

JOINT
PUBLIC NOTICE

CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107

and

THE S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Office of Ocean and Coastal Resource Management
1362 McMillan Avenue, Suite 400
Charleston, South Carolina 29405

REGULATORY DIVISION

Refer to: P/N SAC-2006-03522-REVISED

31 OCTOBER 2018

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the South Carolina Coastal Zone Management Act (48-39-10 et seq.), an application has been submitted to the Department of the Army and the S.C. Department of Health and Environmental Control by

Mr. Michael Condon
DR Horton Inc.
C/O Ryan Clarey
Newkirk Environmental, Inc.
Post Office Box 746
Mt. Pleasant, South Carolina 29465

for a permit to place fill material in

FRESHWATER WETLANDS AND WATERS OF CHURCH CREEK

at a location, a 166.36 acre tract located adjacent to Glenn McConnell Boulevard near its intersection with Bees Ferry Road, in the City of Charleston, Charleston County, South Carolina (Latitude: 32.8267°N, Longitude: -80.0686°W), Johns Island Quad. The site is currently accessible from Glenn McConnell Boulevard.

In order to give all interested parties an opportunity to express their views

NOTICE

is hereby given that written statements regarding the proposed work will be received by the **Corps** until

15 Days from the Date of this Notice,

and **SCDHEC** will receive written statements regarding the proposed work until

30 Days from the Date of this Notice

from those interested in the activity and whose interests may be affected by the proposed work.

The proposed work consists of impacts to a total of 4.382 acres of jurisdictional

aquatic resources (4.17 acres permanent impacts; 0.212 acre temporary impacts). This includes impacts to 4.33 acres of freshwater aquatic resources (4.13 acres permanent; 0.200 acres temporary) and 0.052 acres of tidal wetlands (0.04 acres permanent; 0.012 acres temporary). In detail, the following work is proposed as summarized by the applicant:

Interior Roads

The work in waters of the United States, including wetlands, will require 2.01 acres of impact for construction of road crossings through 404 jurisdictional freshwater aquatic resources, adequately engineered to accommodate post construction hydraulics so as to maintain appropriate flow through the wetlands. According to the applicant, the project engineer, Civil Site Environmental (CSE), has designed appropriately sized culverts to maintain the functional characteristics at each road crossing as part of the comprehensive Stormwater Plan for Harmony Subdivision. These impacts include approximately 2.00 acres of permanent impacts and 0.01 acres of temporary impacts to freshwater aquatic resources. Approximately 1.06 acres of the impacts for road construction are associated with improvements to an existing road (impacts H, I, L8 and L9). Side slopes of 2:1 are as recommended by project engineers to minimize impacts and costs while providing a stable and maintainable slope.

Surge Protection

The City of Charleston's Church Creek Basin Study conducted by Weston and Sampson recommends storm surge protection for the basin during coastal storm events (tropical storms/hurricanes) to prevent storm surges from inundating storage within the basin thereby preserving storage within the basin. The HRD project site is identified as a location for implementation of these measures (page 7, Church Creek Drainage Basin Final Report, Weston & Sampson) and the Applicant has worked to coordinate these efforts with the City and the City's consultants. As such, the use of culverts (pipe and box) is proposed at wetland crossings CC1/CC2, H & E to provide points where flood controls (self-regulating tidal gates, flap gates, etc.) can be installed, accessed and maintained. Bankfull flow adjacent to the crossing at Church Creek is provided for by additional box culverts with flap gates placed at existing grade in the overbank areas adjacent to the creek.

Proposed improvements to the existing dirt road crossing Church Creek include replacing the existing pipes with larger box culverts. The box culverts will include self-regulating tide gates on the downstream side to prevent storm surge from coastal storm events from inundating areas upstream and reducing available storage capacity during those storms. These tidal gates will still allow upstream tidal flow under normal tide conditions. During storm surge events, the gates will close to prevent surge from proceeding further upstream. Once the downstream water levels return to normal, the tide gates reopen and return to allowing passage of tidal flows upstream. Per page 16 of the Weston & Sampson report, surge protection is recommended as a top priority element to improve the overall condition within the Church Creek Basin when it comes to flood events. Proposed improvements do not create increases in Water Surface Elevations on typical rain events.

To accomplish the recommended storm surge protection at road crossing E, six 4' x 4' box culverts with downstream flap gates will be installed as depicted on sheets 5 and 18 of revised project plans. No additional impacts to aquatic resources are required to provide storm surge protection at proposed road crossing E.

To accomplish the recommended storm surge protection at road crossing H, a total of forty-two 4' x 4' box culverts with downstream flap gates will be installed. These culverts will be installed at five locations along the roadway in groups of six, nine and twelve culverts as depicted on sheets 5 and 23 of revised project plans. No additional impacts to aquatic resources are required to provide storm surge protection at this proposed crossing.

To accomplish the recommended storm surge protection at road crossing CC1/CC2, the following specific activities are proposed:

- 1) Construction of a temporary diversion channel through 404 jurisdictional freshwater aquatic resources to re-route the flow of Church Creek during construction of the storm surge protection structure. The temporary channel will have a bottom width of 15' and a top width of 25' as depicted on sheets 15 and 32 of revised project plans. Rip-rap will be placed temporarily at bends within channel and silt fence will be installed around the perimeter. Temporary impacts of 0.13 acres to freshwater wetlands are required to accomplish this work.
- 2) Installation of a sheet pile coffer dam to provide protection for the work area and dewatering as depicted on sheet 16 of revised project plans.
- 3) Removal of the four existing 36" HDPE culverts as depicted on sheet 16 of revised project plans.
- 4) Installation/construction of three 5' x 5' box culverts with concrete headwalls and rip-rap toe protection placed over non-woven geotextile fabric at both upstream and downstream ends of the culverts. Two of the box culverts will include self-regulating tide gates on the downstream end. These structures will provide for normal exchange of tidewater during normal tides and are designed to close, preventing storm surge inundation upstream during coastal storm events when downstream water surface elevation exceeds 5.0 feet. The third box culvert will include a flap gate on the downstream end. Revised project drawing sheets 13-17 and 24-30 provide more specific details of the proposed storm surge protection structure. Temporary impacts of 0.06 acres to freshwater wetlands and 0.012 acres to tidal saltwater wetlands and permanent impacts to 0.04 acres of tidal saltwater wetlands are required to accomplish this work. The 0.04 acres of permanent impact to tidal saltwater wetlands is specifically required for rip-rap toe protection of the structure.

Upon completion of the work described in items 1-4 above, the sheet pile coffer dam will be removed, the temporary diversion channel will be backfilled to original grades and all temporary impact areas will be stabilized and restored. In total, installation/construction of the storm surge protection at CC1/CC2, requires permanent impacts to 0.04 acres of tidal saltwater wetlands, temporary impacts to 0.012 acres of tidal saltwater wetlands and temporary impacts to 0.19 acres of freshwater wetlands.

Residential Lots and Stormwater Management

The land design for HRD includes 2.13 acres of permanent impacts to 404 jurisdictional freshwater aquatic resources to accommodate construction of residential building lots

and stormwater management facilities. This impact acreage includes 0.60 acres of depressional wetlands and 1.48 acres of man-made ditches/swales.

Project Utilities

As part of the Applicant's attempt to avoid and minimize impacts to aquatic resources, the project engineer has planned for the installation of the site's utilities without additional loss of wetlands. All applicable utility lines will be included in the footprints of proposed wetland road crossings or installed by directional bore.

Development Timeline

DR Horton plans to construct the HRD over time, subject to economic conditions and market fluctuations, with anticipation that development will continue over the next ten years. Therefore, the Applicant requests the USACE to consider this a request for a ten (10) year permit life.

Compensatory Mitigation

The Applicant proposes to mitigate for proposed permanent and temporary impacts to 404 jurisdictional freshwater aquatic resources in accordance with the USACE Charleston District Compensatory Mitigation Guidelines dated October 7, 2010 (Guidelines). The Guidelines define a requirement of 44.3 mitigation credits to compensate for the proposed impacts. HRD also agrees to perpetually preserve 15.07 acres of upland buffers (average of 25' in width with a minimum of 15' in width) adjacent to the remaining/preserved 45.29 acres of on-site 404 jurisdictional freshwater wetlands through deed restrictive covenants. In accordance with the current Guidelines, the proposed on-site perpetual freshwater wetland preservation with buffers affords a 25% reduction (11.1 credits) in wetland mitigation credits that will have to be purchased from a USACE approved mitigation bank. After the 25% reduction, HRD will purchase 33.2 wetland mitigation credits from an approved mitigation bank.

Direct compensatory mitigation is not proposed for the permanent (0.04 acres) and temporary (0.012 acres) impacts to tidal wetlands, as the benefit of providing storm surge protection for the upstream Church Creek drainage basin is believed to offset this minimal environmental impact. The permanent impact of 0.04 acres is for the purpose of providing rip-rap toe protection for the storm surge protection structure previously described above. Additionally, although not proposed as compensatory mitigation, the land plan for HRD preserves 23.17 acres of tidal wetlands and 2.92 acres of associated buffers within the project site.

Stormwater

The stormwater retention and drainage system at HRD will appropriately accommodate stormwater through implementation of various stormwater conveyance structures including pipes, swales and existing ditches and will be designed to meet all applicable local and state regulations. Specifically, these conveyances will be engineer designed and constructed to accommodate existing and anticipated future water flows without adversely affecting adjacent upstream or downstream properties or wetland systems. A Stormwater Masterplan for the Harmony Subdivision has been prepared by CSE, the project engineer.

The purpose of the proposed work as stated by the applicant is "to construct and complete an economically viable, long term, residential development that will meet rising housing needs in proximity to existing and future infrastructure, civic services and employment

opportunities within the City of Charleston.”

PLEASE NOTE: A similar project for this site was previously advertised on public notice. That project was revised to incorporate previous comments received, resulting in the current project. ONLY COMMENTS IN RESPONSE TO THIS CURRENT PUBLIC NOTICE DATED 31 OCTOBER 2018 WILL BE CONSIDERED.

NOTE: This public notice and associated plans are available on the Corps' website at:
<http://www.sac.usace.army.mil/Missions/Regulatory/PublicNotices> .

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The work shown on this application must also be certified as consistent with applicable provisions of the Coastal Zone Management Program (15 CFR 930). This activity may also require evaluation for compliance with the S. C. Construction in Navigable Waters Permit Program. State review, permitting and certification is conducted by the S. C. Department of Health and Environmental Control. The District Engineer will not process this application to a conclusion until such certifications are received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact 0.052 acres of estuarine substrates and emergent wetlands utilized by various life stages of species comprising the shrimp, and snapper-grouper management complexes. The District Engineer's initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). The District Engineer's final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

Pursuant to the Section 7 of the Endangered Species Act of 1973 (as amended), the Corps has reviewed the project area, examined all information provided by the applicant, and the District Engineer has determined, based on the most recently available information that the project will have no effect on any Federally endangered, threatened, or proposed species and will not result in the destruction or adverse modification of designated or proposed critical habitat. This public notice serves as a request to the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for any additional information they may have on whether any listed or proposed endangered or threatened species or designated or proposed critical habitat may be present in the area which would be affected by the activity.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), this public notice also constitutes a request to Indian Tribes to notify the District Engineer of any historic properties of religious and cultural significance to them that may be affected by the proposed undertaking.

In accordance with Section 106 of the NHPA, the District Engineer has consulted South Carolina ArchSite (GIS), for the presence or absence of historic properties (as defined in 36 C.F.R. 800.16)(f)(1)), and has initially determined that no historic properties are present;

therefore, there will be no effect on historic properties. To ensure that other historic properties that the District Engineer is not aware of are not overlooked, this public notice also serves as a request to the State Historic Preservation Office and any other interested parties to provide any information they may have with regard to historic properties. This public notice serves as a request for concurrence within 30 days from the SHPO (and/or Tribal Historic Preservation Officer).

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

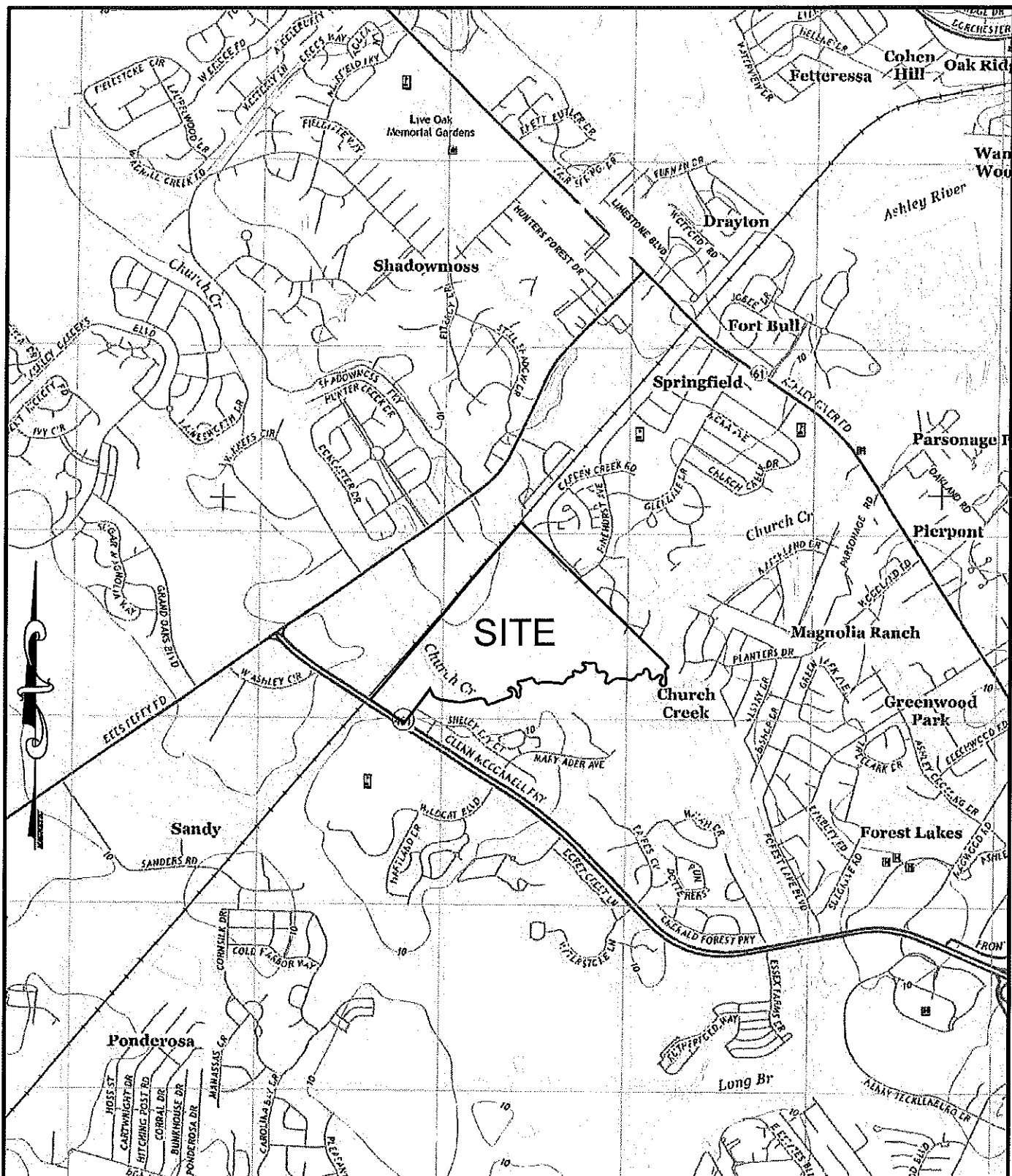
Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act and, as appropriate, the criteria established under authority of Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps cannot undertake to adjudicate rival claims.

The Corps is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity. **Please submit comments in writing, identifying the project of interest by public notice number, to the following address:**

**U.S. Army Corps of Engineers
ATTN: REGULATORY DIVISION
69A HAGOOD AVENUE
CHARLESTON, SOUTH CAROLINA 29403-5107**

If there are any questions concerning this public notice, please contact Mary Hope Green Project Manager, at (843) 329-8044 X 8034 or toll free at 1-866-329-8187.



PROPOSED ACTIVITY:
RESIDENTIAL DEVELOPMENT

JOHN'S ISLAND QUADRANGLE
LAT: 32.8267
LONG: 80.0686

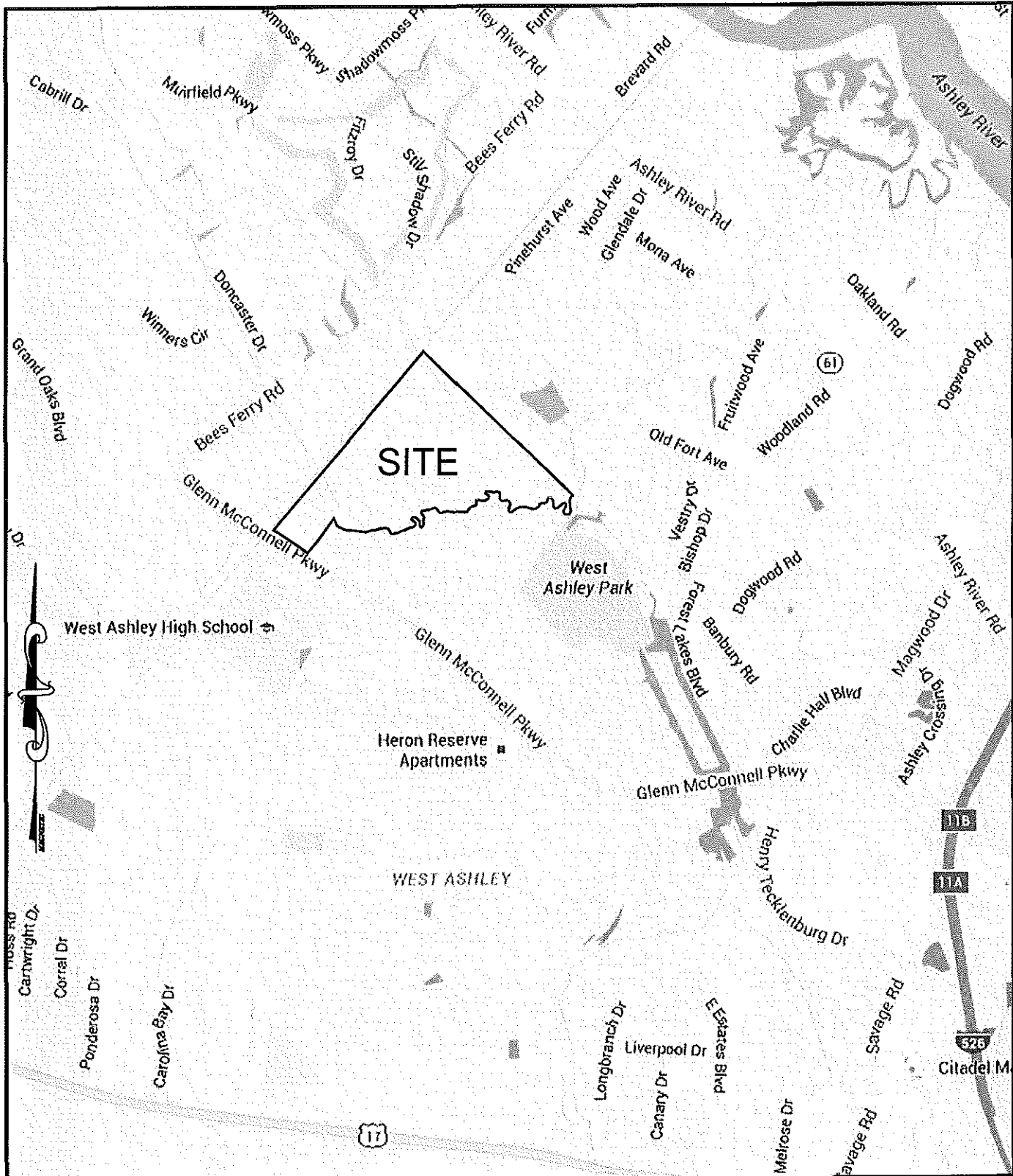
SAC 2006-03522- Revised

HARMONY
SHEET NAME: VICINITY MAP
CLIENT: D.R. HORTON
LOCATION: CHARLESTON, SC
DATE: 1/15/15 REVISION DATE: 9/24/18
SCALE: NTS

SHEET: 1 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



PROPOSED ACTIVITY:
RESIDENTIAL DEVELOPMENT

SAC-2006-03522-
Revised

HARMONY

SHEET NAME: VICINITY MAP
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REVISION DATE: 9/24/18
 SCALE: NTS SHEET: 2 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

Harmony Subdivision Wetland Summary

Impact Summary

Jurisdictional Wetlands ID	Size (Acres)	Impact (Acres)	Estimated Fill Volume (CY)	Est. Excavation Volume (CY)	Preserved (Acres)	Temporary Impact (Acres)
A	2.59	0	0	0	2.59	
B	14.41	0.13	3158	0	14.28	0.01
C	0.35	0.35	1157	2156	0	
D	0.1	0	0	0	0.1	
E	3.31	0.18	1202	0	3.13	
F	2.73	0	0	0	2.73	
G	0.25	0.25	32	2823	0	
H	3.99	0.36	1781	0	3.63	0.02
I	2.7	0.21	1438	0	2.49	0.01
J	2.95	0	0	0	2.95	
K	0.23	0.13	405	0	0.10	
L	19.65	2.52	19654	0	17.13	0.16
Total	53.27	4.13	28827	4979	49.13	0.20
Critical Area ID	Size (Acres)	Impact (Acres)	Estimated Fill Volume (CY)	Est. Excavation Volume (CY)	Remaining (Acres)	Temporary Impact (Acres)
A	23.03	0.02	88	0	23.01	0.005
B	0.18	0.02	112	0	0.16	0.007

Temporary Impact areas are to be restored to preconstruction grades and restabilized

Avoidance/Minimization

Jurisdictional Wetlands ID	Size (Acres)	Outside Ex. ROWs/ Easements (Acres)	Within Ex. ROWs/ Easements (Acres)	Total Wetlands Preserved (Acres)	Buffer (Acres)
A	2.59	1.87	0.72	2.59	0.63
B	14.41	13.36	0.58	14.28	6.02
C	0.35	0	0	0	0
D	0.1	0.1	0	0.1	0.68
E	3.31	3.13	0	3.13	1.81
F	2.73	2.73	0	2.73	1.15
G	0.25	0	0	0	0
H	3.99	3.68	0	3.63	0.14
I	2.70	2.54	0	2.49	0.22
J	2.95	2.95	0	2.95	0.85
K	0.23	0.1	0	0.10	0.05
L	19.65	14.84	2.36	17.13	3.52
Total	53.27	45.29	3.67	49.13	15.07
Critical Area ID	Size (Acres)	Preserved (Acres)	Within Ex. ROWs/ Easements (Acres)	Total Wetlands Remaining (Acres)	Buffer (Acres)
A	23.03	23.03	0	23.01	2.92
B	0.18	0.18	0	0.16	0

SAC-2005-03522- Revised

HARMONY

SHEET NAME: SITE ANALYSIS

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

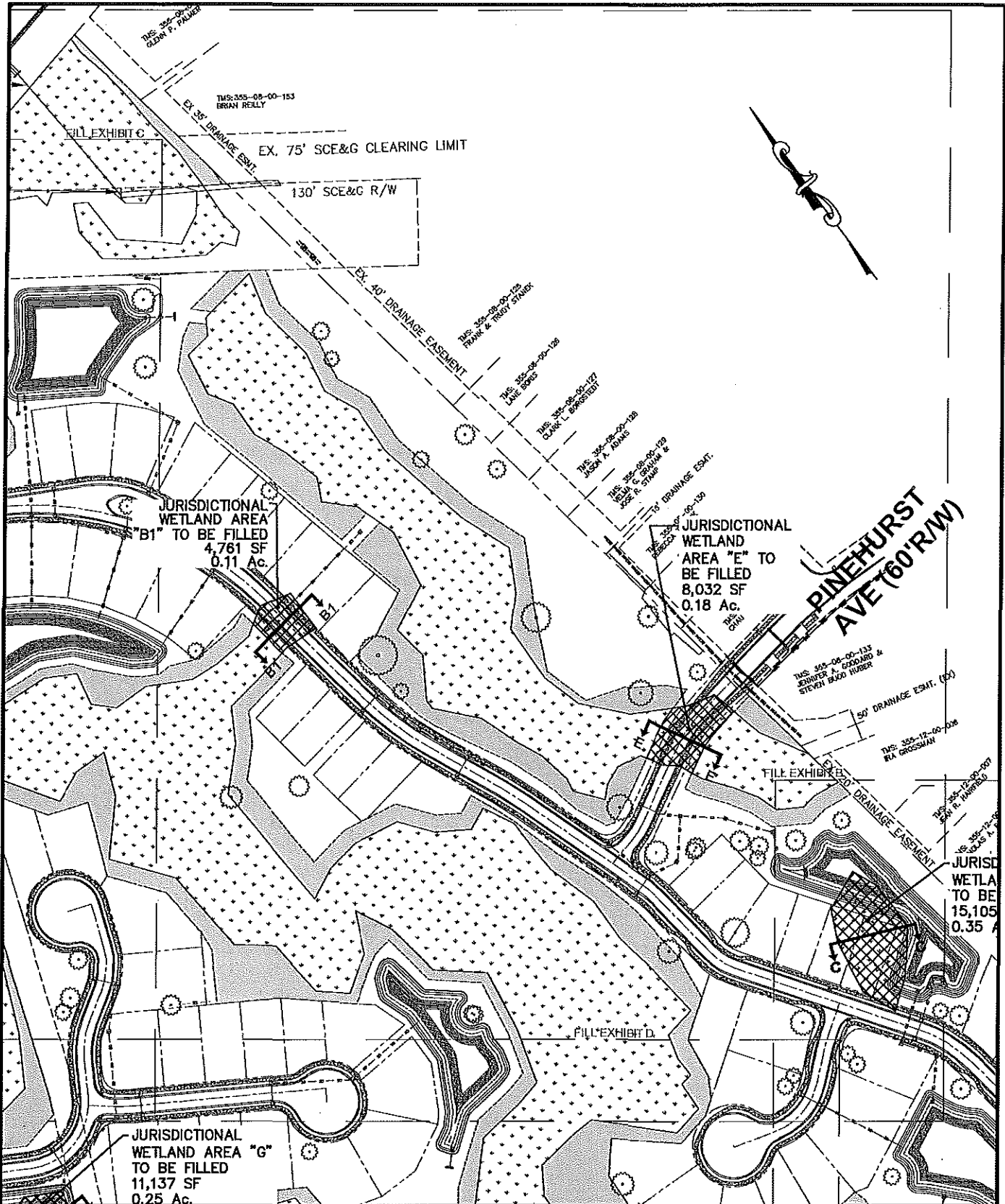
DATE: 1/15/15 REVISED: 9/24/18

SCALE: NONE




SHEET: 6 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



LEGEND

-  EXISTING WETLAND
-  PROPOSED WETLAND BUFFER
-  PROPOSED WETLAND FILL

SAC-2006-03522

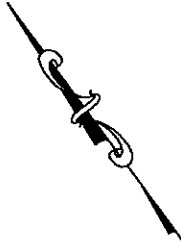
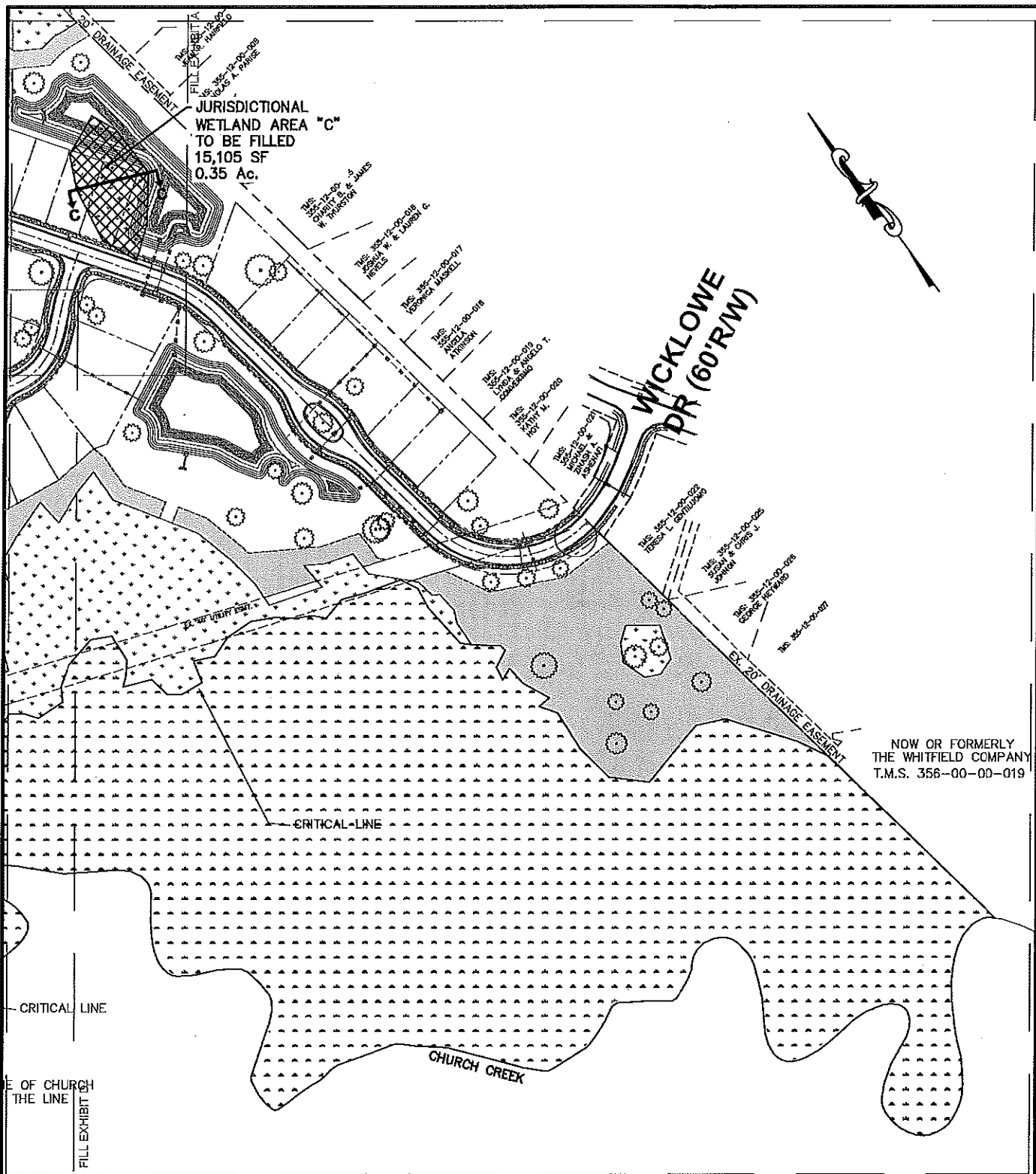
HARMONY

SHEET NAME: FILL EXHIBIT A
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REVISED: 9/24/18
 SCALE: 1"=200'





SHEET: 7 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

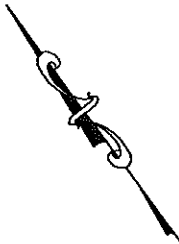


SAC-2006-03522-Revised

<p>LEGEND</p> <ul style="list-style-type: none">  EXISTING WETLAND  PROPOSED WETLAND BUFFER  PROPOSED WETLAND FILL 	<p>HARMONY</p> <p>SHEET NAME: FILL EXHIBIT B CLIENT: D.R. HORTON LOCATION: CHARLESTON, SC DATE: 1/15/15 REVISED: 9/24/18 SCALE: 1"=200'</p>	 <p>CIVIL SITE ENVIRONMENTAL 668 MARINA DR, SUITE B-1 CHARLESTON, SC 29492 843-849-8945</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

SHEET: 8 of 32

EXISTING BOX
CULVERT CONNECTS
TO DITCH & RUNS
OFFSITE APPROX.
PARALLEL TO
POWER EASEMENT



FILL EXHIBIT A

EX. 40' UTIL. EASEMENT

EX. 40' UTIL.

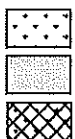
FILL EXHIBIT D

JURISDICTIONAL
WETLAND AREA "L4"
TO BE FILLED
49,748 SF
1.14 Ac.

JURISDICTIONAL
WETLAND AREA "L1"
TO BE FILLED
6,295 SF
0.14 Ac.

JURISDICTIONAL
WETLAND AREA "L2"
TO BE FILLED
2,389 SF
0.05 Ac.

LEGEND



EXISTING WETLAND
PROPOSED WETLAND BUFFER
PROPOSED WETLAND FILL

SAC-2006-03522-
Revised

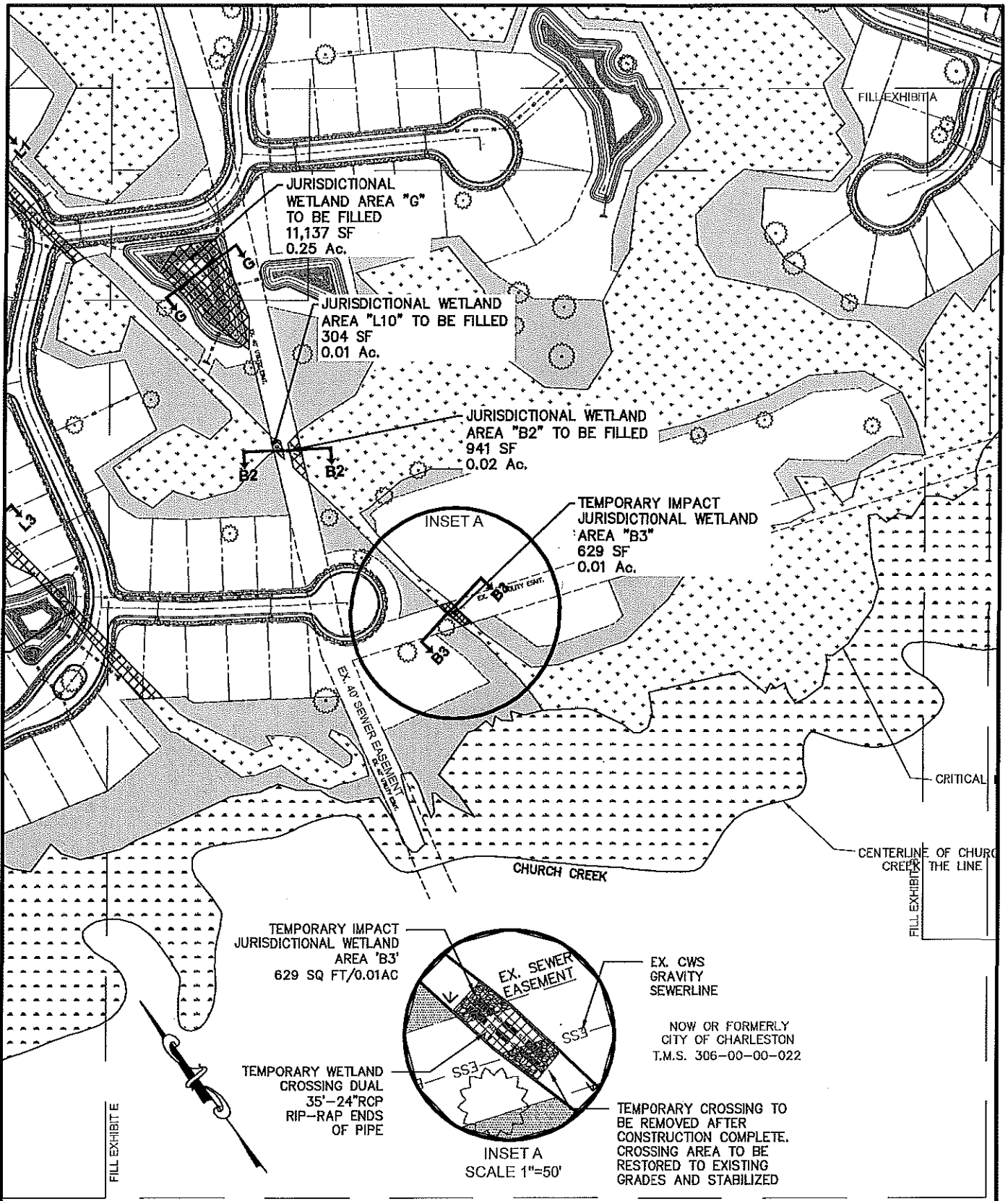
HARMONY




SHEET NAME: FILL EXHIBIT C
CLIENT: D.R. HORTON
LOCATION: CHARLESTON, SC
DATE: 1/15/15 REVISED: 9/24/18
SCALE: 1"=200'



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945

SHEET: 9 of 32

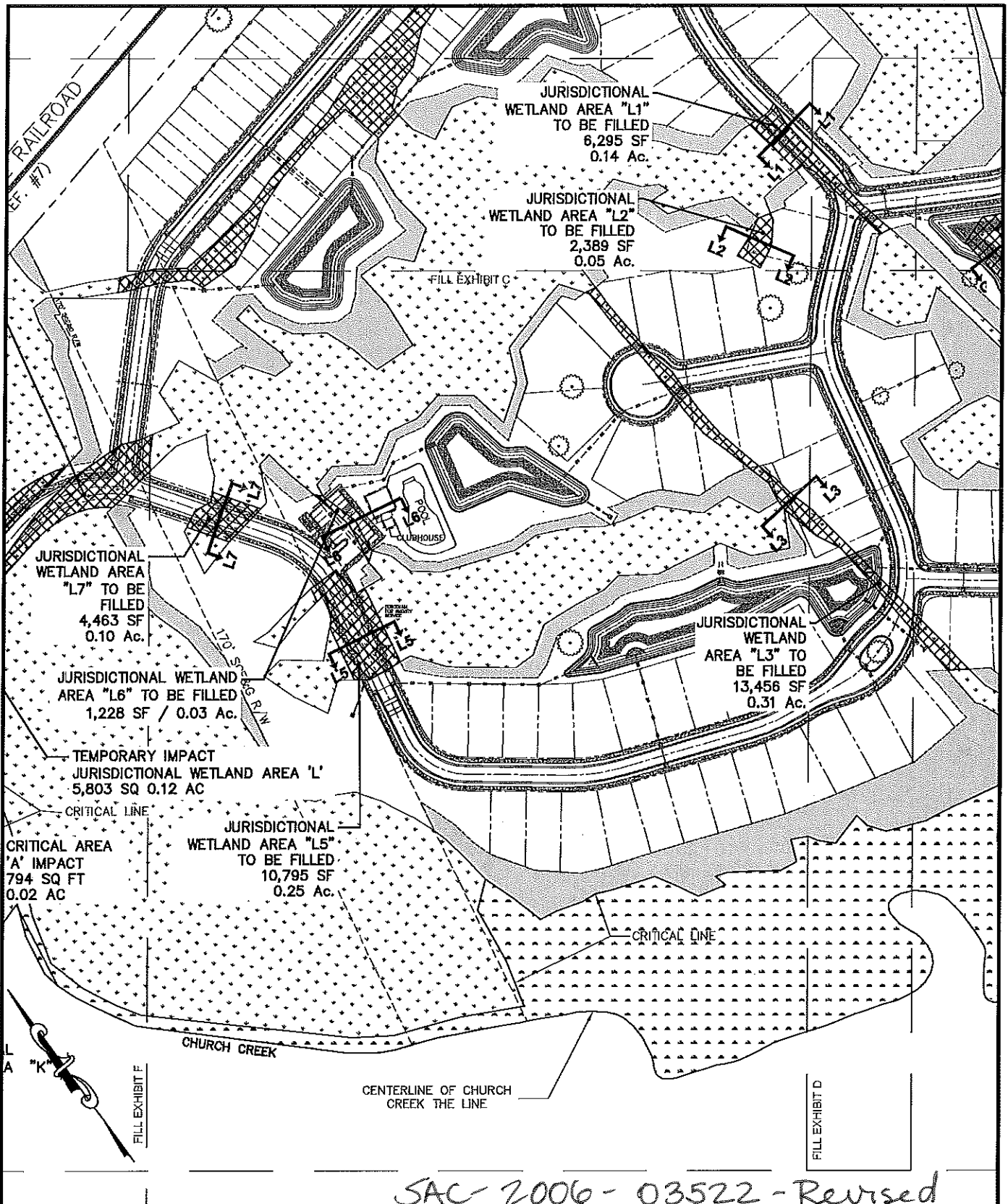


LEGEND	<i>SAC-2006-03522 - Revised</i>
	EXISTING WETLAND
	PROPOSED WETLAND BUFFER
	PROPOSED WETLAND FILL

HARMONY
 SHEET NAME: FILL EXHIBIT D
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REVISED: 9/24/18
 SCALE: 1"=200' SHEET: 10 of 32






CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



SAC-2006-03522-Revised

LEGEND

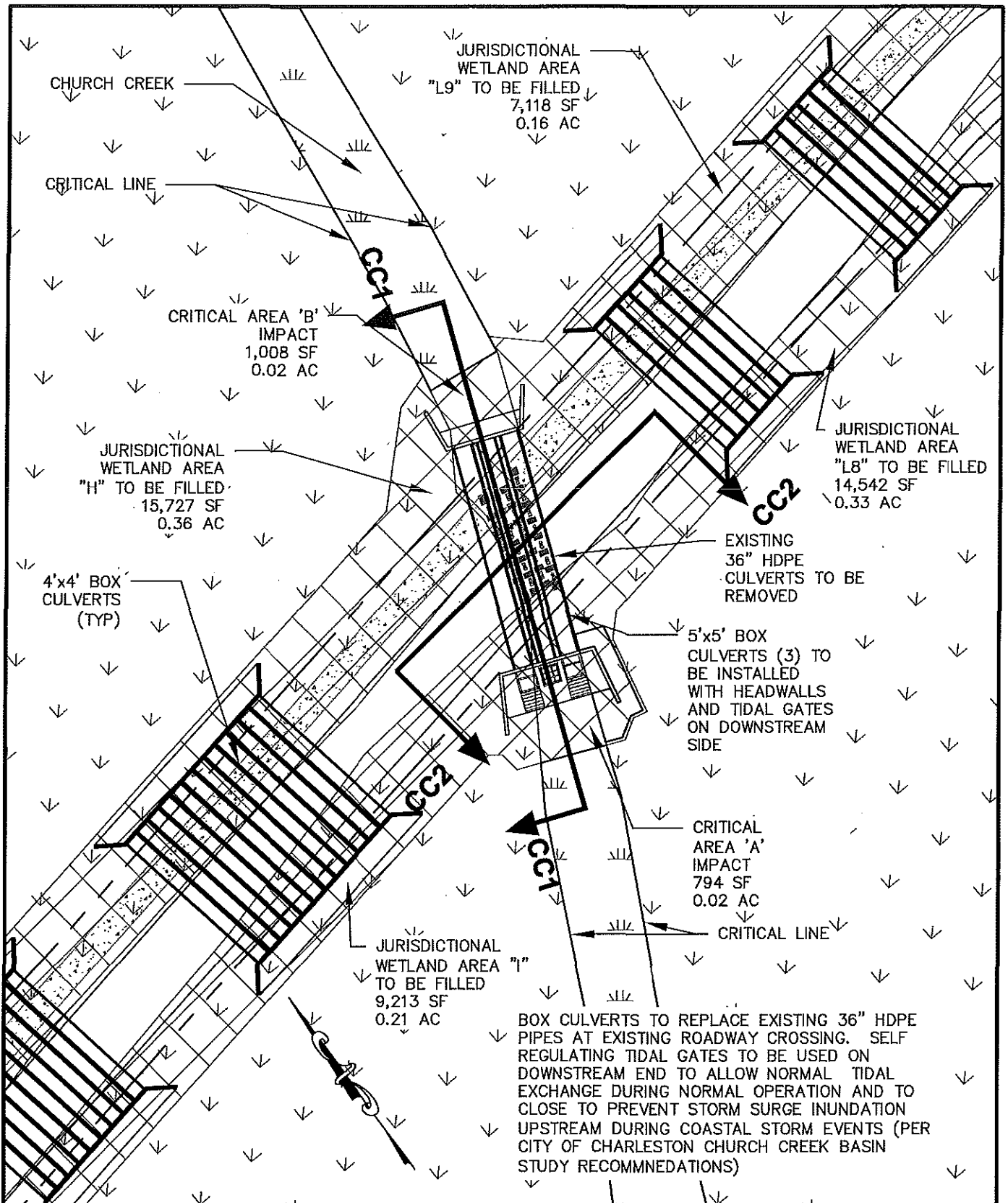
-  EXISTING WETLAND
-  PROPOSED WETLAND BUFFER
-  PROPOSED WETLAND FILL

HARMONY

SHEET NAME: FILL EXHIBIT E
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REVISED: 9/24/18
 SCALE: 1"=200'



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



LEGEND



EXISTING WETLAND

PROPOSED WETLAND FILL

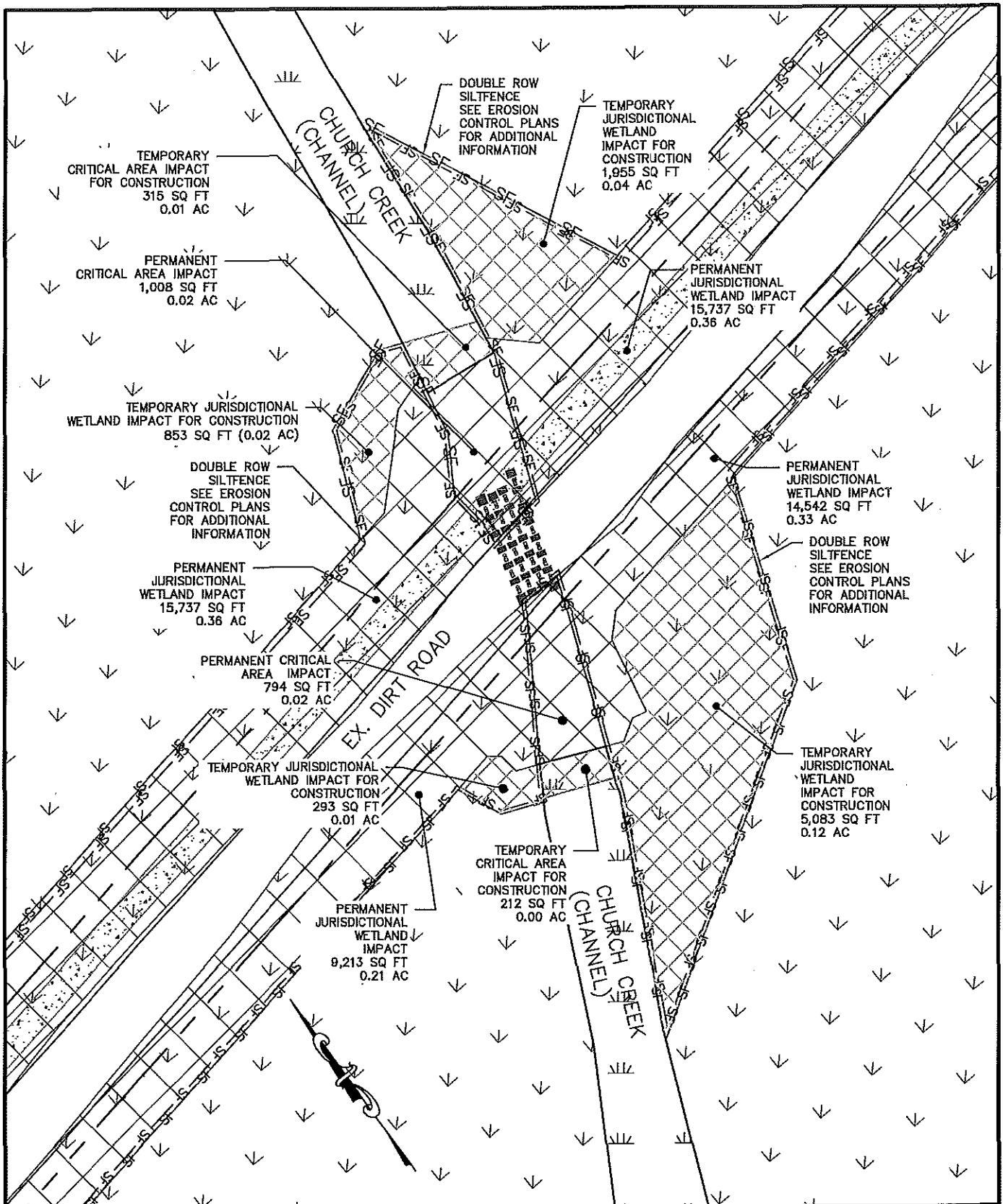
SAC-2006-03522-
Revised

HARMONY

SHEET NAME: FILL EXHIBIT F (CREEK CROSSING)
CLIENT: D.R. HORTON
LOCATION: CHARLESTON, SC
DATE: 1/15/15 REVISED: 9/24/18
SCALE: 1"=30' SHEET: 13 of 30



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



LEGEND



EXISTING WETLAND
 PROPOSED WETLAND FILL

SAC 2006-03522- Revised

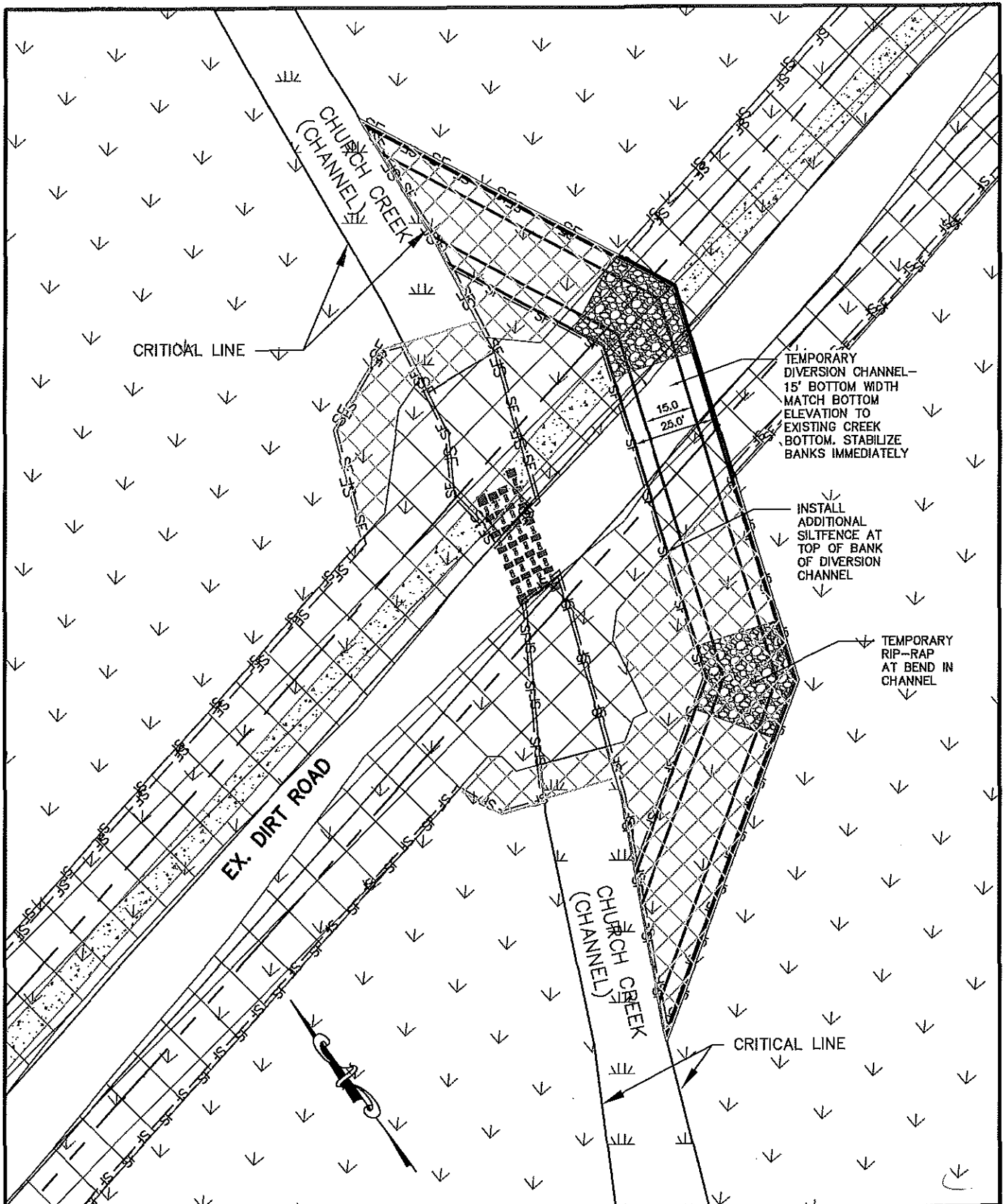
HARMONY

SHEET NAME: FILL EXHIBIT F (CREEK CROSSING)
 CONSTRUCTION STAGE 1
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REVISED: 9/24/18
 SCALE: 1"=30'



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

SHEET: 14 of 32



LEGEND



EXISTING WETLAND



PROPOSED WETLAND FILL

SAC-2006-03522-
Revised

HARMONY

SHEET NAME: FILL EXHIBIT F (CREEK CROSSING)
CONSTRUCTION STAGE 2

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

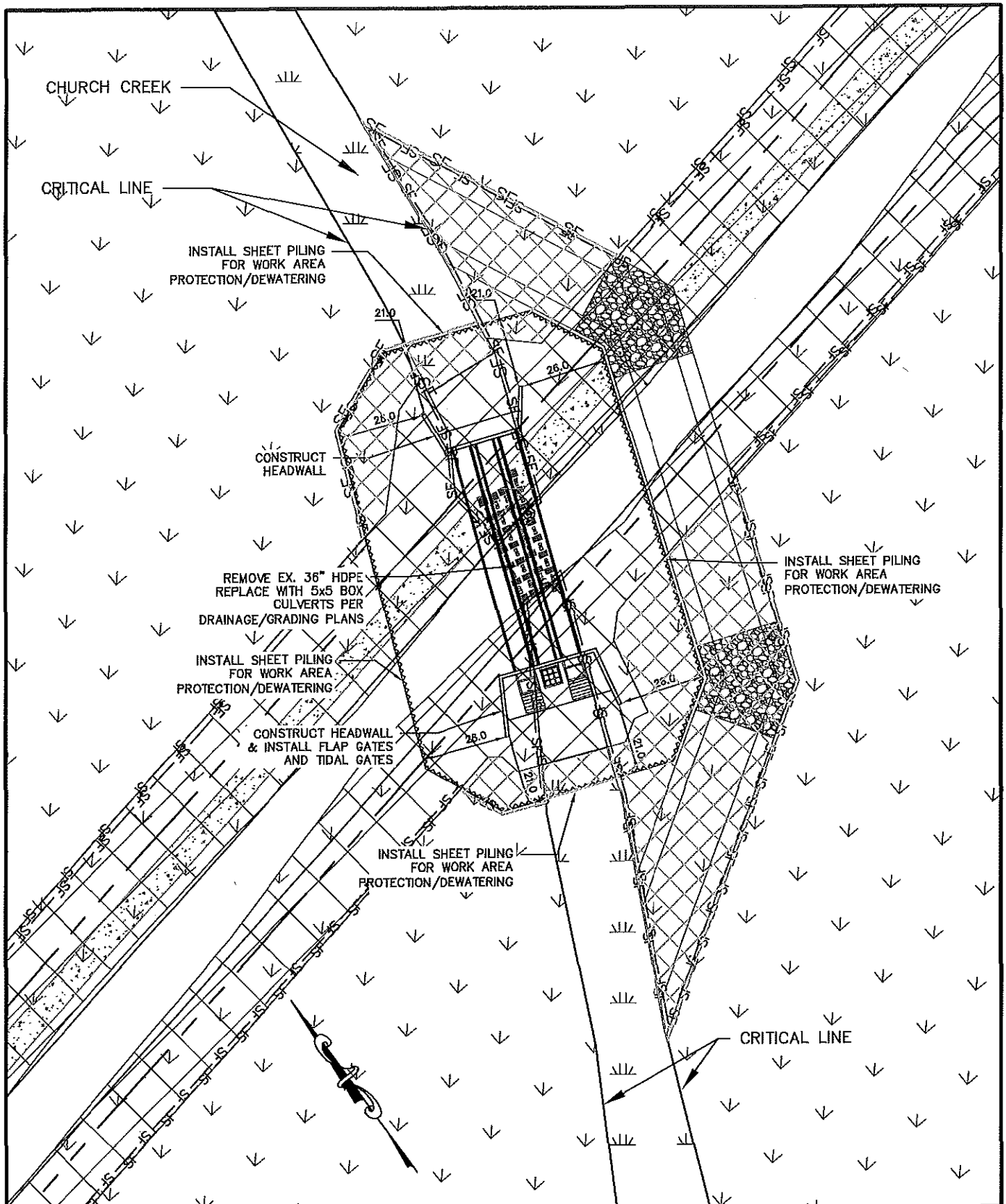
DATE: 1/15/15 REVISED: 9/24/18

SCALE: 1"=30'



SHEET: 15 of 37



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



LEGEND

-  EXISTING WETLAND
-  PROPOSED WETLAND FILL

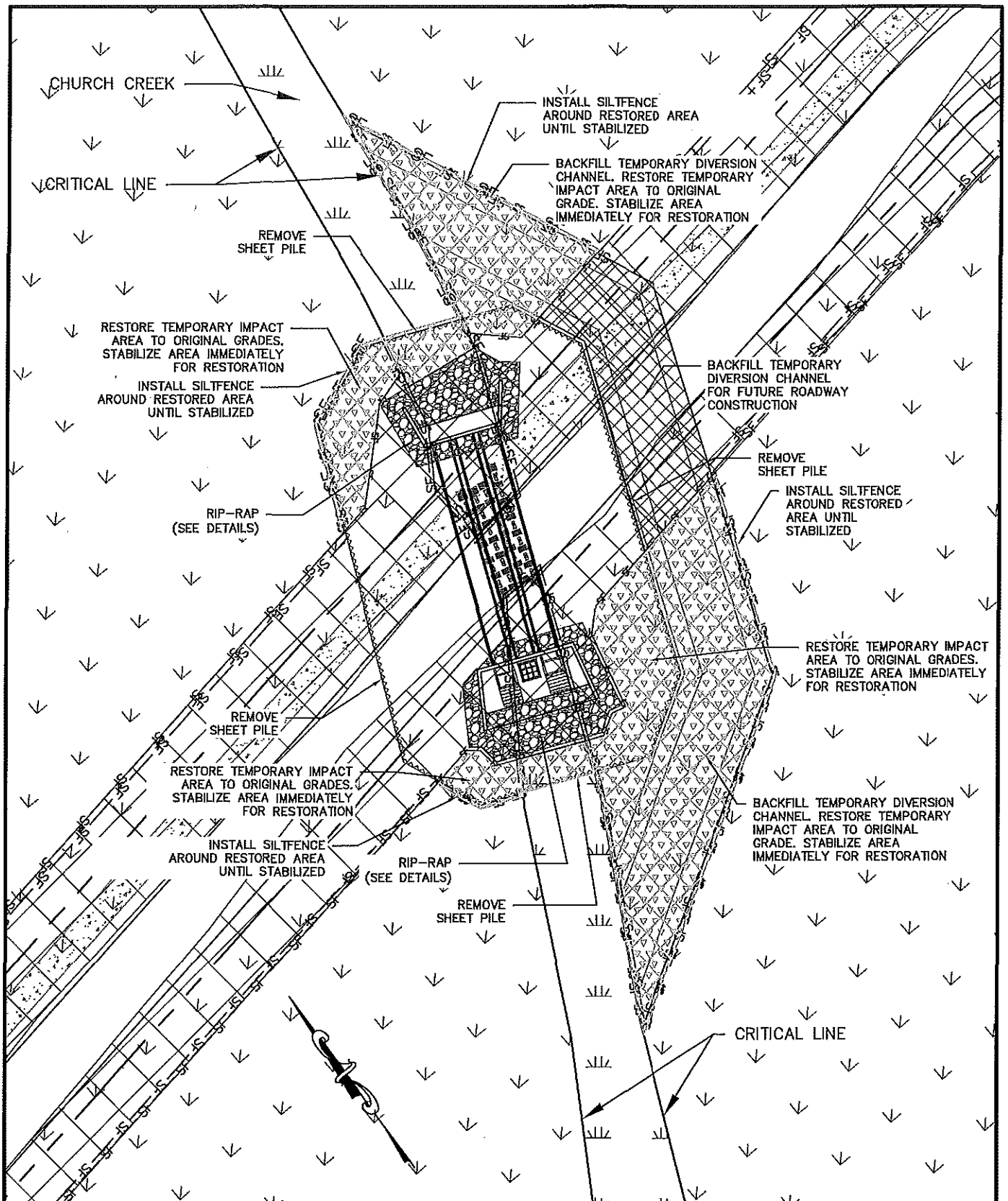
*SAC-2006-03522-
Revised*

HARMONY

SHEET NAME: FILL EXHIBIT F (CREEK CROSSING)
CONSTRUCTION STAGE 3
CLIENT: D.R. HORTON
LOCATION: CHARLESTON, SC
DATE: 1/15/15 REVISED: 9/24/18
SCALE: 1"=30'



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



LEGEND



EXISTING WETLAND
PROPOSED WETLAND FILL

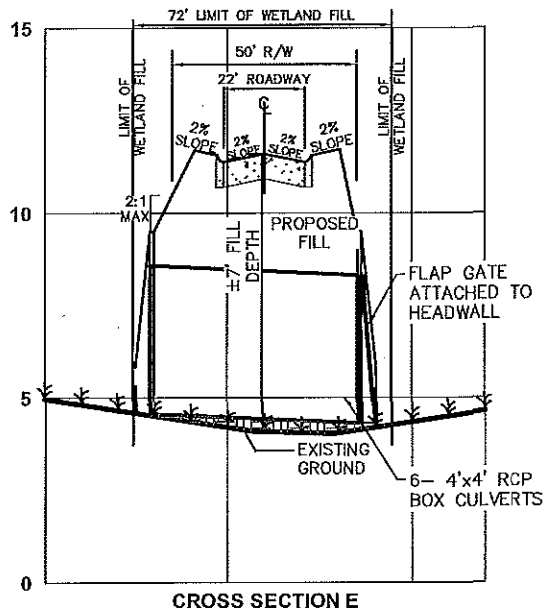
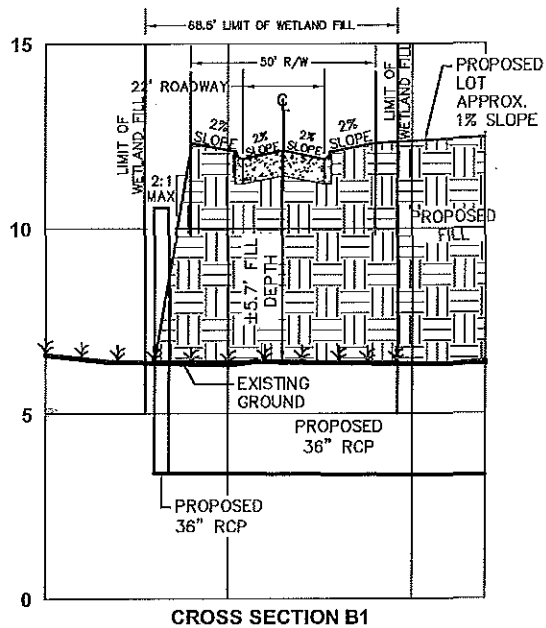
SAC 2006-03522 - Revised

HARMONY

SHEET NAME: FILL EXHIBIT F (CREEK CROSSING)
CONSTRUCTION STAGE 4
CLIENT: D.R. HORTON
LOCATION: CHARLESTON, SC
DATE: 1/15/15 REVISED: 9/24/18
SCALE: 1"=30' SHEET: 17 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



SAC-2006-03522 - Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT A

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

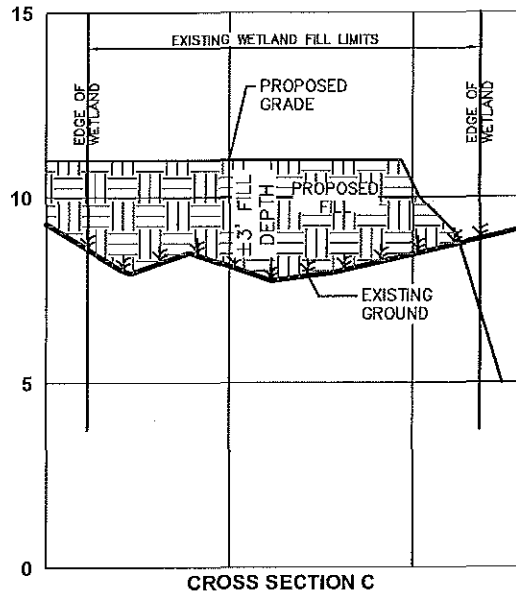
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 18 of 31



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



SAC-2006-03522-Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT B

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

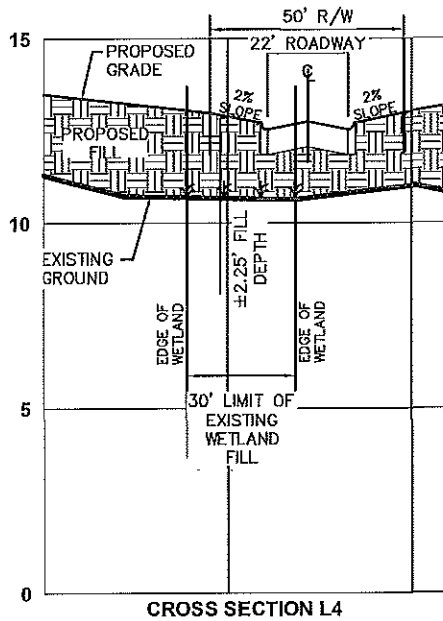
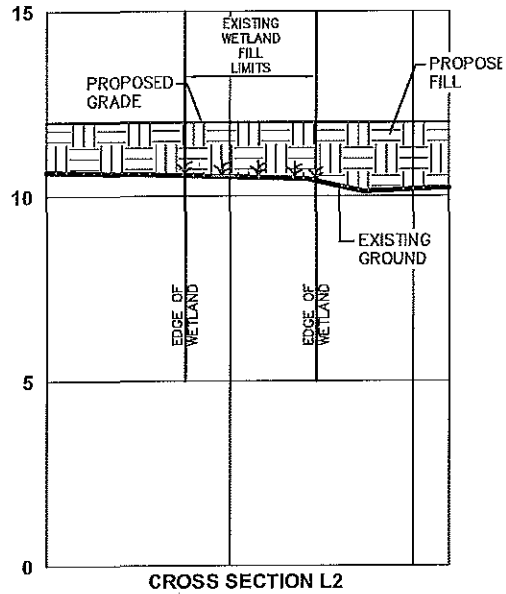
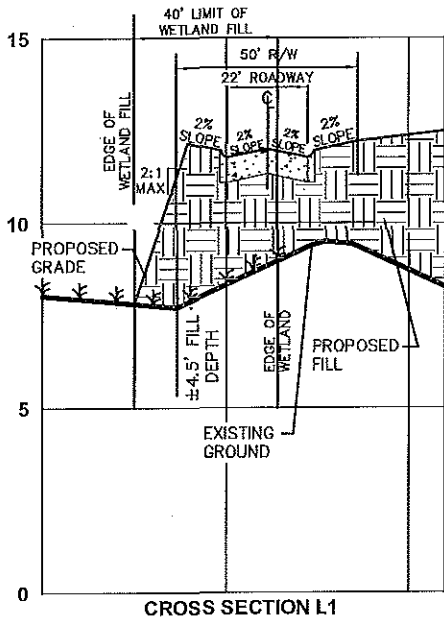
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 19 of 30



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

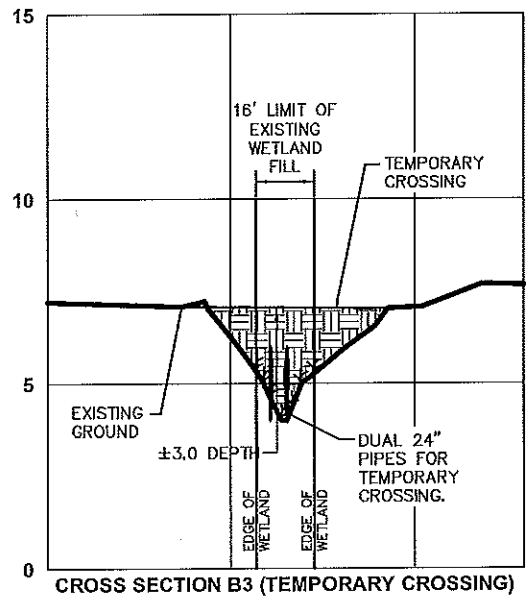
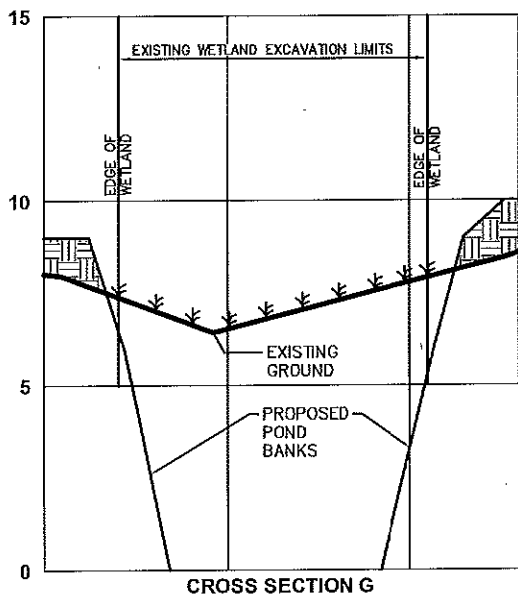
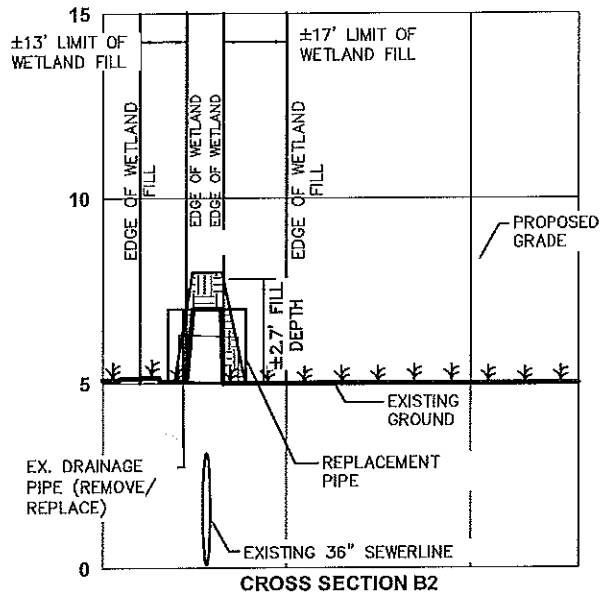


SAC-2006-03522- Revised

HARMONY
 SHEET NAME: CROSS SECTION EXHIBIT C
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REV: 9/24/18
 SCALE: 1"=50' HORIZ 1"=5' VERT.

CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

SHEET: 20
 of 32



SAC-2006-03522 - Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT D

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

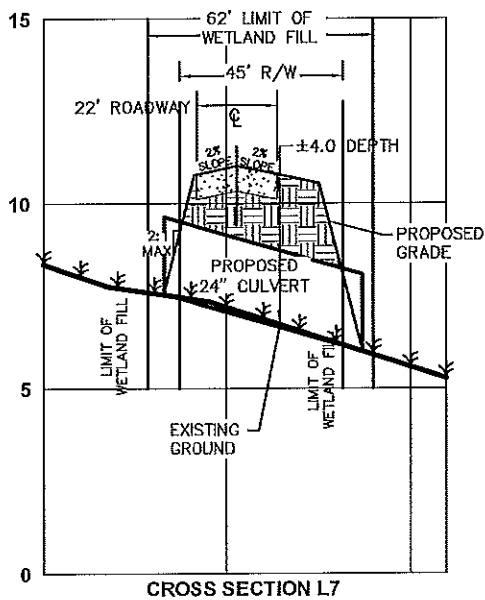
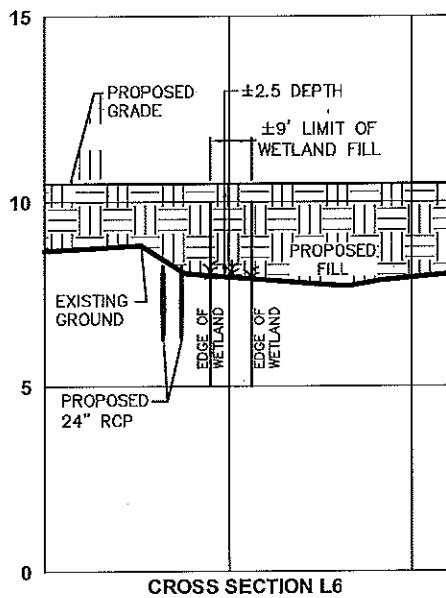
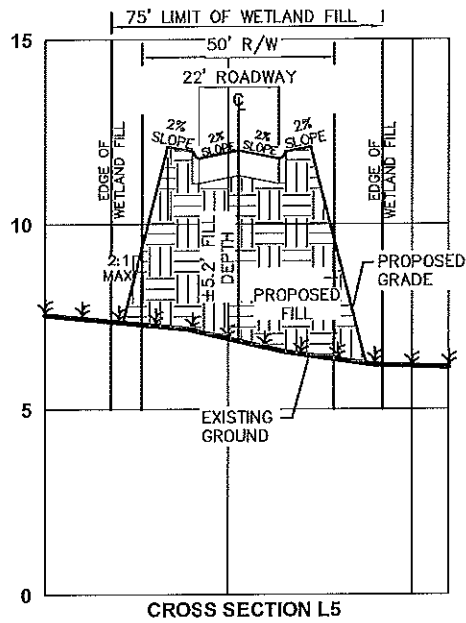
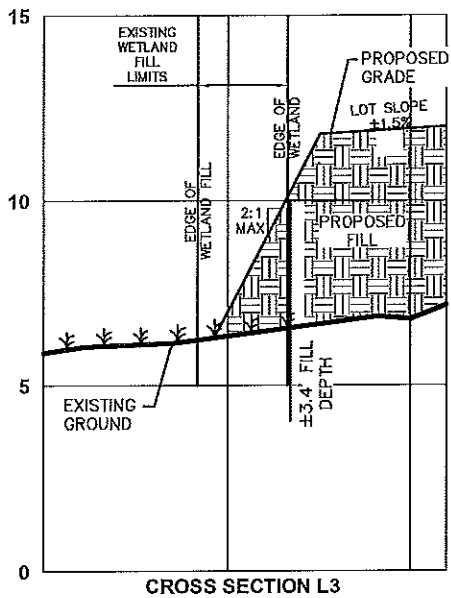
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 21 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



SAC-2006-03522- Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT E

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

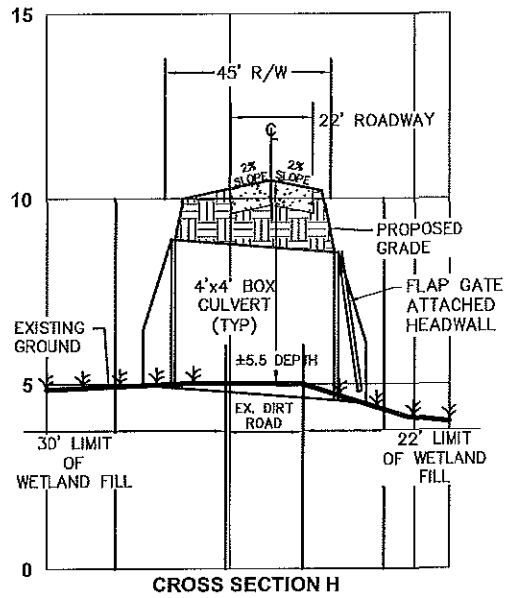
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

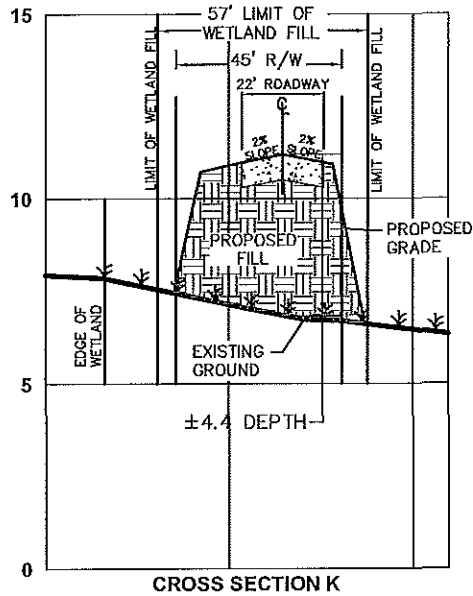
SHEET: 22 of 30



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



CROSS SECTION H



CROSS SECTION K

SAC-2006-03522- Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT F

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

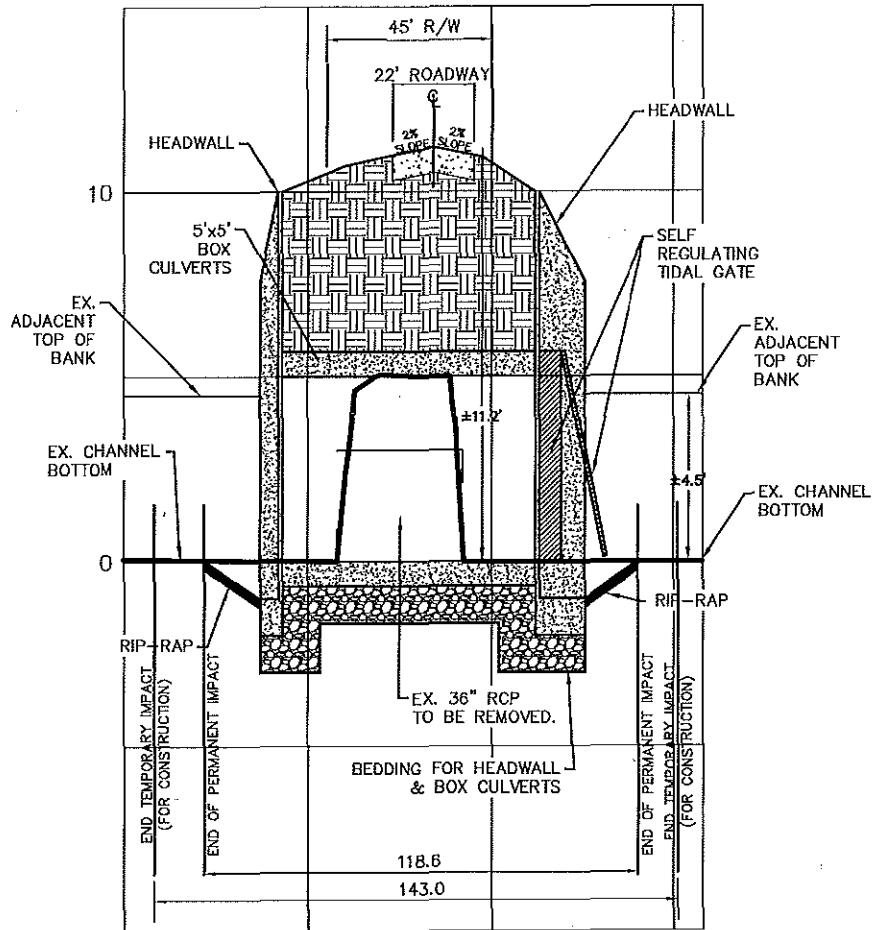
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 23 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



CROSS SECTION CC1
(CREEK CROSSING)

SAC-2006-03522-Revised

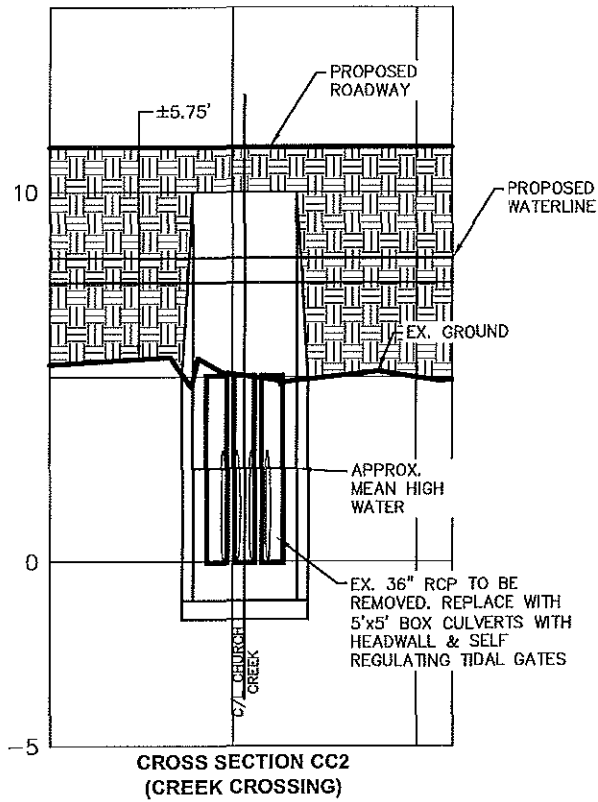
HARMONY

SHEET NAME: CROSS SECTION EXHIBIT F (CREEK CROSSING)
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REV: 9/24/18
 SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 24 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



SAC - 2006 - 03522 - Revised

HARMONY

SHEET NAME: CROSS SECTION EXHIBIT F (CREEK CROSSING)

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

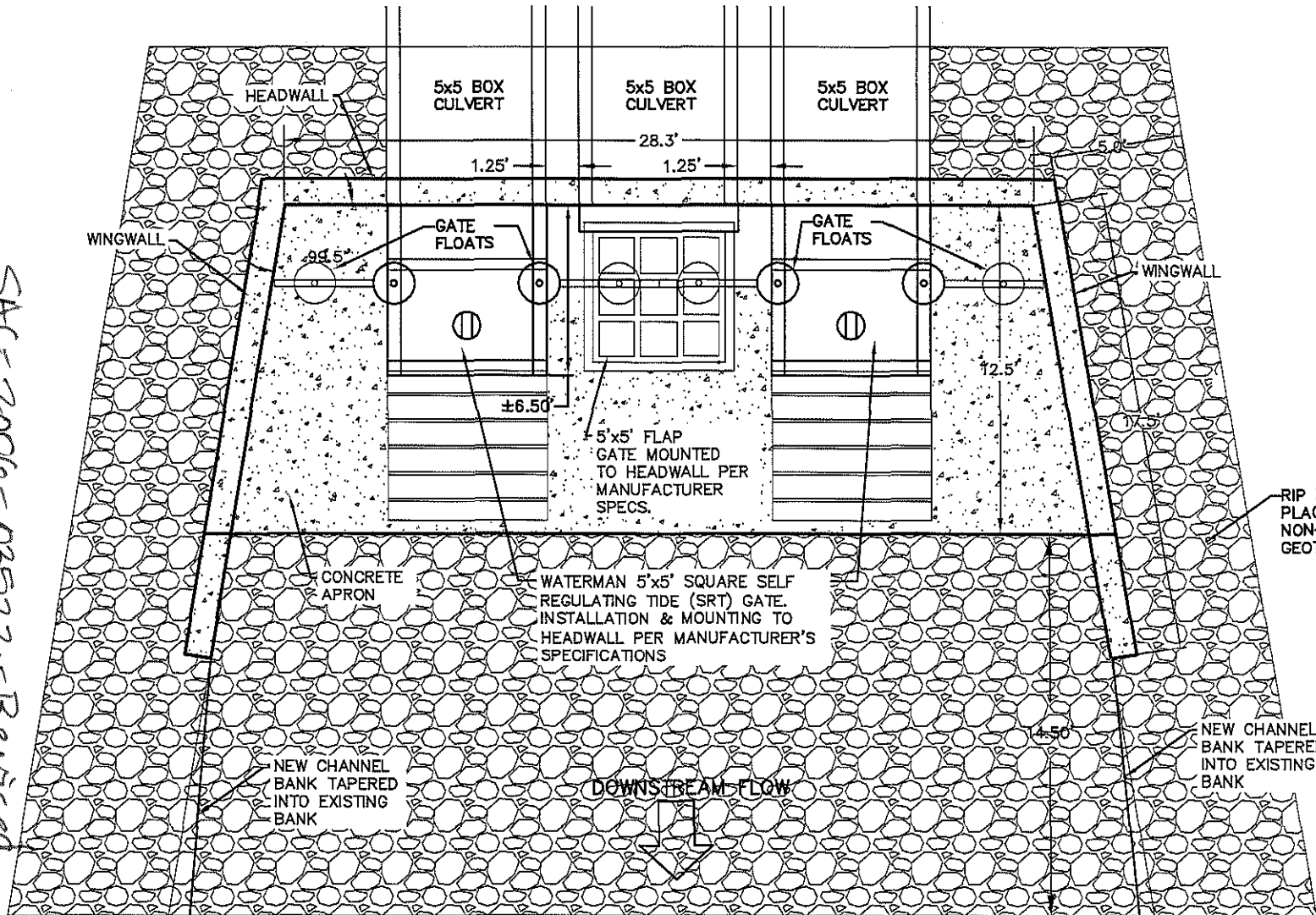
DATE: 1/15/15 REV: 9/24/18

SCALE: 1"=50' HORIZ 1"=5' VERT.

SHEET: 25 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



PLAN

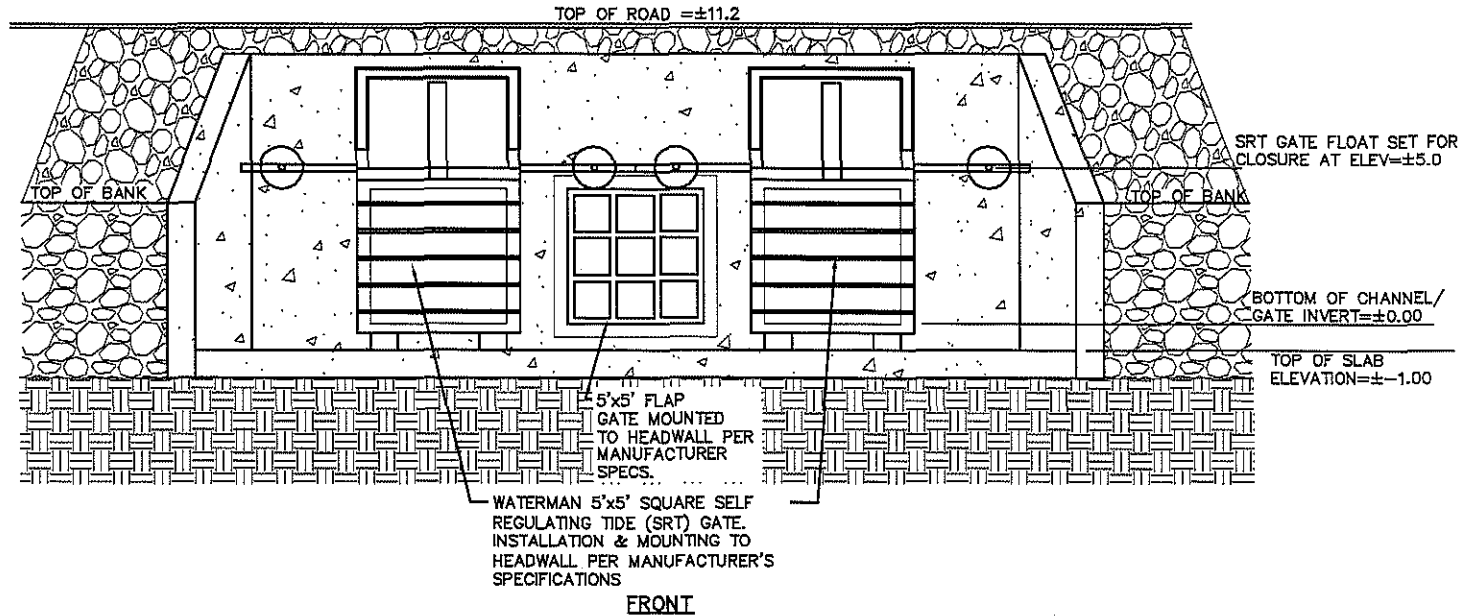
SAC 2006-03522-Revise

HARMONY
 SHEET NAME: CREEK CROSSING HEADWALL DETAIL (DOWNSTREAM)
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REV: 9/24/18
 SCALE: NTS SHEET: 26 of 32

CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



BOX CULVERTS TO REPLACE EXISTING 36" HDPE PIPES AT EXISTING ROADWAY CROSSING. SELF REGULATING TIDAL GATES TO BE USED ON DOWNSTREAM END TO ALLOW NORMAL TIDAL EXCHANGE DURING NORMAL OPERATION AND TO CLOSE TO PREVENT STORM SURGE INUNDATION UPSTREAM DURING COASTAL STORM EVENTS (PER CITY OF CHARLESTON CHURCH CREEK BASIN STUDY RECOMMENDATIONS). GATE FLOATS SET TO FULLY CLOSE GATES WHEN DOWNSTREAM WATER SURFACE ELEVATION REACHES ELEVATION=5.0 (APPROXIMATE TOP OF BANK=4.5)



HARMONY

SHEET NAME: CREEK CROSSING HEADWALL DETAIL (DOWNSTREAM)

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

DATE: 1/19/15 REV: 9/24/18

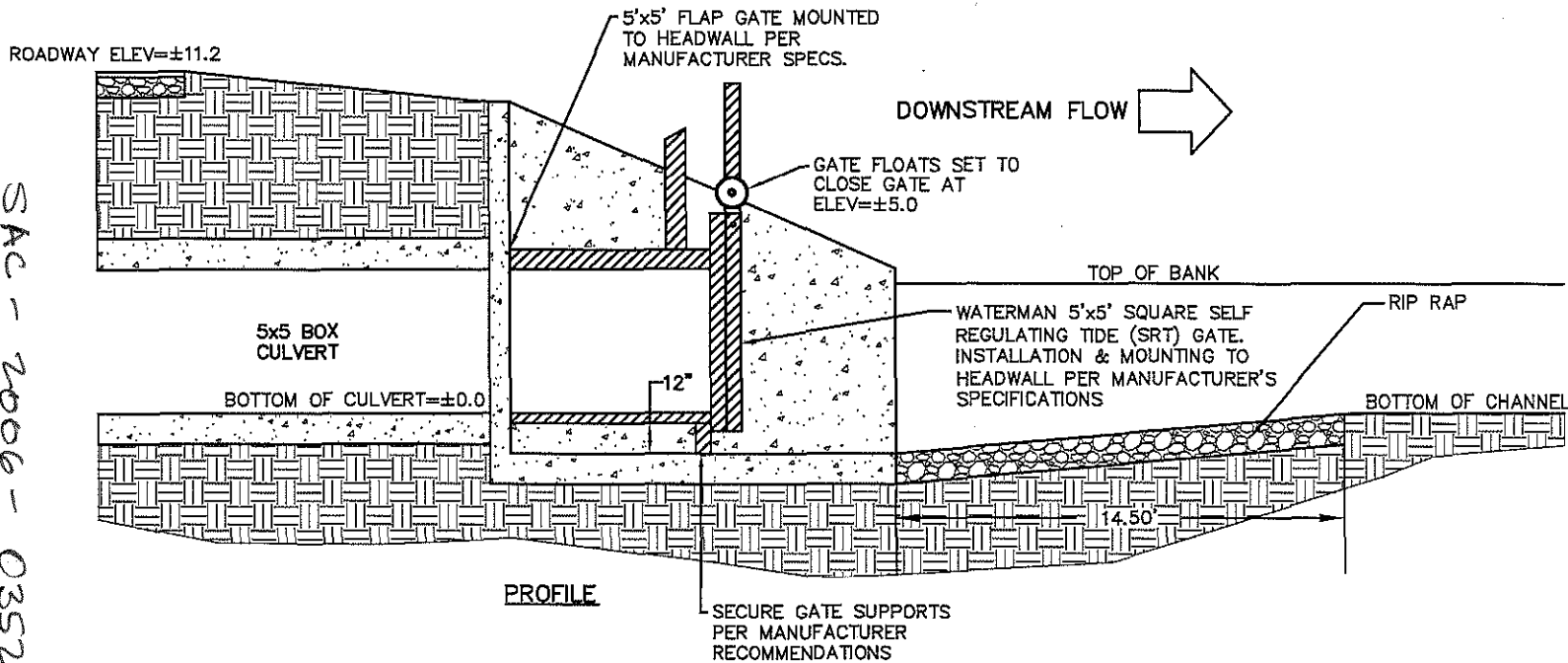
SCALE: NTS SHEET: 27

SAC-2006-03522-Reuse

of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945



PROFILE

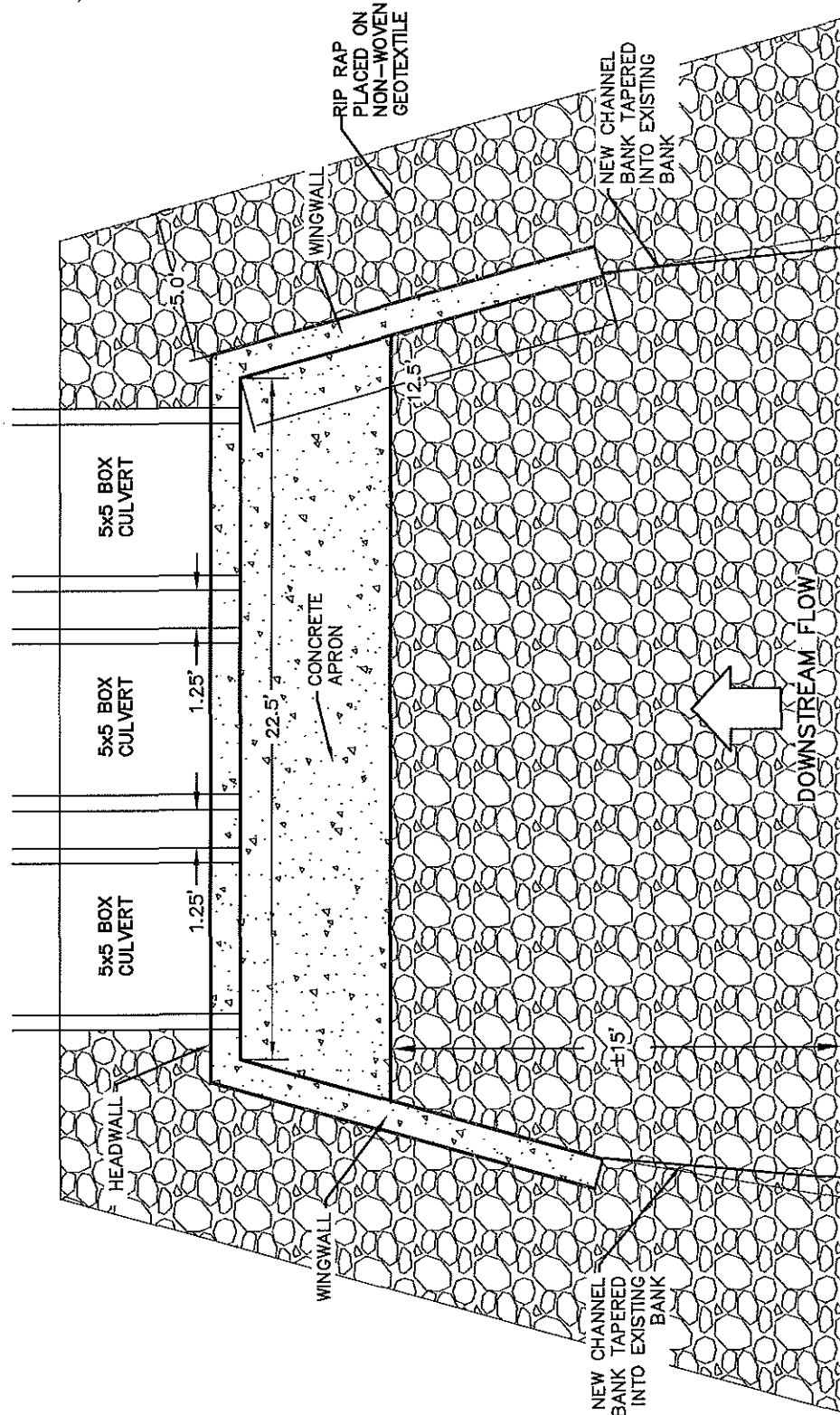
SAC - 2006 - 03522 - Revised

HARMONY

SHEET NAME: CREEK CROSSING HEADWALL DETAIL (DOWNSTREAM)
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 7/15/15 REV: 9/24/18
 SCALE: NTS SHEET: 28 of 36



CIVIL SITE ENVIRONMENTAL
 688 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



PLAN

SAC-2006-03522- Revised

HARMONY

SHEET NAME: CREEK CROSSING HEADWALL DETAIL (UPSTREAM)

CLIENT: D.R. HORTON

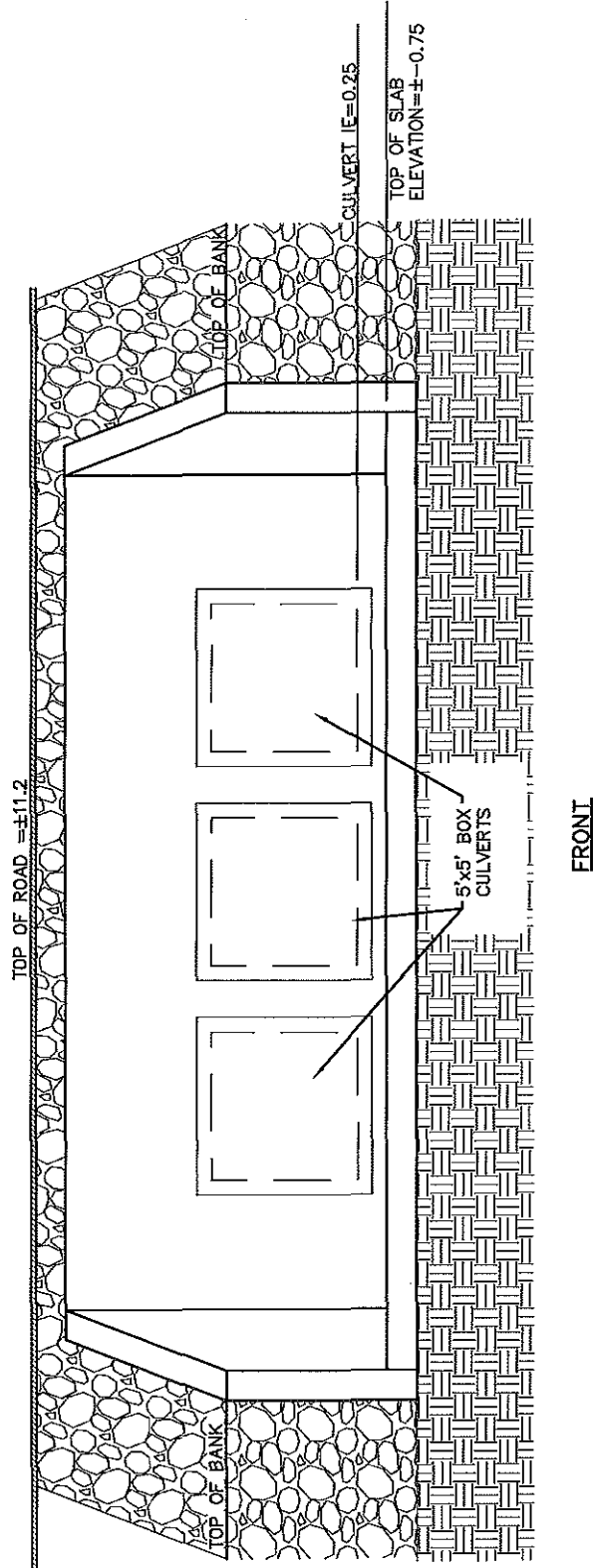
LOCATION: CHARLESTON, SC

DATE: 1/15/15 REV: 9/24/18

SCALE: NTS SHEET: 29 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945

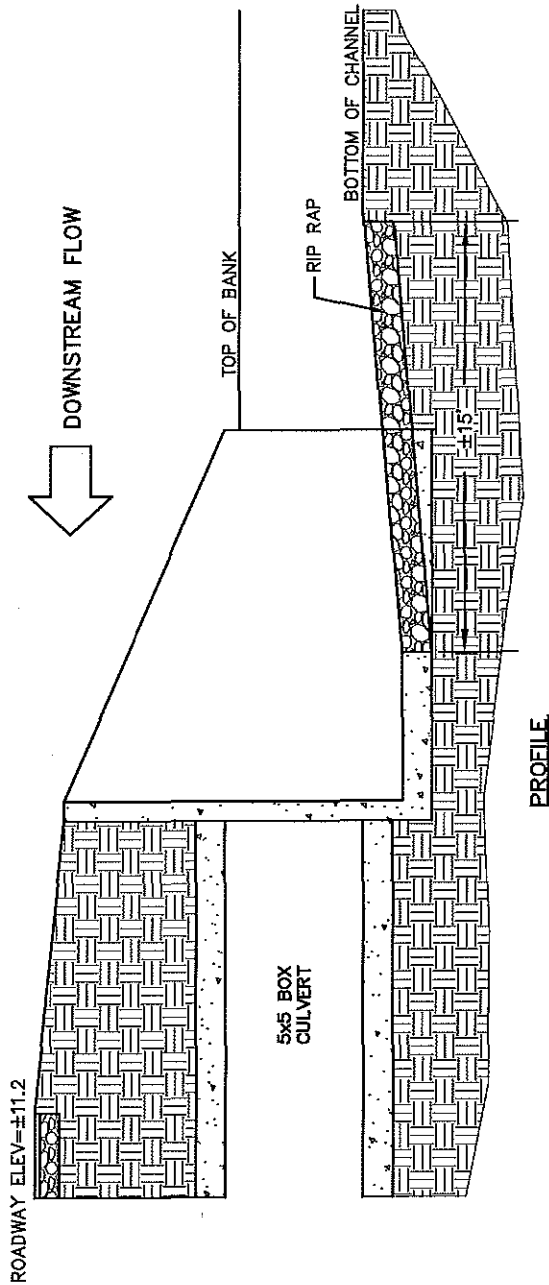


SAC-2006-03522- Revised

HARMONY
 SHEET NAME: CREEK CROSSING HEADWALL DETAIL (UPSTREAM)
 CLIENT: D.R. HORTON
 LOCATION: CHARLESTON, SC
 DATE: 1/15/15 REV: 9/24/18
 SCALE: NTS SHEET: 30 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



SAC-2000-03522-Revised

HARMONY

SHEET NAME: CREEK CROSSING HEADWALL DETAIL (UPSTREAM)

CLIENT: D.R. HORTON

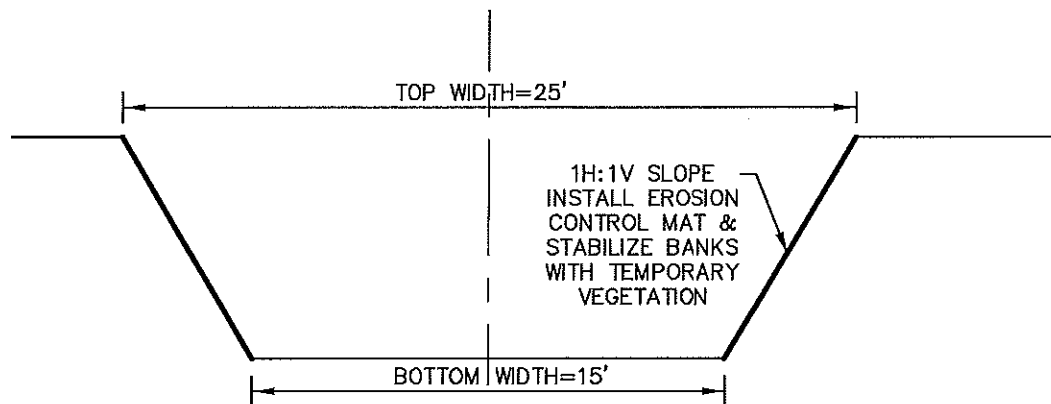
LOCATION: CHARLESTON, SC

DATE: 1/15/15 REV: 9/24/18

SCALE: NTS SHEET: 31 of 32



CIVIL SITE ENVIRONMENTAL
 668 MARINA DR, SUITE B-1
 CHARLESTON, SC 29492
 843-849-8945



TEMPORARY DIVERSION CHANNEL
NTS

SAC-2006-03522-Revised

HARMONY

SHEET NAME: CREEK CROSSING TEMPORARY DIVERSION CHANNEL

CLIENT: D.R. HORTON

LOCATION: CHARLESTON, SC

DATE: 1/15/15 REV: 9/24/18

SCALE: NTS SHEET: 32 of 32



CIVIL SITE ENVIRONMENTAL
668 MARINA DR, SUITE B-1
CHARLESTON, SC 29492
843-849-8945