORM DRAIN LIDS SHALL BE CAST WITH "DUMP NO WASTE – DRAINS TO STREAM"



NOTES:
1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.

ENERGY DISSIPATOR AT END OF PIPE #6

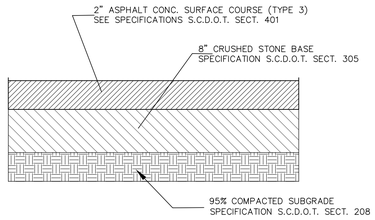
NO SCALE



TYPICAL CONCRETE PAVEMENT

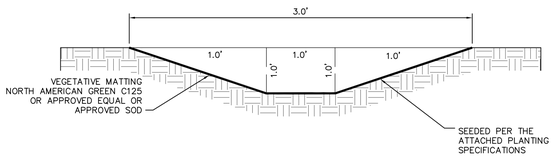
NO SCALE

NOTES:
1. CUT EXPANSION JOINTS SHALL BE NO MORE THAN 15' APART.
2. CONTRACTOR SHALL SUBMIT COMPACTION TESTS TO THE CITY OF GREER ENGINEERING OR STORMWATER DEPARTMENT.
3. ALL SUBGRADE FILL AREAS MUST BE TESTED FOR COMPACTION AND RESULTS APPROVED BY CITY.



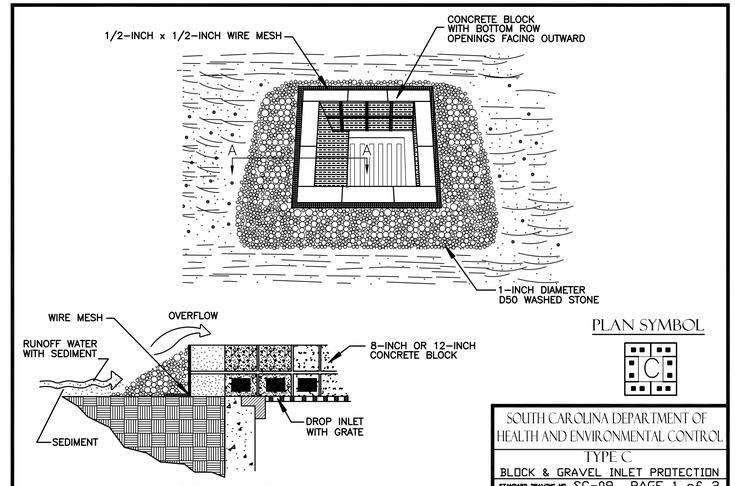
TYPICAL ASPHALT PAVEMENT PATCH

NO SCALE



TYPICAL PERMANENT DIVERSION SWALE SECTION W/ VEGETATIVE MATTING

NO SCALE



CROSS SECTION A-A

PLAN SYMBOL

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
TYPE C
BLOCK & GRAVEL INLET PROTECTION
STANDARD DRAWING NO. SC-09 PAGE 1 of 2
NOT TO SCALE
FEBRUARY 2014 DATE

BLOCK AND GRAVEL DROP INLET PROTECTION

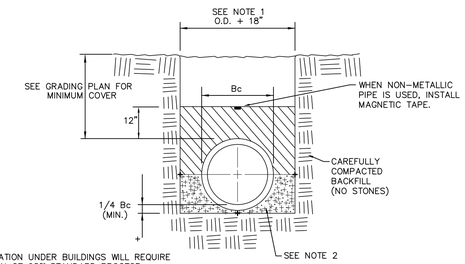
GENERAL NOTES

1. Block and gravel filters can be used where heavy flows and higher velocities are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure.
2. Gravel shall consist of 1–inch D50 Washed Stone and should extend to height equal to the elevation of the top of the blocks.
3. Place the bottom row of the concrete blocks lengthwise on their side so that the open end faces outward, not upward.
4. The height of the barrier can be varied, depending upon design needs by stacking a combination of blocks that are 8– to 12–inches wide.
5. Wire mesh should be placed over the outside vertical face of the concrete blocks to prevent stones from being washed through the holes in the blocks. Hardware cloth or comparable wire mesh with ½–inch x ½–inch openings should be used.

INSPECTION AND MAINTENACNE

1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of all inlet protection shall be conducted once every calendar week and, as recommended, within 24–hours after each rainfall event that produces 1/2–inch or more of precipitation.
3. Attention to sediment accumulations in front of the inlet protection is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the blocks. If a sump is used, sediment should be removed when it fills approximately 1/3 the depth of the hole.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. If the stone filter becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced with fresh stone.
8. Inlet protection structures should be removed after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

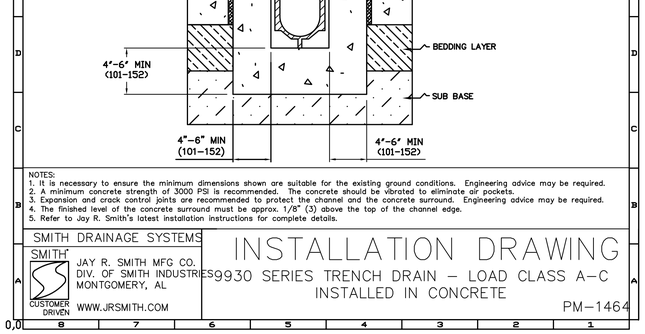
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Type C
BLOCK & GRAVEL INLET PROTECTION
STANDARD DRAWING NO. SC-09 PAGE 2 of 2
GENERAL NOTES
FEBRUARY 2014 DATE



NOTES:
1. INSTALLATION UNDER BUILDINGS WILL REQUIRE COMPACTION OF 98% STANDARD PROCTOR.
2. GRANULAR MATERIAL SHALL BE USED ONLY IN ROCK, WET, OR OTHERWISE UNSUITABLE TRENCH CONDITIONS.

TYPICAL STORM DRAIN PIPE BEDDING

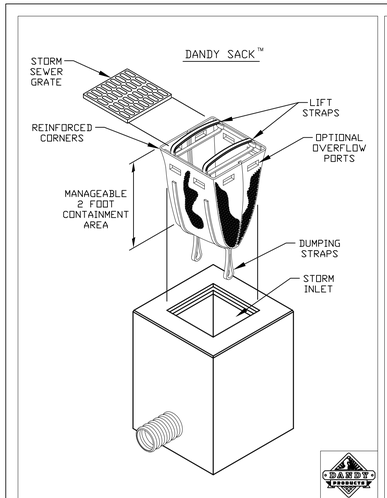
NO SCALE



NOTES:
1. It is necessary to ensure the minimum dimensions shown are suitable for the existing ground conditions. Engineering advice may be required.
2. A minimum concrete strength of 3000 PSI is recommended. The concrete should be vibrated to eliminate air pockets.
3. Expansion and crack control joints are recommended to protect the channel and the concrete surround. Engineering advice may be required.
4. The finished level of the concrete surround must be approx. 1/8" (3) above the top of the channel edge.
5. Refer to Jay R. Smith's latest installation instructions for complete details.

SMITH DRAINAGE SYSTEMS
SMITH CUSTOMER DRIVEN
JAY R. SMITH MFG CO.
DIV. OF SMITH INDUSTRIES
MONTGOMERY, AL
WWW.JRSMITH.COM

INSTALLATION DRAWING
9930 SERIES TRENCH DRAIN – LOAD CLASS A–C
INSTALLED IN CONCRETE
PM–1464



DETAIL OF INLET SEDIMENT CONTROL DEVICE

PROJECT: DR. BY:
CITY/STATE: DATE: DR. NO:

DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

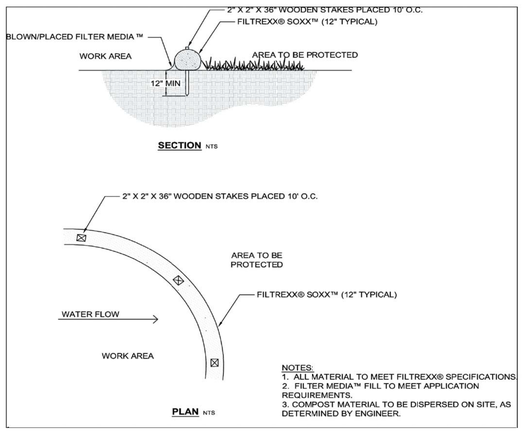
REGULAR FLOW DANDY SACK™ (BLACK)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m² (gal/min/ft²)	2852 (70)
Permittivity	ASTM D 4491	Sec⁻¹	0.90

HI–FLOW DANDY SACK™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistence	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m² (gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec⁻¹	2.1

*Note: All Dandy Sacks™ can be ordered with our optional oil absorbent pillows



NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

SEDIMENT TUBE DETAIL

NO SCALE

NOTE: SEDIMENT TUBE TO BE FILTREXX SILT SOXX OR APPROVED EQUIVALENT.

SOUTH CAROLINA NO. 03690 BLUE LINE CONSULTING CERTIFICATE OF AUTHORIZATION
CORPORATE SEAL

SOUTH CAROLINA NO. 26135 ENGINEER 5-2-16
ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

REVISION

NO.	DATE
1	
2	
3	
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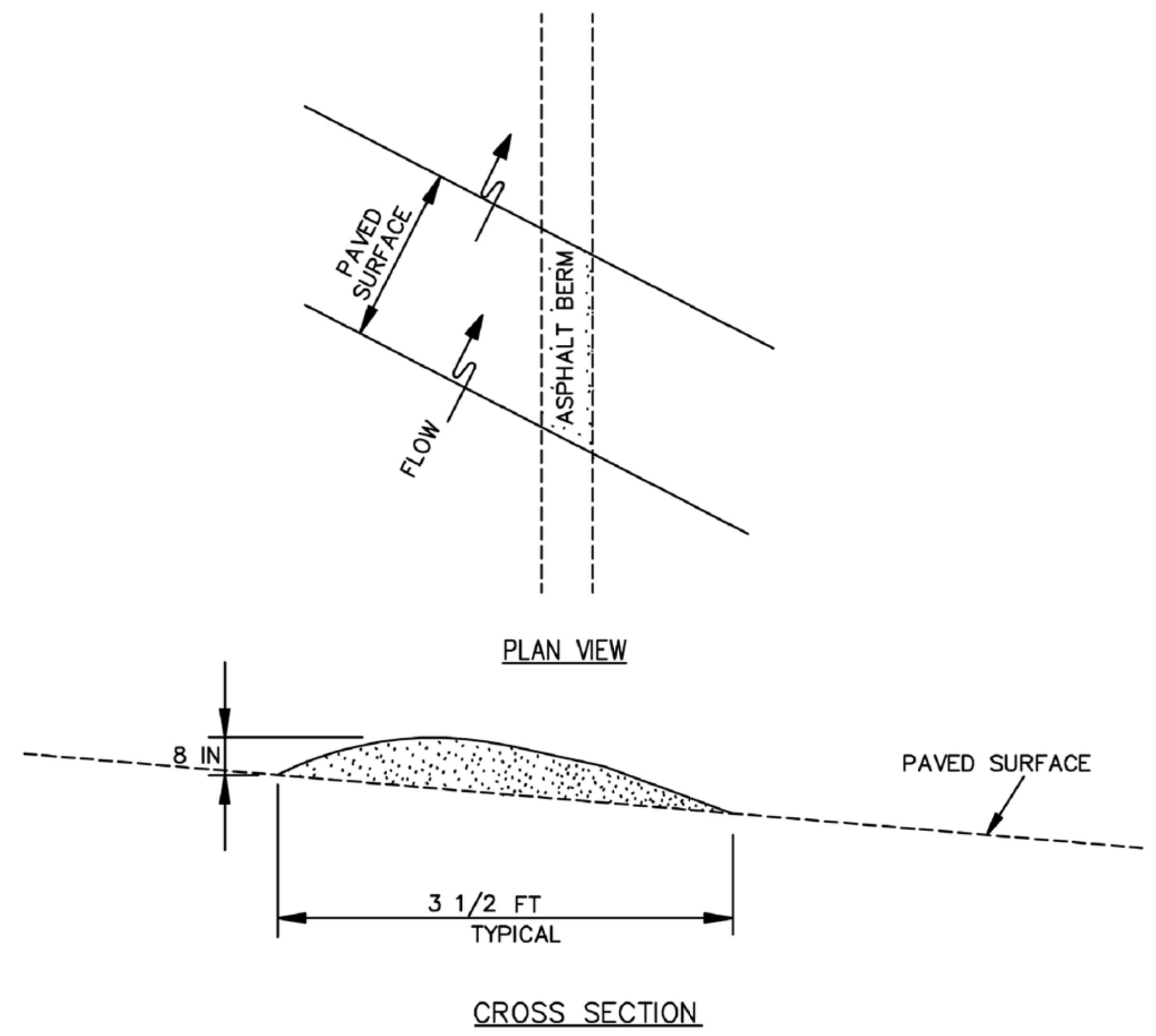
5	
6	
7	

PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE:
Details

SCALE:	1"=40'
PROJECT NO.	11012
DRAWN:	MEH
SHEET NO.	
DATE:	2-11-2016

CV-6

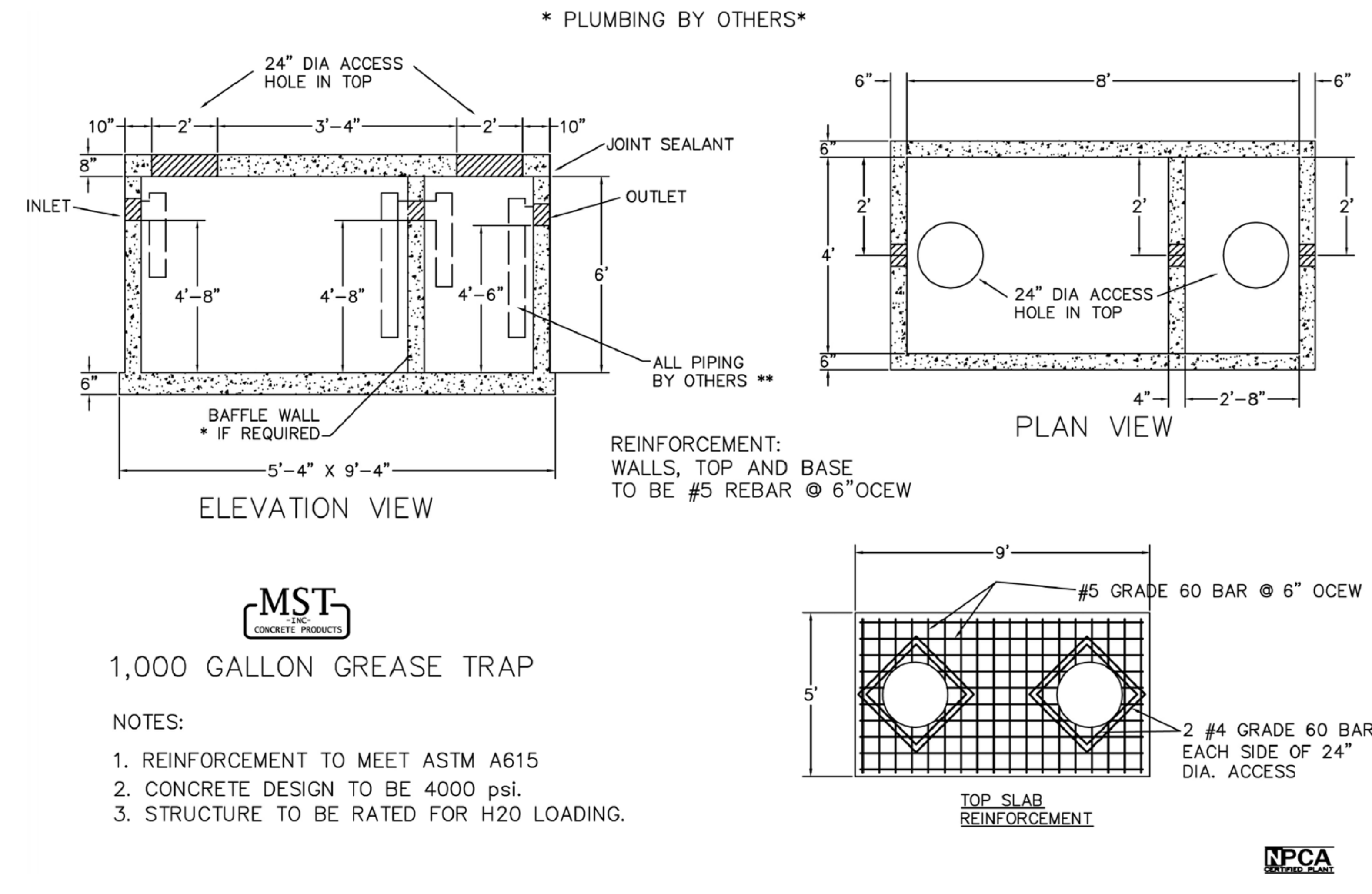


CONSTRUCTION SPECIFICATIONS

1. CONSTRUCT BERM ON AN UNINTERRUPTED, CONTINUOUS GRADE.
2. INSTALL BERM TO CONFORM TO CROSS SECTION DIMENSIONS OF A UNIFORM HEIGHT OF 8 INCHES MINIMUM AND APPROXIMATE WIDTH OF 3½ FEET.
3. PROVIDE OUTLET PROTECTION AS REQUIRED ON PLAN.
4. COMPACT ASPHALT BERM.
5. REPAIR DAMAGED ASPHALT. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

ASPHALT BERM

NO SCALE


* PLUMBING BY OTHERS*
24" DIA ACCESS HOLE IN TOP
JOINT SEALANT
INLET
OUTLET
ALL PIPING BY OTHERS **
BAFFLE WALL * IF REQUIRED
5'-4" x 9'-4"
ELEVATION VIEW
REINFORCEMENT: WALLS, TOP AND BASE TO BE #5 REBAR @ 6"OCEW
24" DIA ACCESS HOLE IN TOP
PLAN VIEW
#5 GRADE 60 BAR @ 6" OCEW
2 #4 GRADE 60 BAR EACH SIDE OF 24" DIA. ACCESS
TOP SLAB REINFORCEMENT

MST

1,000 GALLON GREASE TRAP

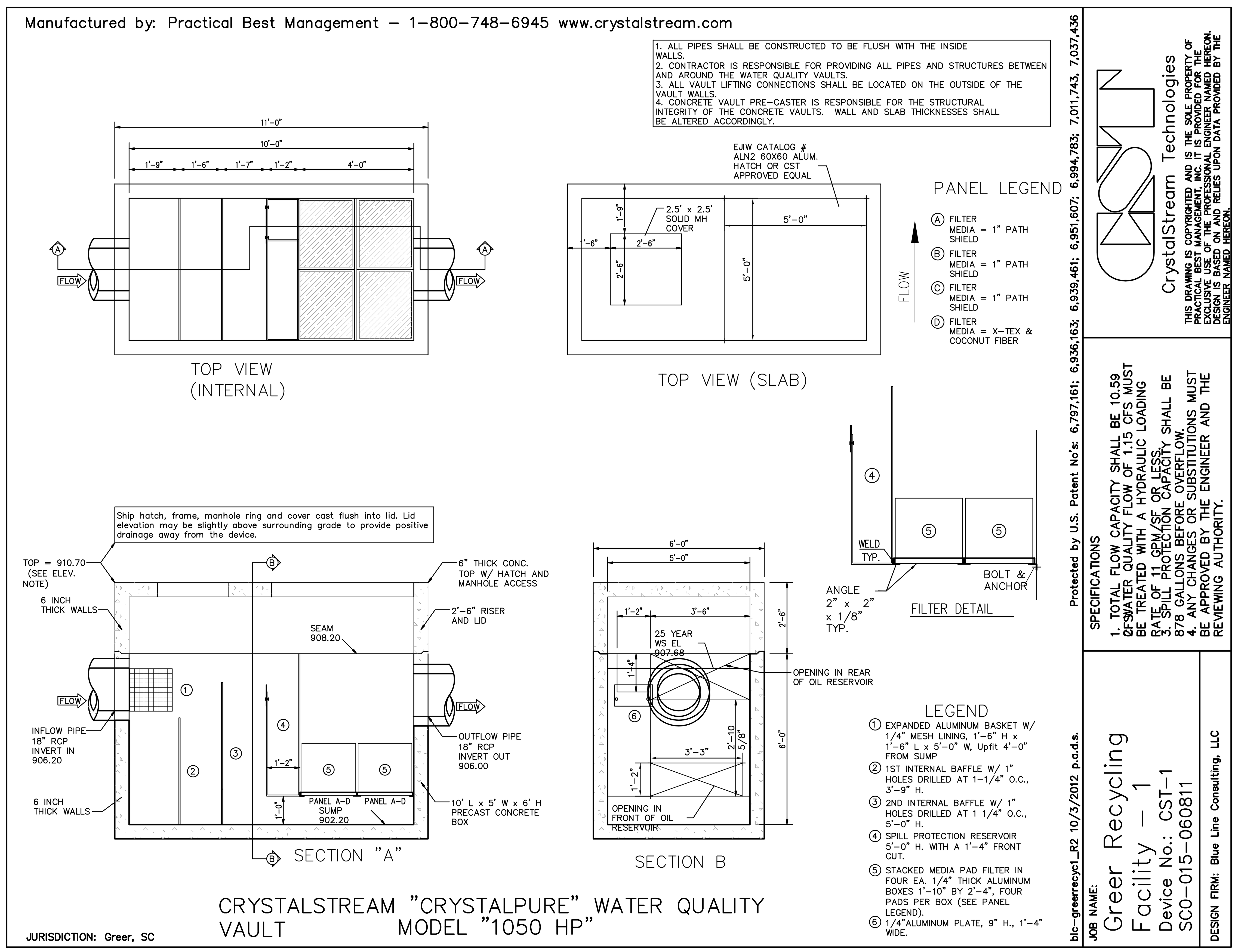
NOTES:

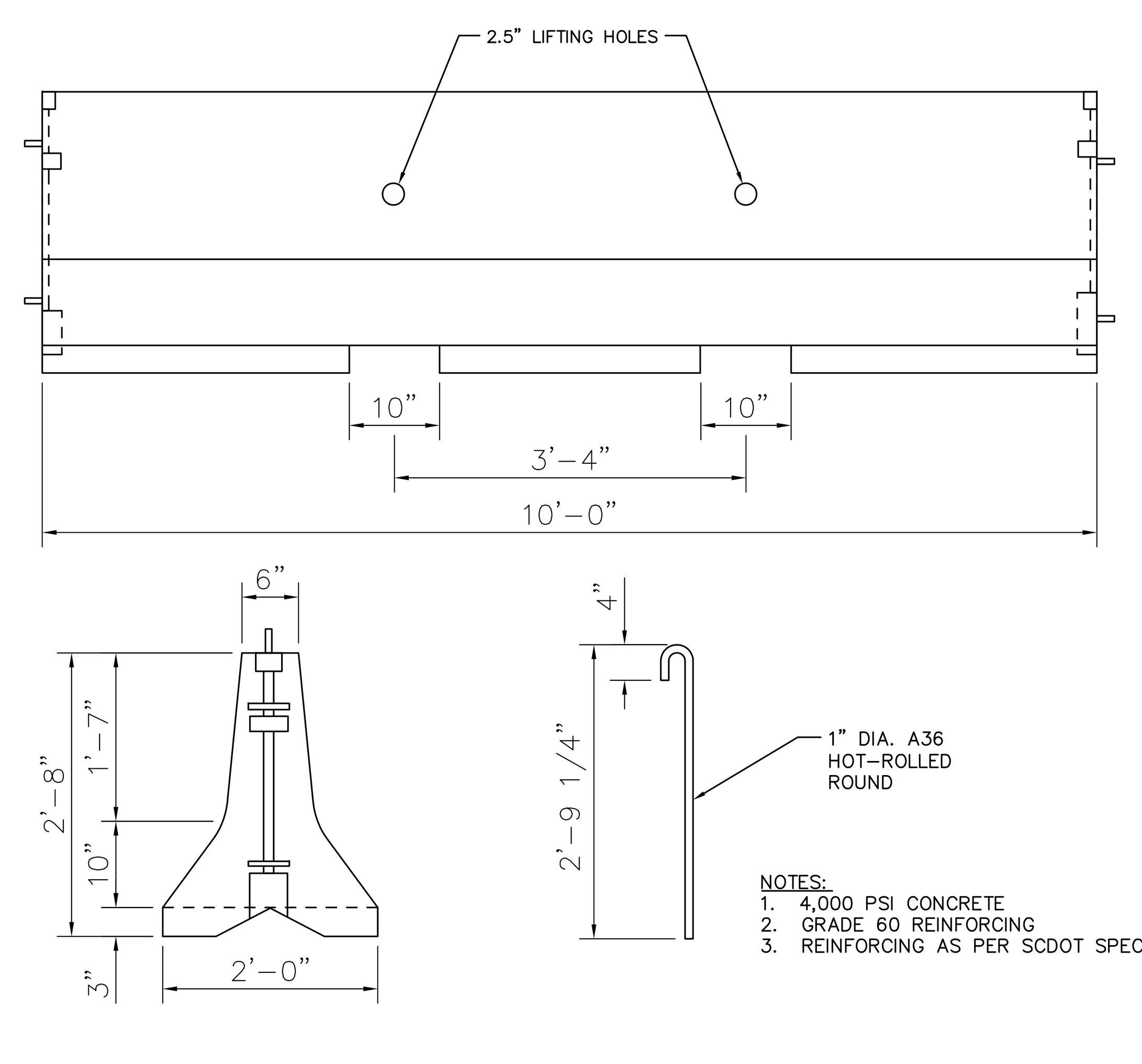
1. REINFORCEMENT TO MEET ASTM A615
2. CONCRETE DESIGN TO BE 4000 psi.
3. STRUCTURE TO BE RATED FOR H20 LOADING.

NPCA

GREASE TRAP

NO SCALE


Manufactured by: Practical Best Management – 1-800-748-6945 www.crystalstream.com
1. ALL PIPES SHALL BE CONSTRUCTED TO BE FLUSH WITH THE INSIDE WALLS.
2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL PIPES AND STRUCTURES BETWEEN AND AROUND THE WATER QUALITY VAULTS.
3. ALL VAULT LIFTING CONNECTIONS SHALL BE LOCATED ON THE OUTSIDE OF THE VAULT WALLS.
4. CONCRETE VAULT PRE-CASTER IS RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE CONCRETE VAULTS. WALL AND SLAB THICKNESSES SHALL BE ALTERED ACCORDINGLY.
TOP VIEW (INTERNAL)
TOP VIEW (SLAB)
PANEL LEGEND
A FILTER MEDIA = 1" PATH SHIELD
B FILTER MEDIA = 1" PATH SHIELD
C FILTER MEDIA = 1" PATH SHIELD
D FILTER MEDIA = X-TEX & COCONUT FIBER
FILTER DETAIL
SECTION "A"
SECTION B
LEGEND
1 EXPANDED ALUMINUM BASKET W/ 1/4" MESH LINING, 1'-6" H x 1'-6" L x 5'-0" W, Upfit 4'-0" FROM SUMP
2 1ST INTERNAL BAFFLE W/ 1" HOLES DRILLED AT 1-1/4" O.C., 3'-9" H.
3 2ND INTERNAL BAFFLE W/ 1" HOLES DRILLED AT 1 1/4" O.C., 5'-0" H.
4 SPILL PROTECTION RESERVOIR 5'-0" H. WITH A 1'-4" FRONT CUT.
5 STACKED MEDIA PAD FILTER IN FOUR EA. 1/4" THICK ALUMINUM BOXES 1'-10" BY 2'-4", FOUR PADS PER BOX (SEE PANEL LEGEND).
6 1/4"ALUMINUM PLATE, 9" H., 1'-4" WIDE.
CRYSTALSTREAM "CRYSTALPURE" WATER QUALITY VAULT MODEL "1050 HP"
JURISDICTION: Greer, SC
CrystalStream Technologies
SPECIFICATIONS
1. TOTAL FLOW CAPACITY SHALL BE 10.59 CFS
2. WATER QUALITY FLOW OF 1.15 CFS MUST BE TREATED WITH A HYDRAULIC LOADING RATE OF 11 GPM/SF OR LESS.
3. SPILL PROTECTION CAPACITY SHALL BE 878 GALLONS BEFORE OVERFLOW.
4. ANY CHANGES OR SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER AND THE REVIEWING AUTHORITY.
JOB NAME: Greer Recycling Facility – 1
Device No.: CST-1
SC0-015-060811
DESIGN FIRM: Blue Line Consulting, LLC



CONCRETE TRAFFIC BARRIER

NO SCALE

City of Greer Standard Notes

1. Once erosion control measures are in place contact the City of Greer Stormwater Inspector at 416-0100 for an inspection.

2. Weekly erosion control/stormwater pollution prevention inspections must be conducted by a certified CEPSCI inspector or a qualified licensed professional engineer.

3. A permit box with a rain gauge must be installed and kept on site.

4. All contractors, subcontractors and builders whose activities may impact stormwater discharges must sign and submit co-permittee agreements to the City of Greer.

5. All work on a City of Greer right of way requires a City Encroachment Permit. The contractor is responsible for obtaining city encroachment permits prior to conducting any work in the right of way. Encroachment permits may be obtained at the City of Greer Public Services office.

6. All silt fencing must be constructed with wire-backing and metal posts. Silt fence fabrics must meet SC DOT specifications.

7. All catch basins, storm drain manhole covers, grate inlets, etc. must be cast with the words, "DUMP NO WASTE DRAINS TO STREAM" or equivalent.

8. All soil stockpiles or borrow areas constitute land disturbance and are allowed only in permitted areas. Copies of permits for offsite borrow, stockpile or fill areas must be provided to the City of Greer, Engineering/Stormwater Division before use.

9. All erosion controls for stockpiling of dirt shall comply with SC DHEC standards. Perimeter silt fencing must be installed on the downhill sides of the stockpile. Silt fencing should be offset from the toe of the slope according to the following schedule:

Height of Fill	Fill Slope	Minimum Offset From Toe of Slope	Minimum Right of Way From Toe of Slope
(feet)	(hor:vert)	(feet)	(feet)
<6	2:1	2	3
	4:1		
	6:1		
6-10	2:1	12	13
6-10	4:1	3	4
6-10	6:1	3	4
> 10	2:1	12	13
> 10	4:1	4	5
> 10	6:1	4	5

In addition to perimeter silt fence installation, after 14 days all soil stockpiles should be properly tracked in and temporarily stabilized.

10. Dust must be contained within the site boundary. Vegetative cover and proper application of mulch or water are acceptable methods of dust control.

11. All silt fencing must be cleaned or replaced when sediment levels reach 1/3 the height of the silt fence.

12. Silt fence checks, (tie backs) are recommended on downhill slopes according to the following schedule:

2% – every 100 ft.
3% – every 100 ft.
4% – every 50 ft.
5% – every 50 ft.

13. Mud tracked onto public streets will be removed daily by sweeping or vacuuming.

14. Stormwater must enter catch basins prior to final paving in order to obtain designed trapping efficiency and maintain proper stormwater runoff control.

15. All litter, trash and construction debris shall be collected, stored and disposed of in accordance with SC DHEC Solid Waste Regulations and the City of Greer Nuisance Ordinance.

16. Temporary sanitary facilities shall be located on a flat surface away from drainage facilities, catch basins, watercourses and traffic circulation. Upon discovery, any spilled material shall be cleaned up immediately. All collected material, contaminated rags and absorbent materials shall be disposed of appropriately. Lime shall be spread on the contaminated area.

17. Cement waste and washout shall not be allowed to discharge to storm drains, detention ponds or water courses. it should be be collected in a depressed bermed area and allowed to harden. It shall not be allowed to discharge to storm drains, stormwater detention facilities or watercourses.

18. Fire Hydrant Flushing – Flushing water from fire hydrant flushing should be directed away from erodible soils or un-stabilized areas. All flushing water should be directed to paved areas or a storm drain that is routed to a detention basin.

19. Water line flushing, (super charged with chlorine) – Direct flow (you can use a diffuser) to make sure water line flushing does not damage sediment and erosion controls. Attempt to discharge water across pavement and then through the storm drain system to dissipate energy and chlorine content prior to discharge.

20. Individual lots in residential subdivisions require appropriate erosion control which includes gravel entrances and properly trenched silt fencing on downward slopes.

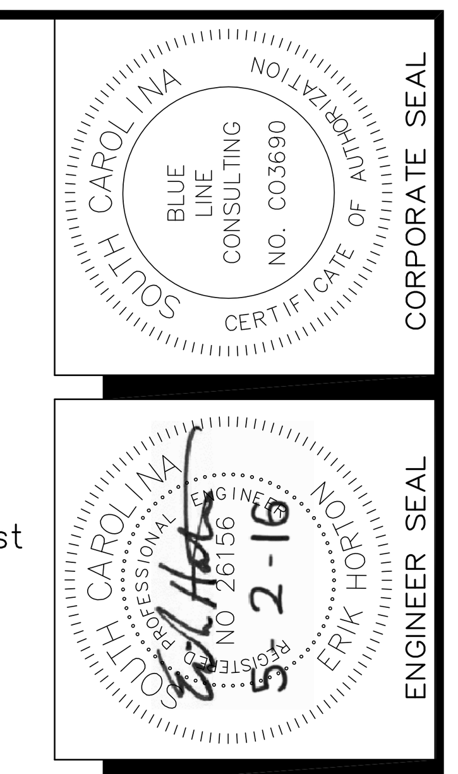
21. Houses in residential subdivisions shall be constructed to provide a minimum of 6 inches of fall within the first 10 feet of the home so that stormwater drains away from the house.

22. An inspection of the installation of the stormwater infrastructure must be completed by the City of Greer prior to releasing building permits in residential subdivisions.

23. The subgrade and base courses of sites involving construction of public streets must comply with Section 208 and 300 of the SC State Highway Dept. Standard Specifications for Highway Construction.

24. Public street design must comply with the City of Greer Land Development Regulations. "Streets must be constructed in accordance with the City of Greer Land Development Regulations."

25. A registered engineer must inspect all phases of construction of public streets and certify satisfactory completion according to the statement provided on page 119 of the City of Greer Land Development Regulations.



BLUE LINE CONSULTING, LLC
4503 N. HWY. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
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PROJECT: City of Greer Recycle Facility - Phase II, Greer, South Carolina

SHEET TITLE: Details

SCALE:	1"=40'	PROJECT NO.	11012
DRAWN:	MEH	SHEET NO.	
DATE:	2-11-2016		

CV-7

SCDHEC Standard Notes

1. If necessary, slopes that exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydro-seeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.

2. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below:

Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions, stabilization measures must be initiated as soon as practicable.

Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the site.

3. All sediment and erosion control devices shall be inspected every seven (7) days. If site inspections identify BMP's that are damaged or are not operating effectively, maintenance must be performed as soon as practical or as reasonably possible and before the next stomr event whenever practicable.

4. Provide silt fence and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grassing immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove sediments before being pumped back into any waters of the State.

5. All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction acvivities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.

6. The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement as may be required.

7. Residential subdivisions require eerosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C. Reg. 72-300 et seq. and SCR100000.

8. Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to diver sediment-laden water to appropriate traps or stable outlets.

9. All waters of the State (WoS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50- foot buffer cannot be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.

10.Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.

City of Greer Standard Notes

Major and Minor Modifications

Below is a list of items that are considered Major or Minor Modifications to the Stormwater Pollution Prevention Plan (SWPPP). This is not an all-inclusive list. Major Modifications must be approved by the City prior to being implemented in the field. Minor modifications may be implemented without approval. If there are questions regarding whether a modification is considered major or minor, please contact Lillian Hanley before proceeding with the modification.

Major Modifications

- Any modification that will affect the hydrology or trapping efficiency calculations.
  - a. Resizing sediment or detention basin.
  - b. Deletion of sediment or detention basin or sediment trap.
  - c. Relocation of sediment basin or sediment trap
  - d. Addition of sediment trap or detention basin
  - e. Modification of sediment or detention basin outlet structure.
  - f. Amending construction sequence so basin is not installed before grubbing operations begin.

- Point discharge location change (near property line)
- Adding new point discharge (within 20' of property line)
- Addition of impervious area (which will affect curve number calculation)
- Addition of disturbed area
- Changes to Navigable Water crossing (new CGP)
- Addition of sediment trap (unless detail shows trap sizes for specific drainage areas)

Minor Modifications

- Addition of silt fence, slope drains, inlet protection, outlet protection or check dams
- Relocation of construction entrance
- Relocation of pond inlet pipes (still within the pond)
- Omission of disturbed area
- Individual lot drainage, unless that changes the detention structure or analysis point to which the lot drains.

Regulatory Requirements

Temporary Stabilization

Temporary Stabilization is defined as a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

Initiating Temporary Stabilization
Initiate temporary stabilization by mulch or temporary stabilization by seeding within 7 calendar days where land disturbing activities have temporarily ceased on the Project and will not resume for a period exceeding 14 calendar days. Where land disturbing activities on a portion of the Project are temporarily ceased, and the land disturbing activities are resumed within 14 days, temporary stabilization measures are not required to be initiated on that portion of the Project.

Temporary stabilization by seeding is required if the Project will not be worked for a period longer than 60 days.

Initiate temporary stabilization measures as soon as practicable for areas where initiating temporary stabilization measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

Acceptance of Temporary Stabilization
Before acceptance of temporary stabilization by the regulatory agency and the Design Engineer or Landscape Architect, temporary stabilization is required that is sufficient to control erosion for a given area and length of time before the next phase of construction or the establishment of permanent seeding is to commence. A satisfactory stand of temporary stabilization meeting the requirements of this Specification is required regardless of the time of the year the work is performed.

Temporary Cover by Mulch
Use temporary cover by mulch where it is not feasible or practicable to bring an area to final slope and grade. Finish the surface so that permanent seeding can be performed without subsequent disturbance by additional grading.

Temporary Cover by Seeding
Following the preparation of the seedbed, sow seed per the seeding Tables and apply an appropriate Mulch prior to a rainfall event that compacts the seedbed. The CONTRACTOR may add granular lime and fertilizer as necessary to enhance growth.

Final Stabilization

Final Stabilization is defined that all land-disturbing activities at the construction site have been completed and that on all areas not covered by permanent structures, either

(1) A uniform (e.g., evenly distributed, without large bare areas) permanent vegetative cover with a density of 70 percent has been established, or
(2) Equivalent permanent stabilization measures (such as the use of landscaping mulch, riprap, pavement, and gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with permanent vegetation.

Final stabilization by vegetation must be achieved with permanent perennial vegetation prior to issuing the Notice of Termination (NOT).

Permanent Seeding
Initiate permanent seeding within 7 calendar days where land disturbing activities have permanently ceased on the Project. Where land disturbing activities are resumed within 14 days, stabilization measures are not required to be initiated on that portion of the Project. Initiate permanent seeding measures as soon as practicable for areas where initiating permanent seeding measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

When performing permanent seeding for permanent detention ponds, ensure that the detention pond is cleaned of any deposited sediment and graded to the required permanent detention basin configuration. Ensure the seedbed for the permanent seeding is established in accordance with this Specification.

Acceptance of Permanent Seeding
Before acceptance, a uniform perennial vegetative cover with a density of 70% of each square yard of the seeded area is required. A well developed root system must be established to sufficiently survive dry periods and winter weather and be capable of reestablishment in the spring.

Permanent Seeding Installation
Following the preparation of the seedbed, perform permanent seeding per the seeding Tables and apply an appropriate Mulch within 5 working days and/or prior to a rainfall event that compacts the prepared seedbed. If a rain event occurs that compacts or erodes the seedbed prior to performing permanent seeding, the seedbed must be re-prepared prior to conducting permanent seeding. Add fertilizer and lime as required by a soil test.

Sod

Initiate Sod applications within 7 calendar days where land disturbing activities have permanently ceased on the Project. Initiate Sod applications measures as soon as practicable for areas where initiating Sod applications within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization). Use Sod on slopes less than 2H:1V.

Acceptance of Sod
Acceptance is contingent on establishing a satisfactory stand of perennial grass. Sod application areas are acceptable when all requirements including maintenance are met and a healthy, evenly colored, viable stand of grass is established. A satisfactory stand of grass must have a root system that is sufficient to survive dry periods and winter weather and is capable of re-establishing in the spring.

Sod

Do not use sodding on slopes steeper than 2H:1V, and if sodding is mowed, do not place on slopes greater than 3H:1V. Install Warm Season Sod between March 1st and September 1st. Install Cool Season Sod anytime during the year as long as the soil is not frozen.
Do not place Sod on:
- Soil that is frozen and/or when the 10-day forecasted low temperature remains below 35 degrees Fahrenheit;
- Soil that is excessively wet;
- Soil that is excessively dry (periods of heat or drought) unless watering is specified;
- Soil that is composed of compacted clay; and
- Soil than has been treated with pesticides.

Sod Bed Preparation
- Ensure the Sod bed is uniform and conforms to the finished grade of the Project.
- Loosen the Sod Bed to a minimum depth of 3 inches before placing Sod.
- Furnish and place topsoil or compost in the Sod Bed in areas where the existing Sod Bed has little or no topsoil,
- Lay Sod when Sod Bed is moist. Moisten dry Sod Beds before sod is laid.

Sod Material
Provide Sod with living, well-established growth, with a dense root mat of predominant grass Specified. Provide vigorous, well rooted, healthy turf, free from disease, insect pests, weeds, other grasses, stones, and any other harmful or detrimental materials.

Sod Installations
Ensure Sod is not installed until the end of the project or when final stabilization is achieved on adjacent areas of the project that drain or discharge to the Sod application.

Amendments

Lime
Agricultural Granular Lime
Use agricultural grade, standard ground limestone for all permanent seeding applications and Sodding applications.

Applying Granular Lime
A soil analysis is recommended prior to application. Apply at a rate within ±10% of weight recommendation of soil analysis. Do not apply more than 2,500 lbs/acre of in a single application.

Fast Acting Lime
Use fast acting liquid and/or dry forms of lime for all temporary seeding and permanent seeding applications.

Fertilizer
Granular Fertilizer
Use for all permanent seeding applications and all Sodding applications. Proper mixture is dependent on the existing soil conditions and it is recommended that a soil analysis be performed if the soil conditions are uncertain in the area of fertilizer application.

Use fertilizer that incorporates a minimum of 50% water insoluble (slow release) nitrogen. Animal by-product or municipal waste fertilizers are not acceptable under this Specification.

Unless a soil analysis is performed to determine otherwise, a good rule of thumb granular fertilizer to apply in the Upstate of South Carolina is 10-10-10. In no case should a 20-20-20 fertilizer be used due to the potential burning of the seedbed.

Compost Soil Amendment

For seedbeds that have little or no topsoil, are highly acidic, or are lacking sufficient nutrients to sustain a health stand of grass place, and mix certified weed free compost into the seedbed to ensure a good stand of grass.

Biological Growth Stimulant

Use for all permanent seeding, Sodding, and temporary seeding applications. Animal by-products or municipal waste products are not acceptable. Liquid fertilizers are not acceptable, and can cause burning of the seedbed if applied as such.

CORPORATE SEAL

ENGINEER SEAL

BLUE LINE
CONSULTING, LLC
4503 N. Hwy. 14
Greer, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
2		
3		
4		
5		
6		
7		

PROJECT:
City of Greer
Recycle Facility - Phase II
Greer, South Carolina

SHEET TITLE:
Details

SCALE:	1"=40'	PROJECT NO.	11012
DRAWN:	MEH	SHEET NO.	
DATE:	2-11-2016		

CV-8

City of Greer Standard Notes

Seeding Dates and Rates of Application

Perform seeding during the periods and at the rates specified in the seeding tables. Do not use temporary cover by seeding or permanent seeding for projects when:

- The ground is frozen and/or when the 10–day forecasted low temperature remains below 35 degrees Fahrenheit;
- The ground is excessively wet; or
- The ground is excessively dry (periods of drought) unless watering is specified.

During periods of adverse conditions, use temporary cover by mulch.

Seedbed Preparation

- Ensure that the areas receiving permanent seeding are uniform and conform to the finished grade of the Project.
- Perform minor shaping and evening of uneven and rough areas outside of the graded area in order to provide for more effective erosion control and for ease of subsequent mowing operations.
- Loosen the seedbed (including cut slopes) to a minimum depth of three (3) inches before initiating permanent seeding and temporary seeding.
- An acceptable method of preparing the seedbed on slopes is vertically tracking the seedbed up and seedbed up and down the slope with proper equipment.
- Remove stones larger than two and one–half (2½) inches in any dimension, large dirt clods, roots, or other debris brought to the surface.
- Use compost if good seedbed material is not located on site or results of the soil test show the seedbed is excessively nutrient deficient to the extent of requiring costly fertilizer additions and or have excessively low pH values (lower than 5.0).
- Consider the use of mechanical seed drills to perform permanent seeding on areas where temporary seeding or temporary cover by mulch was previously utilized.

Mulch

Required for all permanent seeding, temporary seeding, and temporary cover applications. Do not use Mulch in areas where concentrated flow is expected. Use HECP Mulch for temporary seeding and temporary cover applications when the application area will require additional grading prior to permanent seeding. Do not use Erosion Control Blankets (ECB) or Turf Reinforcement Matting (TRM) in this situation.

Wood Chip Mulch
Wood chip mulch is not acceptable for seeding applications. If wood chip mulch is used for temporary cover by mulch, it must be removed prior to performing permanent seeding

Straw or Hay Mulch with Tackifier
Use material that is certified weed. Do not use on slopes steeper than 4H:1V. Anchor using one of the following tacking agents:

- Organic or Chemical Tackifier
- Hydraulic Straw Tackifiers
- Emulsified Asphalt

Applying Straw or Hay Mulch
Uniformly apply material at the rate of 2,000 pounds per acre.

Compost Mulch
Only use from producer that participates in the USCC STA program. Do not use materials that have been treated with chemical preservatives as a compost mulch. Do not use mixed municipal solid waste compost.

Hydraulic Erosion Control Products (HECPs)
Use as an allowable mulch for temporary cover by mulch, temporary cover by seeding or permanent cover by seeding applications. Do not use as a channel liner or for areas receiving concentrated flow.

Temporary Erosion Control Blankets (ECB) and Turf Reinforcement Matting (TRM)
Consider for permanent seeding application areas with steep slopes or areas where there is a significant erosion problem or potential for erosion. Use in areas where concentrated flow is expected. Do not use for temporary seeding applications when the application areas will require additional grading or modifications prior to permanent seeding.

Protection of Structures
Cover any parts of bridges, culverts, guardrails, signs, sidewalks, curb and gutters, catch basins, pipe ends, and other structures as necessary to prevent discoloration before spraying HECPs, organic or chemical tackifiers.

City of Greer Standard Notes

Slope Interruption Devices

The maximum allowable continuous slope length for straw or hay mulch, HECPs, compost and ECB applications is 50 feet. Slope interruption devices (such as sediment tubes) or TRMs are required for continuous slope length longer than 50 feet.

Inspection

Ensure that all seed, Sod, fast acting lime, biological growth stimulants, agricultural granular lime, granular fertilizer, straw and hay mulch, HECPs, compost mulch, and ECBs are applied as Specified. The Design Engineer or Landscape Architect, or member of the Design Engineer or Landscape Architect staff must document on–site that these materials are applied correctly by completing and signing proper forms.

Maintenance

Perform all maintenance necessary to keep Stabilization areas in a satisfactory condition until the work is finally accepted. This includes mowing, repairing areas of erosion and washes, and applying additional seed, fertilizer, and mulch to areas where a satisfactory stand of grass has not been achieved.

Mowing

Mow road shoulders and medians when vegetation reaches a height of approximately 18 to 24 inches. Do not perform excessive mowing of Slopes resulting in ruts, furrows or grooves. Do not perform excessive mowing of Slopes that inhibits the establishment of the slope vegetation.Do not perform mowing when soil and weather conditions are such that rutting or other damage to the Project may occur.

Ensure mowing results in a uniform vegetation height of 4 to 6 inches, unless otherwise directed. When utilizing a nurse crop for permanent seeding, mow Millet (no lower than 3 inches) once it reaches a height of 18 inches to reduce competitiveness with the permanent vegetation. Mow Wheat and Rye Grain (no lower than 3 inches) once they reach a height of 6–8 inches to reduce competitiveness with permanent vegetation.

MULCH APPLICATION TABLE

Mulch	Applicable Slopes (H:V)[1]	Minimum Application Rate (lbs/acre -dry)[2]
Wood Chips	≤ 4:1	500 CY/acre
Straw or Hay with Tackifier	≤ 4:1	2,000
HECP Type 1	≤ 4:1	2,000
HECP Type 2	4:1< S ≤ 3:1	2,500
HECP Type 3	3:1< S ≤ 2:1	3,000
HECP Type 4	2:1< S ≤ 1:1	3,500
	>1:1	4,000 (temp cover only)[3]
Compost Mulch	≤ 2:1	200 CY/acre

1 The maximum allowable continuous slope length for all mulch applications is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.

2 Strictly comply with the manufacturer's mixing recommendations for the actual slope steepness and the actual continuous slope length of the application.

3 HECP Type 4 may be used for permanent cover applications on slopes 1:1 or greater at a minimum rate of 4,500 pounds per acre.

ECB and TRM APPLICATION TABLE

ECB/TRM Type[1]	Slope (H:V)[2]	Minimum Slope Length (ft)
Temporary ECB or Type 1 TRM	≤ 2:1	5
Type 2 TRM	≤ 1.5:1	5
Type 3 TRM	≤ 1:1	5

1 Strictly comply with the manufacturer's specifications.

2 The maximum allowable continuous slope length for ECBs is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.

Non Slope Areas

Spring / Summer Non Slope Areas (during establishment, mow when Millet reaches 18-inches in height)

Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	50	1.15				●	●	●	●					
White Clover	*Trifolium repens*	5	0.11			●	●				●				
Browntop Millet	*Panicum ramosum*	10	0.23				●	●	●	●	●				

Fall / Winter Non Slope Areas (during establishment, mow when Rye reaches 6 to 8-inches in height)

Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tall Fescue (KY-31)	*Festuca arundinacea*	50	1.15	●	●	●	●					●	●	●	●
Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	●	●	●					●	●	●	●	●
White Clover	*Trifolium repens*	5	0.11		●	●	●					●	●	●	
Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	●	●	●	●					●	●	●	●
Rye Grain[3]	*Secale cereale*	15	0.34	●	●	●	●					●	●	●	●

1 Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
2 Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
3 Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6-8 inches to reduce competitiveness with permanent vegetation.
4 If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

Road Medians & Shoulders

Spring / Summer Road Median & Shoulders (during establishment, mow when Millet reaches 18-inches in height)

Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	25	0.57				●	●	●	●					
Browntop Millet	*Panicum ramosum*	10	0.23				●	●	●	●	●				

Fall / Winter Road Median & Shoulders (during establishment, mow when Rye reaches 6 to 8-inches in height)

Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15	●	●	●	●					●	●	●	●
Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	●	●	●						●	●	●	●
Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	●	●	●					●	●	●	●	●
Rye Grain[3]	*Secale cereale*	15	0.34	●	●	●					●	●	●	●	●

1 Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
2 Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
3 Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6-8 inches to reduce competitiveness with permanent vegetation.
4 If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

Slopes & Buffers

Spring / Summer Slopes (during establishment, mow when Millet reaches 18-inches in height. After establishment, only mow at end of winter season)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pick 1	Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15			●	●								
Pick 1	Bahiagrass	*Paspalum notatum*	30	0.69			●	●	●	●	●					
Pick 1	Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	25	0.57				●	●	●	●					
	White Clover	*Trifolium repens*	5	0.11			●	●				●				
	Weeping Lovegrass	*Erograstis curvula*	5	0.11			●	●	●	●	●	●				
	Hairy Vetch[2]	*Vicia villosa*	10	0.23				●								
	Browntop Millet	*Panicum ramosum*	10	0.23				●	●	●	●	●				

Fall / Winter Slopes (during establishment, mow when Rye reaches 6 to 8-inches in height. After establishment, only mow at end of winter season)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15	●	●	●						●	●	●	●
	Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	●	●	●						●	●	●	●
	White Clover[2]	*Trifolium repens*	5	0.11		●	●						●	●	●	
	Weeping Lovegrass	*Erograstis curvula*	5	0.11	●	●	●						●	●	●	●
Pick 1	Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	●	●	●						●	●	●	●
Pick 1	Hairy Vetch[2]	*Vicia villosa*	10	0.23	●	●	●						●	●	●	●
	Rye Grain[3]	*Secale cereale*	15	0.34	●	●	●						●	●	●	●

1 Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
2 Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
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CORPORATE SEAL

ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. Hwy. 14
Greer, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
2		
3		
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7		

PROJECT: City of Greer
Recycle Facility - Phase II
Greer, South Carolina

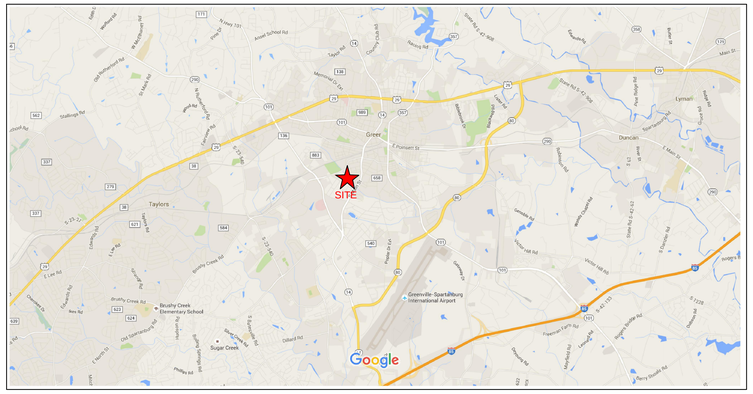
SHEET TITLE: Details

SCALE:	1"=40'
DRAWN:	MEH
DATE:	2-11-2016
PROJECT NO.	11012
SHEET NO.	CV-9

CV-9

MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALL DESIGN

CITY OF GREER RECYCLE FACILITY PHASE II
BUNCOMBE STREET
GREER, SOUTH CAROLINA



LOCATION VICINITY MAP
SCALE: Not to Scale
SOURCE: Google Maps

SPECIAL NOTES

MATERIALS TESTING SHALL BE PERFORMED DURING WALL CONSTRUCTION TO VALIDATE DESIGN ASSUMPTIONS. CHANGES TO THE DESIGN COULD BE REQUIRED BASED ON THOSE RESULTS.

SELECT REINFORCED BACKFILL (#57) IS REQUIRED FROM STA. 0+00 TO 0+12± AS DETAILED ON THE MSE WALL #1 FACE ELEVATION ON SHEET R3.

REINFORCED BACKFILL FROM STA. 0+12± TO 0+40.3± SHALL MEET THE REQUIREMENTS OF SECTION 2.1 ON SHEET R4. THERE APPEARS TO BE SUITABLE ON-SITE SOILS; HOWEVER, AN OFF-SITE BORROW COULD BE REQUIRED IF SUFFICIENT ON-SITE MATERIAL IS NOT AVAILABLE.

GEOTEXTILE FILTER FABRIC REQUIRED BETWEEN EXISTING TRUCK DUMP ABUTMENT AND MSE FACING UNITS (SEE DETAIL ON SHEET R3).

FULL HEIGHT EXPANSION JOINT REQUIRED BETWEEN EXISTING TRUCK DUMP ABUTMENT AND MSE FACING UNITS (SEE DETAIL ON SHEET R3).

BOTTOM OF MSE WALL AT STA. 0+00 SHALL BE FIELD ADJUSTED TO MATCH EXISTING TRUCK DUMP FOOTING LEVEL (SEE DETAIL ON SHEET R3).

EXCAVATION BEHIND THE WALL SHALL BE COORDINATED WITH WALL CONSTRUCTION AND SHALL BE COMPLETED WITHOUT DAMAGE TO THE MSE WALL REINFORCEMENT AND/OR MSE WALL SYSTEM. AUGERING OR TRENCHING IS NOT ALLOWED WITHIN REINFORCED ZONE.

HORIZONTAL AND VERTICAL DISPLACEMENTS OF THE WALL SYSTEM WILL OCCUR DUE TO THE WEIGHT OF FILL, COMPOSITION OF THE FILL AND MOBILIZATION OF THE RESISTING FORCES. THIS DISPLACEMENT COULD BE REALIZED IN THE PAVEMENTS IN THE FORM OF CRACKS. MOVEMENT SHOULD BE MONITORED AND VERIFIED PRIOR TO PAVEMENT INSTALLATION. THE REINFORCED SOIL ZONE AND RETAINED SOIL BACKFILL ZONE, SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 6.0 ON SHEET R4. BACKFILL USED TO CONSTRUCT THE WALL SHOULD MEET THE REQUIREMENTS OF SECTION 2.1.1 AND 2.2.1 ON SHEET R4 TO HELP REDUCE THE CREEP EFFECT THAT CAN OCCUR.

HEAVY COMPACTION EQUIPMENT OR OTHER HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED WITHIN 3 FEET OF THE BACK OF THE SRW UNITS.

GENERAL NOTES

WALL LOCATION PLAN COPIED FROM PHASE II GRADING AND EROSION CONTROL PLAN (SHEET CV-3, DATED 9/21/15) PREPARED BY BLUE LINE CONSULTING, LLC. AND PROVIDED BY THE CITY OF GREER ON NOVEMBER 4, 2015. S&ME, INC. SHALL BE NOTIFIED OF ANY CHANGES TO OR DEVIATIONS FROM THE ABOVE REFERENCED PLAN(S) IN ORDER TO REEVALUATE THIS DESIGN.

THIS DESIGN IS BASED ON SPECIFIC SRW UNIT PROPERTIES. THE USE OF ANY MATERIALS OTHER THAN THOSE SPECIFIED HEREIN SHALL NOT BE ALLOWED WITHOUT PRIOR REVIEW AND APPROVAL BY S&ME, INC.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL CONDITIONS, GRADES, AND DIMENSIONS AT THE SITE PRIOR TO WALL CONSTRUCTION. IF THE WALL CONTRACTOR DISCOVERS ANY ERRORS, OMISSIONS OR DISCREPANCIES, HE SHALL CONTACT THE S&ME WALL DESIGN ENGINEER. THE WALL DESIGN ENGINEER WILL THEN ISSUE INSTRUCTIONS AS TO HOW TO PROCEED. SHOULD THE CONTRACTOR FAIL TO CONTACT THE WALL DESIGN ENGINEER, THEN THE DESIGN SHALL BE CONSIDERED VOID AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY ADDITIONAL WORK NECESSARY.

THE GENERAL CONTRACTOR AND/OR OWNER SHALL BE RESPONSIBLE FOR INSTALLING ANY GUARDRAILS AND/OR FENCING NEEDED TO SATISFY SAFETY CONCERNS AND/OR GOVERNMENTAL REGULATIONS. THE CONTRACTOR AND/OR OWNER SHALL BE RESPONSIBLE FOR OBSERVING ALL APPLICABLE SAFETY LAWS AND REGULATIONS.

DESIGN PREPARED IN ACCORDANCE WITH S&ME PROPOSAL NO. 14-1600005 DATED JANUARY 5, 2016.

Plan Sheet Index

DATE: DESCRIPTION

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION S&ME, INC. NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO: 17058 DAVID A. SWOAP

PREPARED BY: S&ME

S&ME, Inc.
201 FAIRFOREST ROAD, GREENVILLE, SC 29607
PO BOX 6906, GREENVILLE, SC 29606
NC PE FIRM LICENSE NO. F-0176

864.233.8987 Greenville
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www.smeinc.com

PROJECT: GREER RECYCLE
BUNCOMBE STREET
GREER, SOUTH CAROLINA

PREPARED FOR: CITY OF GREER
GREER, SOUTH CAROLINA

SHEET TITLE: TITLE SHEET & NOTES

DESIGN BY:	MGR
CHECKED BY:	DAS
DATE:	02/11/2016
SCALE:	AS SHOWN
JOB NO.:	1426-16-009

SHEET NUMBER: R1 OF 4

SCALE
−5 0 5
FEET

WALL LOCATION PLAN

Legend: *Wall Location*

Approximate Geogrid Reinforcement Limits

#1 *Wall Designation & 0+00 Station*

REFERENCE

WALL LOCATION PLAN COPIED FROM PHASE II GRADING AND EROSION CONTROL PLAN (SHEET CV–3, DATED 9/21/15) PREPARED BY BLUE LINE CONSULTING, LLC. AND PROVIDED BY THE CITY OF GREER ON NOVEMBER 4, 2015. S&ME, INC. REFER TO CIVIL DRAWING SET FOR ACTUAL LAYOUT INFORMATION.

NOTE

WALL LOCATION SHOWN DOES NOT ACCOUNT FOR WALL BATTER.
WALL LOCATION PLAN SHOWN FOR REFERENCE ONLY.

DESCRIPTION	DATE:

SOUTH CAROLINA
S&ME, INC.
NO. C00473
CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
NO. 17058
DAVID A. SWOAP

PREPARED BY:
S&ME
S&ME, Inc.
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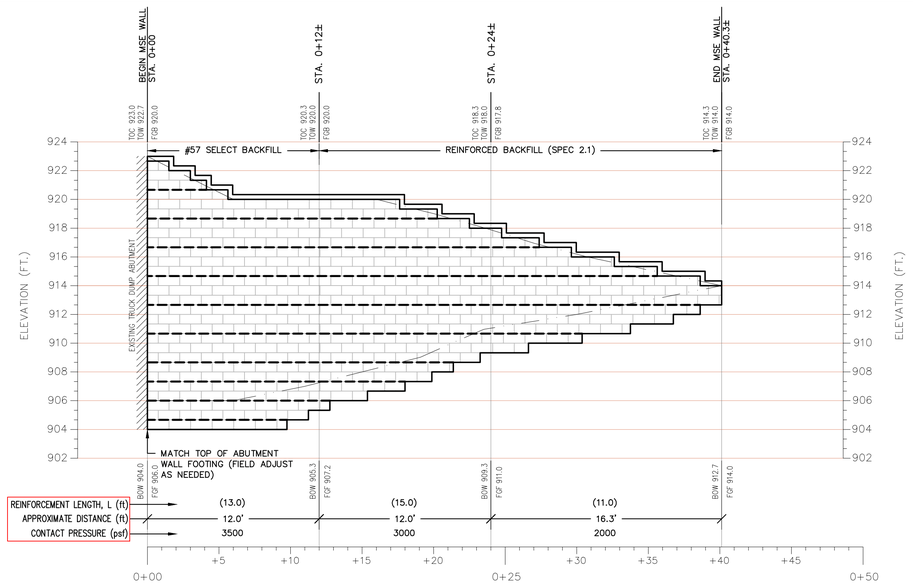
PROJECT:
GREER RECYCLE
BUNCOMBE STREET
GREER, SOUTH CAROLINA

PREPARED FOR:
CITY OF GREER
GREER, SOUTH CAROLINA

SHEET TITLE:
WALL LOCATION PLAN

DESIGN BY:	MGR
CHECKED BY:	DAS
DATE:	02/11/2016
SCALE:	AS SHOWN
JOB NO.:	1426-16-009

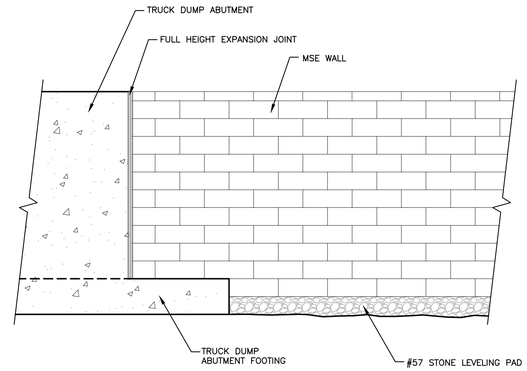
SHEET NUMBER:
R2 OF 4



MSE WALL #1 FACE ELEVATION

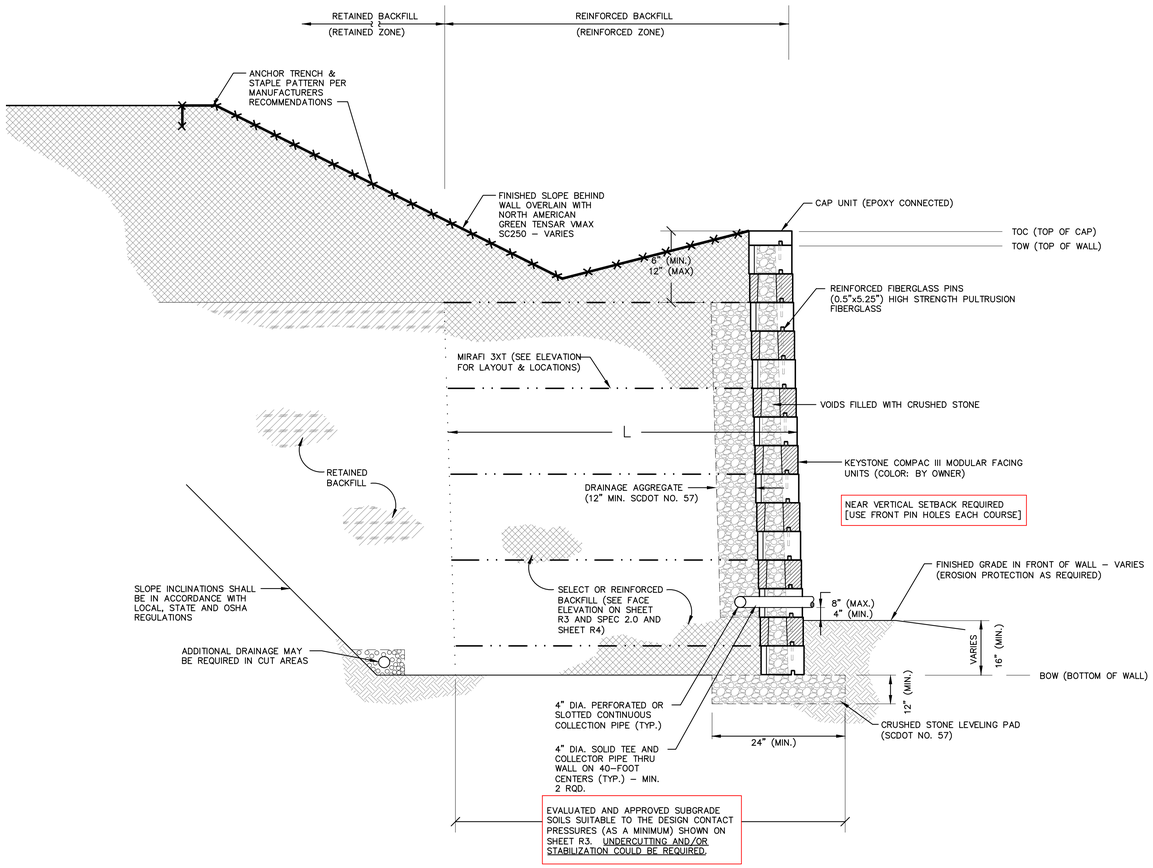
SCALE: 1"=5' Horizontal / 1"=5' Vertical

LEGEND	
TOC	– TOP OF CAP
TOW	– TOP OF WALL
BOW	– BOTTOM OF WALL (TOP OF LEVELING PAD)
	– FINISHED GRADE BEHIND WALL (FGB)
	– FINISHED GRADE IN FRONT OF WALL (FGF)
(11.0)	– REINFORCEMENT LENGTH (FEET)
	– MIRAFI 3XT REINFORCEMENT



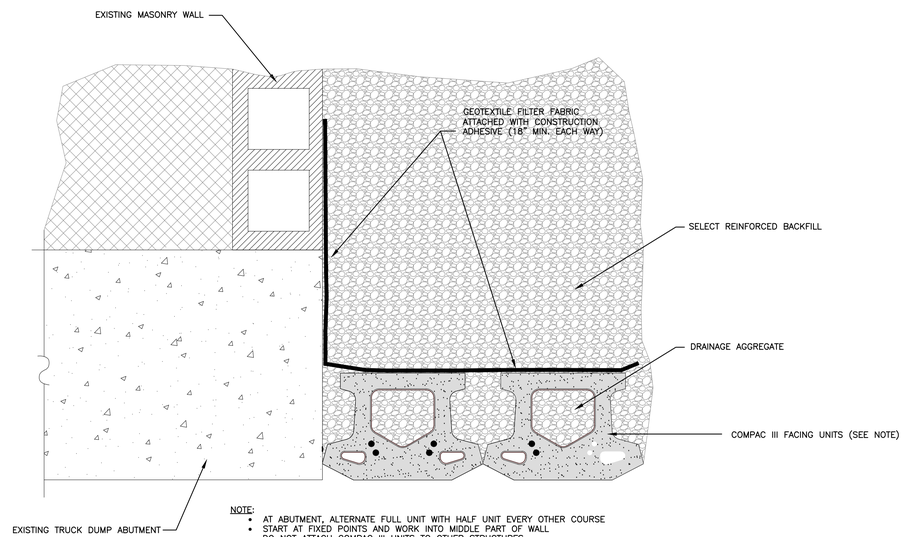
TYPICAL STEP DETAIL AT TRUCK DUMP ABUTMENT

SCALE: Not to Scale
NOTE: Field adjust MSE leveling pad and BOW to match bottom of existing concrete footin and step as shown.



TYPICAL MSE WALL SECTION

SCALE: Not to Scale



NOTE:
- AT ABUTMENT, ALTERNATE FULL UNIT WITH HALF UNIT EVERY OTHER COURSE
- START AT FIXED POINTS AND WORK INTO MIDDLE PART OF WALL
- DO NOT ATTACH COMPAC III UNITS TO OTHER STRUCTURES

TYPICAL TRUCK DUMP ABUTMENT ABUTTING DETAIL

SCALE: Not to Scale

DATE: DESCRIPTION

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
S&ME, INC.
NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 17058
DAVID A. SWAAP

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2144 HAMPTON AVENUE, ANDERSON, SC 29621
NC PE FIRM LICENSE NO. F-0176

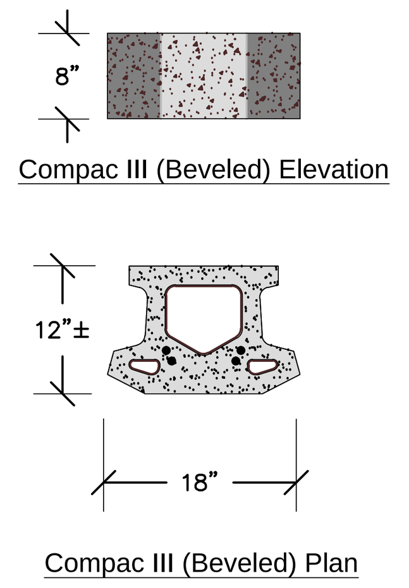
PROJECT:
GREER RECYCLE
BUNCOMBE STREET
GREER, SOUTH CAROLINA

PREPARED FOR:
CITY OF GREER
GREER, SOUTH CAROLINA

SHEET TITLE:
MSE WALL FACE ELEVATIONS, TYPICAL SECTION & DETAILS

DESIGN BY:	MGR
CHECKED BY:	DAS
DATE:	02/11/2016
SCALE:	AS SHOWN
JOB NO.:	1426-16-009

SHEET NUMBER:
R3 OF 4



TYPICAL COMPAC III UNIT

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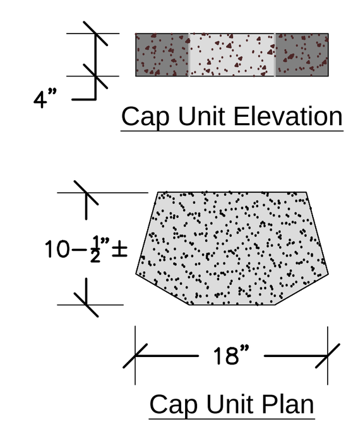

TYPICAL KEYSTONE CAP UNIT

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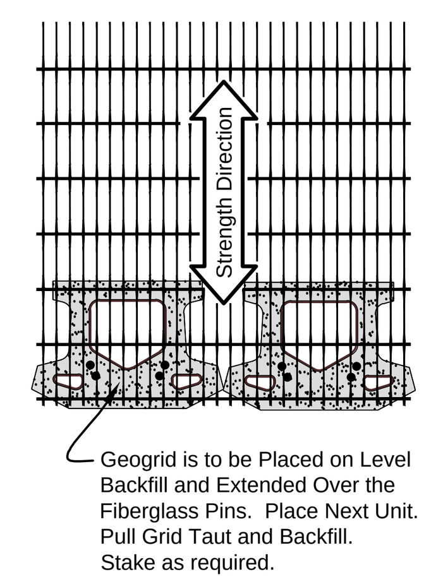
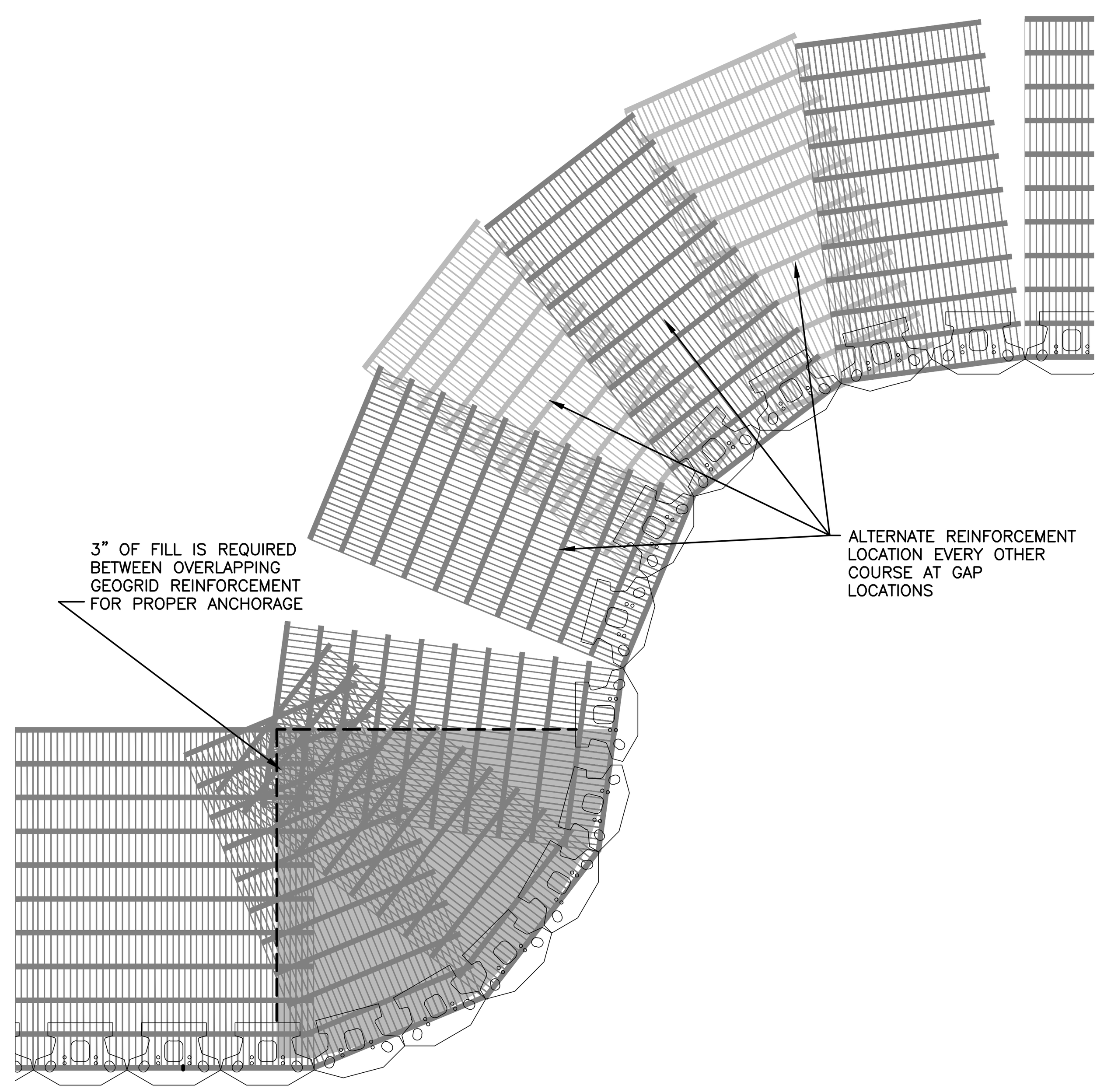


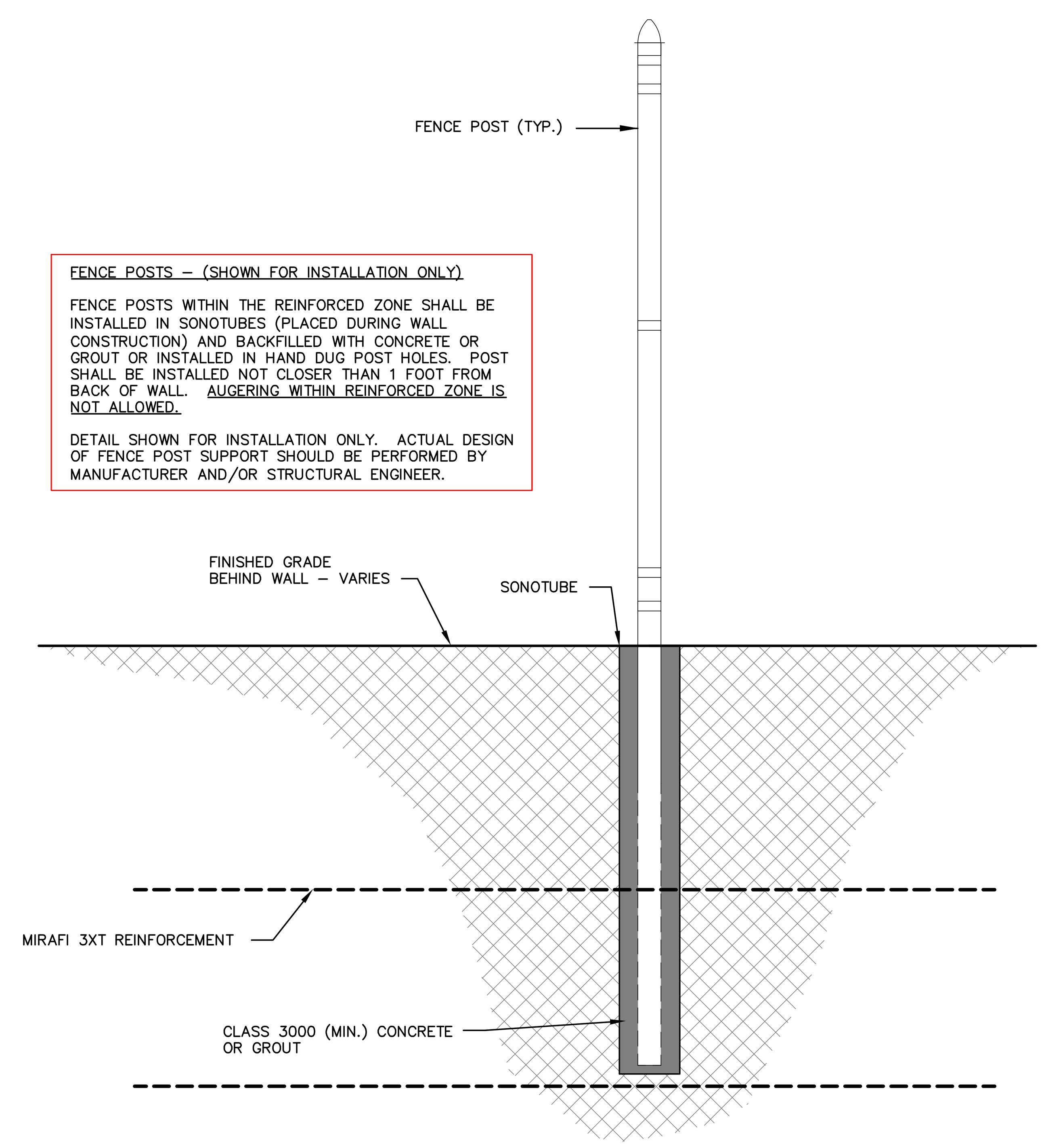
TYPICAL GEOGRID CONNECTION

SCALE: Not to Scale



TYPICAL GEOGRID INSTALLATION DETAIL

SCALE: Not to Scale



TYPICAL FENCE POST WITHIN REINFORCED ZONE INSTALLATION DETAIL

SCALE: Not to Scale

SPECIFICATIONS

1.0 GENERAL

1.1 CONSTRUCTION AND INSPECTION OF THE SEGMENTAL RETAINING WALL SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE BLOCK AND GEOGRID MANUFACTURER(S), THE ELEVATION VIEW(S), AND DETAIL(S) AND THESE SPECIFICATIONS.

2.0 MATERIALS

2.1 REINFORCED BACKFILL

2.1.1 MATERIAL PLACED IN THE REINFORCED ZONE SHALL MEET THE FOLLOWING CRITERIA:

MATERIAL TYPE: SM, SC, SW, GW
EFFECTIVE ANGLE OF INTERNAL FRICTION, $\phi' = 28°$
MAXIMUM PARTICLE SIZE = 3/4"
PERCENT PASSING NO. 200 SIEVE <50
LIQUID LIMIT, LL <25
PLASTIC INDEX, PI < 5
ORGANIC MATERIAL < 0.5%
3<pH<9

2.1.2 REPRESENTATIVE SAMPLES SHALL BE SUBJECTED TO THE FOLLOWING TESTING:

GRAIN SIZE DISTRIBUTION – ASTM D–422
ATTERBERG LIMITS – ASTM D–4318
STANDARD PROCTOR COMPACTION – ASTM D–698
DIRECT SHEAR – ASTM D–3080
pH – ASTM D–4972

2.1.3 MATERIALS CAN BE EXCAVATED SITE SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. HOWEVER, AN OFF–SITE BORROW SOURCE WILL LIKELY BE REQUIRED.

2.1.4 THE WALL CONTRACTOR SHALL SUBMIT LABORATORY TEST RESULTS TO THE WALL ENGINEER FOR APPROVAL AND TO CONFIRM THAT SOIL INSTALLED IN THE REINFORCED ZONE MEETS THE REQUIREMENTS OF SECTION 2.1.1.

2.2 SELECT REINFORCED BACKFILL

2.2.1 SELECT BACKFILL IS REQUIRED FROM STA. 0+00 TO 0+12± AND SHALL CONSIST OF SCDOT NO. 57 STONE AND EXHIBIT A MINIMUM EFFECTIVE ANGLE OF INTERNAL FRICTION (ϕ') OF 34°.

2.3 RETAINED FILL

2.3.1 SOIL INSTALLED IN THE RETAINED ZONE SHALL BE FREE OF ORGANIC OR OTHER DELETERIOUS MATERIALS AND EXHIBIT AN EFFECTIVE ANGLE OF INTERNAL FRICTION, $\phi' = 28°$.

2.4 SRW UNITS – SRW UNITS SHALL CONSIST OF KEYSTONE COMPAC III UNITS AND CAPS AS MANUFACTURED BY KEYSTONE RETAINING WALLS, INC. ALTERNATE SRW UNITS SHALL BE APPROVED S&ME, INC. PRIOR TO CONSTRUCTION.

2.5 SHEAR CONNECTORS – SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPTHALIC POLYESTER RESIN–PULTRUDED FIBERGLASS REINFORCEMENT RODS OR PINS TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10°F TO 100°F.

2.6 GEOGRID REINFORCEMENT – GEOGRID REINFORCEMENT SHALL CONSIST OF MIRAFI 3XT AS MANUFACTURED BY TENCATE. ALTERNATE GEOGRID REINFORCEMENT SHALL BE APPROVED S&ME, INC. PRIOR TO CONSTRUCTION.

2.7 FILTER FABRIC – GEOTEXTILE FILTER FABRIC SHALL CONSIST OF NEEDLE PUNCHED NON–WOVEN POLYPROPYLENE MATERIAL WHICH MEETS THE AASHTO M 288–2000 CLASS 3 STRENGTH CRITERIA. IT SHALL ALSO HAVE A MAXIMUM AVERAGE ROLL VALUE OF 0.25 MM FOR ITS APPARENT OPENING SIZE AND PERMITIVITY OF AT LEAST 0.2/SEC. PRE–APPROVED NONWOVEN GEOTEXTILES INCLUDE GEOTEX 801 AND TC MIRAFI 160N.

2.8 DRAINAGE AGGREGATE – SHALL MEET ASTM C–33 CRITERIA FOR SIZE NO. 57 STONE.

2.9 LEVELING PAD AGGREGATE – SHALL MEET ASTM C–33 CRITERIA FOR SIZE NO. 57 STONE.

2.10 DRAINAGE PIPE – DRAINAGE PIPE LOCATED BEHIND SRW FACE SHALL CONSIST OF 4–INCH DIAMETER SLOTTED OR PERFORATED HDPE OR SCHEDULE 40 PVC PIPE. SLOTS OR PERFORATIONS SHALL BE SIZED BASED ON THE GRADATION OF THE DRAINAGE AGGREGATE.

2.11 PERMANENT EROSION MATTING – PERMANENT EROSION MATTING SHALL CONSIST OF NORTH AMERICAN GREEN TENSAR VMAX SC250 OR APPROVED EQUAL.

3.0 EXCAVATION AND FOUNDATION PREPARATION

3.1 THE CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, EXCAVATIONS SHALL BE MAINTAINED IN ACCORDANCE WITH OSHA, STATE AND LOCAL REGULATIONS.

3.2 EXCAVATION AT THE BACK OF THE REINFORCED ZONE SHALL BE BENCH CUT AS DIRECTED BY THE OWNER'S ENGINEER TO ALLOW SOIL COMPACTION TO BE ACCOMPLISHED IN A HORIZONTAL PLANE AND TO TIE THE NEW BACKFILL INTO THE TEMPORARY SLOPE.

3.3 FOUNDATION AND RETAINED SOIL AREAS SHALL BE EVALUATED USING HAND AUGER BORING AND DYNAMIC CONE PENETROMETER (DCP) TESTING AND PROOF–ROLLED BY THE CONTRACTOR'S ENGINEER TO HELP VERIFY THE WALL AND REINFORCED FILL AREA IS DIRECTLY UNDERLAIN BY SUITABLE BEARING MATERIALS TO SUPPORT THE CONTACT PRESSURES SHOWN IN THE WALL FACE ELEVATION(S).

3.4 UNDERCUTTING AND/OR STABILIZATION COULD BE REQUIRED TO PROVIDE SUITABLE BEARING. THE REQUIREMENT FOR UNDERCUTTING AND/OR STABILIZATION SHALL BE AS DETERMINED BY THE CONTRACTOR'S ON–SITE GEOTECHNICAL ENGINEER.

4.0 LEVELING PAD PREPARATION AND CONSTRUCTION

4.1 THE LEVELING PAD SHALL BE CONSTRUCTED WITH COMPACTED CRUSHED AGGREGATE THAT MEETS THE CRITERIA IN SECTION 2.0.

4.2 THE LEVELING PAD SHALL BE AT LEAST 24 INCHES WIDE AND 12 INCHES THICK.

4.3 THE LEVELING PAD SHALL BE CONSTRUCTED SO AS TO PROVIDE A LEVEL, HARD SURFACE UPON WHICH TO PLACE THE FIRST COURSE OF SRW UNITS.

4.4 CRUSHED AGGREGATE USED FOR THE LEVELING PAD SHALL BE COMPACTED USING A VIBRATORY SLED TO THE SATISFACTION OF THE OWNER'S ENGINEER.

4.5 THE LEVELING PAD SHALL BE PREPARED TO ENSURE FULL CONTACT BETWEEN THE PAD AND THE FIRST COURSE OF SRW UNITS.

5.0 WALL CONSTRUCTION

5.1 THE WALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SRW MANUFACTURER'S RECOMMENDATIONS AND THESE REQUIREMENTS.

5.2 INSTALL GEOSYNTHETIC REINFORCEMENT AT LOCATIONS AND ELEVATIONS SHOWN ON THE WALL ELEVATION(S).

5.3 REINFORCEMENT PANELS SHALL BE CONTINUOUS. SEAMS OR CONNECTIONS ARE NOT PERMITTED. SPLICES OR OVERLAPPING IN THE STRONG DIRECTION OF THE REINFORCEMENT ARE NOT PERMITTED. ADJACENT PANELS SHALL BE ABUTTED. 100 PERCENT REINFORCEMENT COVERAGE IS REQUIRED.

5.4 IN AREAS WHERE ADJACENT LAYER(S) OF REINFORCEMENT WILL OVERLAP (I.E., OUTSIDE RADIUS OR OUTSIDE CORNER), A MINIMUM OF 3 INCHES OF FILL SHALL BE USED TO SEPARATE THE OVERLAPPING LAYERS.

5.5 PANELS OF GEOSYNTHETIC REINFORCEMENT SHALL BE TENSIONED SUCH THAT FOLDS AND WRINKLES ARE REMOVED BEFORE REINFORCED SOIL IS PLACED. PANELS SHALL BE STAKED OR ANCHORED AS NECESSARY TO MAINTAIN TAUT CONDITION.

5.6 GEOSYNTHETIC REINFORCEMENT LENGTH IS MEASURED FROM THE WALL FACE AND IS SHOWN ON THE WALL ELEVATION(S).

5.7 WALL CONTRACTOR AND OWNER'S ENGINEER SHALL VERIFY THAT GEOSYNTHETIC TYPE AND LENGTH CORRESPONDS TO THE TYPE SHOWN ON THE WALL ELEVATION(S) BEFORE ITS INSTALLATION.

5.8 TRACKED VEHICLES MAY NOT OPERATE ON GEOSYNTHETIC REINFORCEMENT WITH LESS THAN 6 INCHES OF COMPACTED SOIL BETWEEN THE REINFORCEMENT AND THE TRACKS. TURNING OF TRACKED VEHICLES SHOULD BE KEPT TO A MINIMUM TO PREVENT DAMAGE AND DISTURBANCE TO THE REINFORCEMENT.

5.9 RUBBER–TIRE VEHICLES MAY OPERATE DIRECTLY ON THE GEOSYNTHETIC REINFORCEMENT AND SPEEDS LESS THAN 10 MPH IF PERMITTED BY THE REINFORCEMENT MANUFACTURER. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.

5.10 INSTALL DRAINAGE AGGREGATE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 2.0 AND AS SHOWN IN THE TYPICAL SECTION(S). DRAINAGE AGGREGATE SHALL BE PLACED WITHIN THE CORES OF, BETWEEN, AND BEHIND THE SRW UNITS.

5.11 THE DRAINAGE PIPE SHALL BE CONNECTED TO A SOLID COLLECTOR PIPE AND DISCHARGED FROM THE LOWEST POINT(S) ALONG THE WALL (THROUGH THE WALL FACE AT THE FINISHED GRADE) TO AN APPROVED OUTFALL AREA.

5.12 INSTALL SOIL IN REINFORCED ZONE IN COMPACTED LIFTS NO GREATER THAN 8 INCHES IN THICKNESS AND IN ACCORDANCE WITH THE REQUIREMENTS IN SECTION 6. MAXIMUM STACKED VERTICAL HEIGHT OF SRW UNITS SHALL NOT EXCEED TWO COURSES.

5.13 INSTALL KEYSTONE SHEAR CONNECTOR PINS EVERY COURSE AND TO CONNECT GEOSYNTHETIC REINFORCEMENT TO SRW UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND THESE DRAWINGS SUCH THAT THE SPECIFIED WALL BATTER IS ACHIEVED.

5.14 INSTALL CAP UNITS USING AN EPOXY ADHESIVE IN ACCORDANCE WITH SRW MANUFACTURER'S RECOMMENDATIONS.

6.0 SOIL COMPACTION

6.1 THE OWNER'S ENGINEER SHALL OBSERVE AND DOCUMENT COMPACTION OF SOIL IN THE REINFORCED SOIL ZONE IN ACCORDANCE WITH THESE REQUIREMENTS. ALL FILL SHALL MEET THE REQUIREMENTS OF SECTION 2.0 AND SHALL BE PLACED IN MAXIMUM 8–INCH THICK LIFTS (LOOSE MEASURE) AND UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST METHOD (ASTM D–698).

6.2 THE MOISTURE CONTENT OF THE FILL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE AT PLUS 2 TO MINUS 3 PERCENTAGE POINTS OF OPTIMUM AS DETERMINED BY ASTM D–698.

6.3 THE #57 STONE BACKFILL SHALL BE VIBRATED IN 12–INCH THICK LIFTS.

6.4 HEAVY COMPACTION EQUIPMENT OR OTHER HEAVY CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED WITHIN 3 FEET OF THE BACK OF THE SRW UNITS.

6.5 WITHIN 3 FEET OF THE BACK OF THE SRW UNITS, ONLY HAND–OPERATED COMPACTION MAY BE USED.

6.6 THE COMPACTED DENSITY AND MOISTURE CONTENT OF SOIL IN THE REINFORCED ZONE SHALL BE TESTED AND DOCUMENTED BY THE ON–SITE TESTING FIRM/GEOTECHNICAL ENGINEER IN ACCORDANCE WITH THE FOLLOWING CRITERIA:

6.6.1 AT LEAST ONCE PER EVERY 2500 SQUARE FEET IN PLAN AREA PER 8–INCH LIFT.

6.6.2 AT LEAST ONCE PER EVERY OTHER 8–INCH THICK COMPACTED SOIL LIFT.

6.7 IN THE ABSENCE OF THE OWNER'S REQUIREMENTS FOR MORE STRINGENT COMPACTION SPECIFICATIONS, FILL SOIL IN TOE AND CREST SLOPES SHALL BE COMPACTED TO WITHIN 95 PERCENT OF ITS MAXIMUM DRY DENSITY AND TO WITHIN 2 PERCENT OF ITS OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH ASTM D–698 (STANDARD PROCTOR METHOD).

7.0 DRAINAGE AND EROSION PROTECTION

7.1 AT THE END OF EACH WORK DAY, THE CONTRACTOR SHALL GRADE THE SURFACE OF THE LAST LIFT OF REINFORCED SOIL AWAY FROM THE WALL FACE AND COMPACT.

7.2 THE CONTRACTOR SHALL INSTALL TEMPORARY SOIL BERMS AND DRAINAGE DITCHES AS NECESSARY TO PREVENT THE SURFACE FLOW OF WATER TOWARD THE REINFORCED SOIL ZONE.

7.3 THE PONDING OF WATER ABOVE OR WITHIN 20 FEET BEHIND THE REINFORCED SOIL ZONE DURING OR AFTER WALL CONSTRUCTION SHALL NOT BE PERMITTED.

7.4 ALL TOE AND CREST SLOPES SHALL BE CONSTRUCTED OUTSIDE OF DESIGN LIMITS AND CUT BACK TO ACHIEVE PROPER COMPACTION AT THE SLOPE FACE. ADDITIONALLY, SLOPES SHALL BE VEGETATED AND PROTECTED FROM EROSION AS SOON AS PRACTICAL FOLLOWING THEIR CONSTRUCTION.

8.0 WALL DESIGN

8.1 THE DESIGN WAS PERFORMED IN ACCORDANCE WITH NCMA GUIDELINES FOR MSE RETAINING WALLS BASED ON S&ME'S EXPERIENCE WITH SOILS COMMON TO THE GREER, SOUTH CAROLINA AREA. THE FOLLOWING DESIGN PROPERTIES USED FOR DESIGN SHALL BE VERIFIED PRIOR TO WALL CONSTRUCTION:

8.2 DESIGN SOIL PROPERTIES

ZONE	ϕ'	c'	γ_m
REINFORCED FILL	28°	0 PSF	115 PCF
SELECT REINFORCED FILL	34°	0 PSF	120 PCF
RETAINED SOIL	28°	0 PSF	115 PCF
FOUNDATION SOIL	28°	0 PSF	115 PCF

8.3 GEOGRID REINFORCEMENT

TYPE	Tult	LTDS	Tall
MIRAFI 3XT	3500 LB/FT	1918 LB/FT	1279 LB/FT

8.4 MINIMUM DESIGN PARAMETERS

STATIC
FS SLIDING ≥ 1.5
FS BEARING ≥ 2.0
FS OVERTURNING ≥ 2.0
FS CONNECTION (PEAK) ≥ 1.5
FS PULLOUT ≥ 1.5
FS OVERSTRESS ≥ 1.5
L:H ≥ 0.6 (MINIMUM)

PSEUDO–STATIC
N/A

8.5 EXTERNAL LOADING

PARTIAL 2:1 BACKSLOPE AND 250 PSF LIVE LOAD BEYOND CREST

8.6 ADDITIONAL LOADS

ANY UTILITIES SUCH AS LIGHT POLES, HAND RAILS, GUARDRAILS, OR DRAINAGE STRUCTURES TO BE INSTALLED IN THE VICINITY OF THE WALLS MUST BE DESIGNED AND CONSTRUCTED SO THAT THEY DO NOT ADD LATERAL FORCES TO BE RESISTED BY THE WALL SYSTEM. IN ADDITION, ANY EXCAVATION (I.E., INSTALLATION OF CONCRETE GUTTERS, SHRUB AND TREE PLANTING, ETC.) CONDUCTED IN THE VICINITY OF THE WALL (ESPECIALLY IN THE "REINFORCED ZONE") AFTER THE WALL HAS BEEN CONSTRUCTED MUST BE DONE WITHOUT DAMAGING THE WALL OR GEOGRIDS. PLEASE CONTACT THE WALL DESIGN ENGINEER IF THERE ARE ANY QUESTIONS.

9.0 ENGINEER INSPECTION

9.1 A LETTER FROM THE ON–SITE GEOTECHNICAL ENGINEER SHALL BE PROVIDED TO THE OWNER AND/OR OWNER'S REPRESENTATIVE STATING THAT THE FOUNDATION MATERIALS ARE ACCEPTABLE FOR WALL SUPPORT, AND THAT THE BACKFILL MATERIALS HAVE BEEN PROPERLY COMPACTED AND HAVE MET THE SPECIFICATIONS. THIS LETTER SHALL BE SIGNED BY A REGISTERED ENGINEER IN SOUTH CAROLINA.

DESCRIPTION:
DATE:

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION S&ME, INC. NO. C00473

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 17056 DAVID A. SWOPE

PREPARED BY: S&ME

PROJECT: GREER RECYCLE
BUNCOMBE STREET
GREER, SOUTH CAROLINA

PREPARED FOR: CITY OF GREER
GREER, SOUTH CAROLINA

SHEET TITLE: DETAILS & SPECIFICATIONS

DESIGN BY:	MGR
CHECKED BY:	DAS
DATE:	02/11/2016
SCALE:	AS SHOWN
JOB NO.:	1426-16-009

SHEET NUMBER: R4 OF 4

LANDSCAPE SPECIFICATIONS:

1. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ANY FEES AS REQUIRED FOR ANY WORK ASSOCIATED WITH THE LANDSCAPE WORK AS SHOWN.

2. LAWN AREAS :

   FINE GRADE AND COMPACT TO 80%.
   APPLY 16–16–16 FERTILIZER, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, TO PREPARED SOIL IN LAWN AREAS AND APPLY 1/2 INCH WATER. FINISH GRADE TO BE ROLLED SMOOTH AND EVEN. FINISH GRADE OF SEEDED AREAS TO BE FLUSH WITH ADJACENT PAVING AND CURBS. FINISH GRADE OF SOD AREAS TO ALLOW FINISHED TOP OF

   SOD TO BE FLUSH WITH ADJACENT PAVED AND CURB AREAS.

   PLANTING BEDS :

   AMEND PLANTING PITS AS FOLLOWS: 1/2 PART NATIVE SOIL,1/4 PART PEAT MOSS, 1/4 PART COW MANURE. APPLY PRE–EMERGENT HERBICIDE, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, TO PLANTING BEDS. FINISH GRADE PLANTING BEDS TO ALLOW FOR APPLICATION OF MULCH TO BE FLUSH WITH ADJACENT PAVED AND CURB AREAS. WATER AFTER PLACING MULCH.

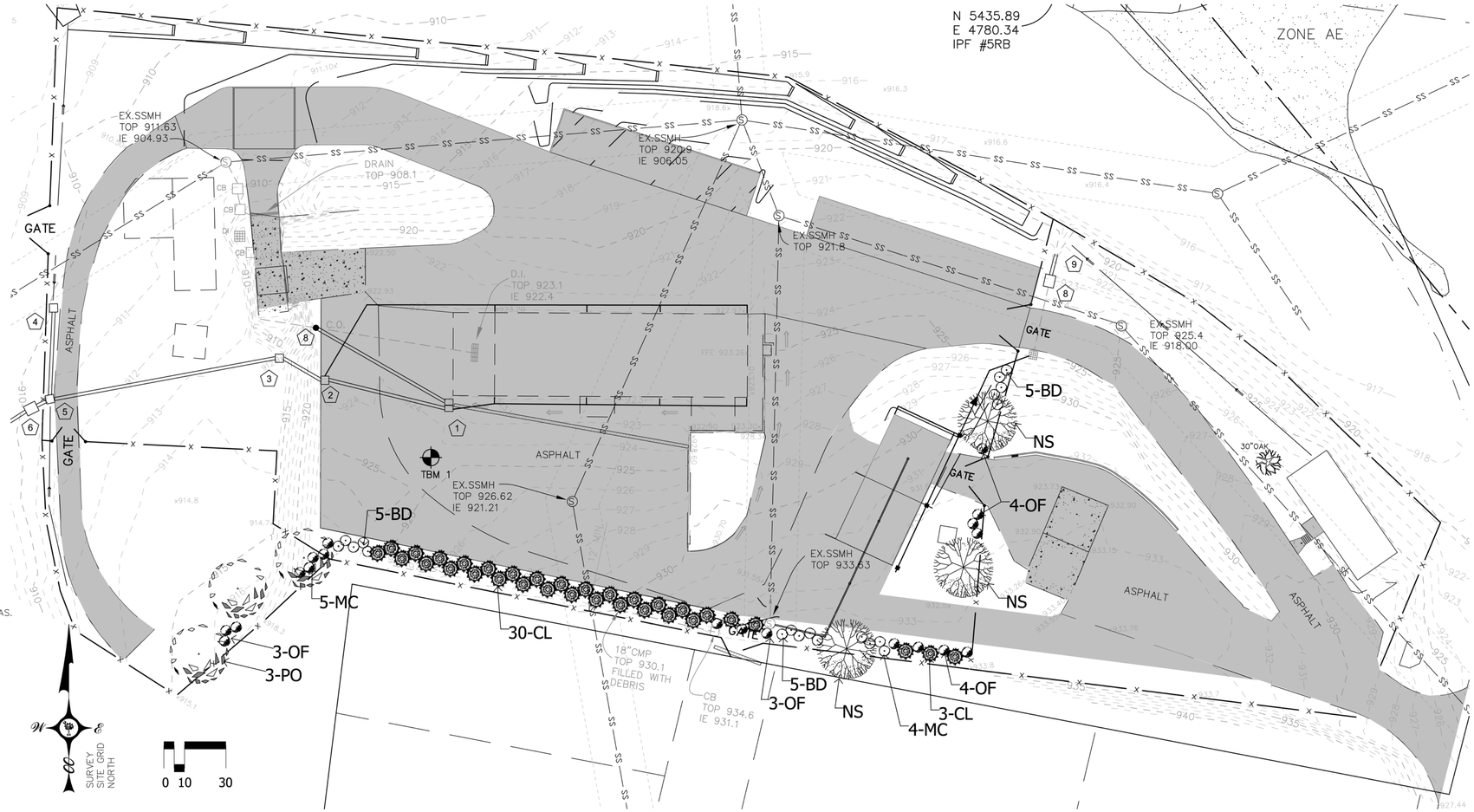
   SUBGRADE IN LAWN AREAS TO BE 3 INCHES BELOW FINISH GRADE. SUBGRADE IN PLANTING BEDS TO BE 4 INCHES BELOW FINISH GRADE.

3. PLANT PITS SHALL BE TWICE THE SIZE OF THE ROOTBALLS, HT. AND WIDTH. PLANT AS SHOWN IN DETAILS. SCARIFY 6" OF SOIL UNDER THE PLANT PITS. CONTRACTOR SHALL TEST THE PITS FOR DRAINAGE PROBLEMS, IF ANY PROBLEMS ENCOUNTERED THEY SHALL BE BROUGHT TO THE LA.'S ATTENTION FOR CORRECTION, PRIOR TO THE CONTRACTOR TAKING ANY ACTIONS.
   PROPOSED DRAINAGE SOLUTIONS SHALL BE APPROVED BY THE LA., UPON NOTIFICATION BY THE LANDSCAPE CONTRACTOR THAT THERE IS A PROBLEM.

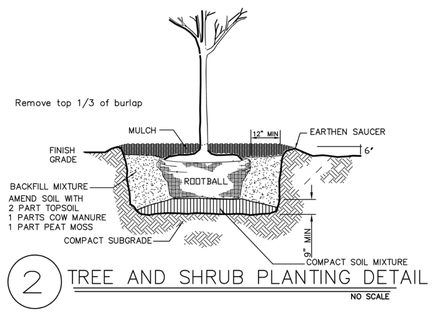
   NO PLANTS WILL BE ALLOWED TO BE PLANTED DURING TIMES OF PROLONGED HEAT, AND DURING TIMES WHICH THE TOPSOIL IS IN A WET OR MUDDY CONDITION. PLANT ONLY DURING TIMES OF LOCALLY ACCEPTED PRACTICE. STAKE TREES AS SHOWN IN THE DETAILS.

   PLANTING PROCEDURE:
   A. PLACE PLANTS IN PLANTING PIT WITH TOP OF NURSERY SOIL LINE 1" TO 2" ABOVE FINISHED SOIL LINE WHEN BACKFILLED, MULCH TO COVER ROOT AREA.
   B. WHEN PLANTING REMOVE ALL CONTAINERS, REMOVE BINDING MATERIAL FROM THE TOP HALF OF B&B MATERIAL. MAKE SLITS IN LOWER HALF TO ALLOW ROOT PENETRATION, DO NOT BREAK PLANT ROOT BALLS
   C. BACKFILL WITH AMENDED SOIL AND LIGHTLY TAMP SOIL TO FILL 2/3 OF THE PLANTING PIT–FILL REMAINING PIT WITH WATER–ALLOW TO SOAK IN BEFORE FINISH BACKFILLING–PROVIDE WATER SAUCER AT SURFACE.
   D. IF PLANTING HOLES ARE IN CLAYEY SOIL BREAK ANY GLAZING ON SIDES OF HOLES PRIOR TO PLANTING FERTILIZE ALL PLANTS AFTER PLANTING.

4. FERTILIZE ALL TREES AND SHRUBS AND 1 GALLON GROUNDCOVERS WITH SLOW RELEASE FORMULA FERTILIZER TABLETS, 20–10–5, AS PER MANUFACTURES RECOMMENDATIONS. AGRIFORM BRAND TABLETS OR APPROVED EQUAL.
5. ALL MULCH IN PLANT BEDS SHALL BE FLUSH WITH ALL ADJOINING HARD SURFACES, ROADS EDGES, TOP OF CURBS, ETC... MULCH SHALL OCCUR IN ALL PLANT BEDS, MULCH SHALL BE 3" DEPTH AGED SHREDDED HARDWOOD MULCH. PROVIDE A 48" DIAMETER MULCH CIRCLE AT THE BASE OF ALL TREES IN LAWN AREAS.
6. APPLY VITAMIN B–1 ROOT STIMULATOR TO PLANTS PRIOR TO PLANTING OF ANY PLANTS. APPLY ANTIDESICANT, TO PLANTS AT THE NURSERY, PRIOR TO DELIVERY TO SITE.
7. SPACING OF ALL PLANTS SHALL BE AS PER THE PLAN AND WILL BE FIELD ADJUSTED BY THE LANDSCAPE CONTRACTOR, WITH APPROVAL OF THE LA. ONSITE.
8. ANY SUBSTITUTIONS, DELETIONS, ETC... SHALL BE APPROVED ONLY BY LA.
9. CONTRACTOR SHALL PROVIDE THE OWNER WITH A ONE YEAR GUARANTEE ON ALL PLANT MATERIALS AND IRRIGATION WORK AND WORKMANSHIP. GUARANTEE SHALL BEGIN UPON FINAL ACCEPTANCE BY LA. MAINTAIN ALL PLANTINGS UNTIL FINAL ACCEPTANCE BY THE LA. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO ARRANGE A SITE MEETING, AT THE CONCLUSION OF THE ONE YEAR GUARANTEE PERIOD, WITH THE OWNER AND THE LANDSCAPE ARCHITECT ONSITE.
10. VANDALISM CORRECTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR, LAND. CONT. SHALL TAKE EVERY PRECAUTION TO PROTECT ALL WORK DURING CONSTRUCTION. PROVIDE FENCING/ROPING AS REQUIRED.
11. SOD LAWN TO BE A LOCALLY GROWN SOD. INSTALL SOD WITHIN 2 DAYS OF CUTTING SOD FROM FARM. ROLL ALL SOD AREAS AFTER INSTALLATIONS. ALL SOD SHALL BE FLUSH TO TOPS OF PAVING, ADJACENT CURBS AND MULCH IN BEDS. MAINTAIN, AS PER THE GROWERS RECOMMENDATIONS, UNTIL THE ENTIRE PROJECT IS ACCEPTED.
    GRASS SEED MIX: 1–1/2 lbs. BERMUDA SEED per 1000sf
    WITH 8 lbs.RYE GRASS SEED per 1000sf
    GRASS SOD TO BE TIFTWAY BERMUDA



1 PLANTING PLAN



2 TREE AND SHRUB PLANTING DETAIL
NO SCALE

PLANT LIST

3	NS	Nyssa Sylvatica	Tupelo	2–1/2"c
3	PO	Platanus Occidentalis	Sycamore	2–1/2"c
33	CL	Cupressocyparis Leylandi	Leyland Cypress	6' ht
15	BD	Buddlei Lochinch	Lavendar Butterflybush	3 gal
9	MC	Myrica Cerifera	Wax Myrtle	3 gal
14	OF	Osmanthus Fragrans	Fragrant Tea Olive	3 gal

allées landscape architecture
P.O. Box 353 Prosperity, SC 29127
803–405–0958

CORPORATE SEAL

ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. Hwy. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
2		
3		
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5		
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7		

PROJECT:
City of Greer
Recycle Facility

SHEET TITLE:
Landscape
Compliance Plan

SCALE: 1"=40' PROJECT NO. 11012
DRAWN: LCD, MEH SHEET NO.
DATE: 4–16–2012

L-1

RECEIVED
By Glenn Pace at 11:12 am, May 11, 2016

REVIEWED
By Glenn Pace at 11:48 am, May 11, 2016

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   SOD TO BE FLUSH WITH ADJACENT PAVED AND CURB AREAS.

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   AMEND PLANTING PITS AS FOLLOWS: 1/2 PART NATIVE SOIL,1/4 PART PEAT MOSS, 1/4 PART COW MANURE. APPLY PRE–EMERGENT HERBICIDE, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, TO PLANTING BEDS. FINISH GRADE PLANTING BEDS TO ALLOW FOR APPLICATION OF MULCH TO BE FLUSH WITH ADJACENT PAVED AND CURB AREAS. WATER AFTER PLACING MULCH.

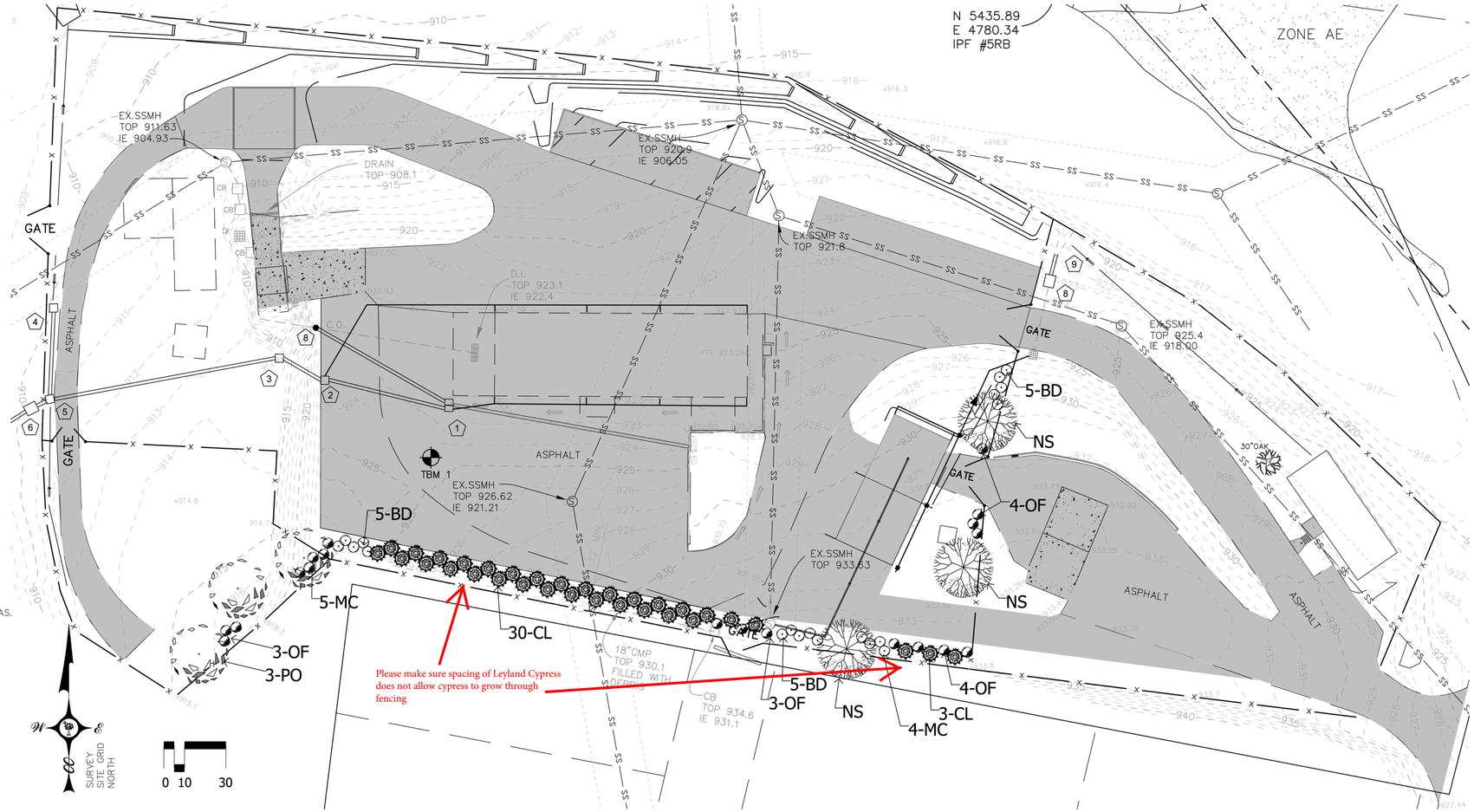
   SUBGRADE IN LAWN AREAS TO BE 3 INCHES BELOW FINISH GRADE. SUBGRADE IN PLANTING BEDS TO BE 4 INCHES BELOW FINISH GRADE.

3. PLANT PITS SHALL BE TWICE THE SIZE OF THE ROOTBALLS, HT. AND WIDTH. PLANT AS SHOWN IN DETAILS. SCARIFY 6" OF SOIL UNDER THE PLANT PITS. CONTRACTOR SHALL TEST THE PITS FOR DRAINAGE PROBLEMS, IF ANY PROBLEMS ENCOUNTERED THEY SHALL BE BROUGHT TO THE LA.'S ATTENTION FOR CORRECTION, PRIOR TO THE CONTRACTOR TAKING ANY ACTIONS.
   PROPOSED DRAINAGE SOLUTIONS SHALL BE APPROVED BY THE LA., UPON NOTIFICATION BY THE LANDSCAPE CONTRACTOR THAT THERE IS A PROBLEM.

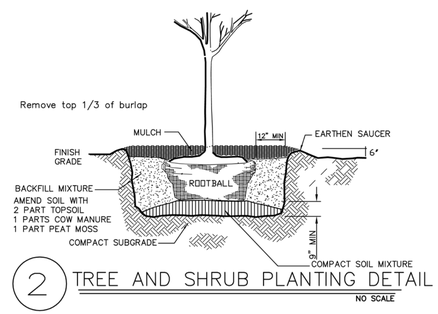
   NO PLANTS WILL BE ALLOWED TO BE PLANTED DURING TIMES OF PROLONGED HEAT, AND DURING TIMES WHICH THE TOPSOIL IS IN A WET OR MUDDY CONDITION. PLANT ONLY DURING TIMES OF LOCALLY ACCEPTED PRACTICE. STAKE TREES AS SHOWN IN THE DETAILS.

   PLANTING PROCEDURE:
   A. PLACE PLANTS IN PLANTING PIT WITH TOP OF NURSERY SOIL LINE 1" TO 2" ABOVE FINISHED SOIL LINE WHEN BACKFILLED, MULCH TO COVER ROOT AREA.
   B. WHEN PLANTING REMOVE ALL CONTAINERS, REMOVE BINDING MATERIAL FROM THE TOP HALF OF B&B MATERIAL. MAKE SLITS IN LOWER HALF TO ALLOW ROOT PENETRATION, DO NOT BREAK PLANT ROOT BALLS
   C. BACKFILL WITH AMENDED SOIL AND LIGHTLY TAMP SOIL TO FILL 2/3 OF THE PLANTING PIT–FILL REMAINING PIT WITH WATER–ALLOW TO SOAK IN BEFORE FINISH BACKFILLING–PROVIDE WATER SAUCER AT SURFACE.
   D. IF PLANTING HOLES ARE IN CLAYEY SOIL BREAK ANY GLAZING ON SIDES OF HOLES PRIOR TO PLANTING FERTILIZE ALL PLANTS AFTER PLANTING.

4. FERTILIZE ALL TREES AND SHRUBS AND 1 GALLON GROUNDCOVERS WITH SLOW RELEASE FORMULA FERTILIZER TABLETS, 20–10–5, AS PER MANUFACTURES RECOMMENDATIONS. AGRIFORM BRAND TABLETS OR APPROVED EQUAL.
5. ALL MULCH IN PLANT BEDS SHALL BE FLUSH WITH ALL ADJOINING HARD SURFACES, ROADS EDGES, TOP OF CURBS, ETC... MULCH SHALL OCCUR IN ALL PLANT BEDS, MULCH SHALL BE 3" DEPTH AGED SHREDDED HARDWOOD MULCH. PROVIDE A 48" DIAMETER MULCH CIRCLE AT THE BASE OF ALL TREES IN LAWN AREAS.
6. APPLY VITAMIN B–1 ROOT STIMULATOR TO PLANTS PRIOR TO PLANTING OF ANY PLANTS. APPLY ANTIDESICANT, TO PLANTS AT THE NURSERY, PRIOR TO DELIVERY TO SITE.
7. SPACING OF ALL PLANTS SHALL BE AS PER THE PLAN AND WILL BE FIELD ADJUSTED BY THE LANDSCAPE CONTRACTOR, WITH APPROVAL OF THE LA. ONSITE.
8. ANY SUBSTITUTIONS, DELETIONS, ETC... SHALL BE APPROVED ONLY BY LA.
9. CONTRACTOR SHALL PROVIDE THE OWNER WITH A ONE YEAR GUARANTEE ON ALL PLANT MATERIALS AND IRRIGATION WORK AND WORKMANSHIP. GUARANTEE SHALL BEGIN UPON FINAL ACCEPTANCE BY LA. MAINTAIN ALL PLANTINGS UNTIL FINAL ACCEPTANCE BY THE LA. IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO ARRANGE A SITE MEETING, AT THE CONCLUSION OF THE ONE YEAR GUARANTEE PERIOD, WITH THE OWNER AND THE LANDSCAPE ARCHITECT ONSITE.
10. VANDALISM CORRECTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR, LAND. CONT. SHALL TAKE EVERY PRECAUTION TO PROTECT ALL WORK DURING CONSTRUCTION. PROVIDE FENCING/ROPING AS REQUIRED.
11. SOD LAWN TO BE A LOCALLY GROWN SOD. INSTALL SOD WITHIN 2 DAYS OF CUTTING SOD FROM FARM. ROLL ALL SOD AREAS AFTER INSTALLATIONS. ALL SOD SHALL BE FLUSH TO TOPS OF PAVING, ADJACENT CURBS AND MULCH IN BEDS. MAINTAIN, AS PER THE GROWERS RECOMMENDATIONS, UNTIL THE ENTIRE PROJECT IS ACCEPTED.
    GRASS SEED MIX: 1–1/2 lbs. BERMUDA SEED per 1000sf WITH 8 lbs.RYE GRASS SEED per 1000sf
    GRASS SOD TO BE TIFTWAY BERMUDA



1 PLANTING PLAN



2 TREE AND SHRUB PLANTING DETAIL
NO SCALE

PLANT LIST

3	NS	Nyssa Sylvatica	Tupelo	2–1/2"c
3	PO	Platanus Occidentalis	Sycamore	2–1/2"c
33	CL	Cupressocyparis Leylandi	Leyland Cypress	6' ht
15	BD	Buddlei Lochinch	Lavendar Butterflybush	3 gal
9	MC	Myrica Cerifera	Wax Myrtle	3 gal
14	OF	Osmanthus Fragrans	Fragrant Tea Olive	3 gal

allées landscape architecture
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803–405–0958

CORPORATE SEAL

ENGINEER SEAL

BLUE LINE CONSULTING, LLC
4503 N. Hwy. 14
GREER, SC 29651
(864) 884-2158

NO.	DATE	REVISION
1		
2		
3		
4		
5		
6		
7		

PROJECT:
City of Greer
Recycle Facility

SHEET TITLE:
Landscape
Compliance Plan

SCALE: 1"=40'
DRAWN: LCD, MEH
DATE: 4–16–2012
PROJECT NO. 11012
SHEET NO.

L-1