Wetland Restoration Plan
NC 133, River Road
Brunswick County

TIP BR-0139
WBS No. 67139.1.1

July 27, 2023

The North Carolina Department of Transportation (NCDOT) will perform on-site mitigation for wetland impacts associated with Transportation Improvement Program (TIP) BR-0139. This site occurs within the Right-of-Way of NC 133, River Road. The restoration and enhancement project begins at approximately Sta. 18+62 and ends at approximately Sta. 22+50. NCDOT will restore 0.34 acre and enhance 0.16 acre of wetlands within the existing Right-of-Way.

The 0.34 acre of wetland restoration and 0.16 acre of wetland enhancement within NCDOT Right-of-Way will mitigate for 0.34 acre of permanent impact in wetlands due to minor widening and raising of the roadway grade in the 0.45-mile project area (see permit drawings and impact summary for a breakdown of the project impacts). All mitigation generated by this restoration will only be used to offset the impacts for this project. No banking of excess mitigation is proposed.

EXISTING CONDITIONS

The project is located in Brunswick County, approximately 10 miles south of Belville, NC near the intersection of NC 133 and Funston Road (SR 1521) . This section on NC 133 is prone to flooding, therefore the Department is proposing to replace the existing two 36-inch RCP and one 48-inch CMP with a new 7-span 385-foot cored slab bridge at the restoration site. The adjacent land use is primarily comprised of forested land with some low-density housing interspersed throughout.

The area surrounding the mitigation area contains a Tidal Freshwater Marsh community. The dominant species of this Tidal Freshwater Marsh include Saw Grass (*Cladium mariscus*), Soft Rush (*Juncus effusus*) and Bulrush (*Typha latifolia*).

PROPOSED CONDITIONS

The proposed mitigation consists of the restoration of 0.34 acre and enhancement of 0.16 acre of Tidal Freshwater Marsh (see attached restoration figure for more details). The restoration activities will involve removal of the existing roadway fill of NC 133, River Road. This area will be graded to match the existing adjacent reference wetland elevation as well as ripped and disked if necessary. The enhancement will include grading of existing wetlands to the adjacent natural and undisturbed wetland elevation. The proposed restoration will improve natural flow patterns of the wetland system, improve water quality, and improve aquatic/wildlife habitat and passage. The proposed restoration and enhancement within NCDOT Right-of-Way will be placed on the Natural Environment Unit's Mitigation Geo-Database for protection perpetuity.

The wetland restoration areas shall be fully contained by silt fence until all unsuitable fill material has been removed and the restoration areas have been restored to the approximate

natural elevation of the adjacent, similar undisturbed wetlands and stabilized with appropriate wetland vegetation.

The Natural Environment Unit shall be contacted to provide construction assistance to ensure that the mitigation area is constructed appropriately.

VEGETATION PLANTING

Following the successful completion of site grading and stabilization, the restoration and enhancement areas as well as the temporary construction and utility easement areas will be planted with species found in Tidal Freshwater Marsh communities including: Saw Grass (*Cladium jamaicense*), Soft Rush (*Juncus Effusus*), Duck Potato (*Sagittaria latifolia*) and Lizards Tail (*Saururus cernuus*). The restoration area directly under the bridge (0.23 acre) will not be planted due to sunlight restrictions caused by the low bridge height.
Native grass seeding and mulching will be performed on all disturbed areas within the wetland restoration area for stabilization purposes according to guidance and standard procedures of NCDOT's Roadside Environmental Unit.

MONITORING

Upon successful completion of construction, the following monitoring strategy is proposed for the 0.34 acre restoration and 0.16 acre enhancement within the NCDOT Right-of-Way. NCDOT will document monitoring activities on the site in an annual report distributed to the regulatory agencies. The vegetation component of the wetland site will be deemed successful if the targeted wetland herbaceous species survives and has an average of 75 percent vegetation cover, not including any invasive species.

HYDROLOGIC MONITORING

No specific hydrological monitoring is proposed for the wetland restoration area. The target elevation will be based on the reference wetland and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology in the restored area is like the hydrology in the reference area.

VEGETATION SUCCESS CRITERIA

NCDOT shall monitor the restoration site by visual observation and photo points for survival and aerial cover of vegetation. NCDOT shall monitor the site for a minimum of three years or until the site is deemed successful. Monitoring will be initiated upon completion of the planting.

8/17/99

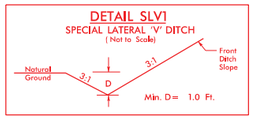
HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
BR-0139	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NAD 83/NA 2011

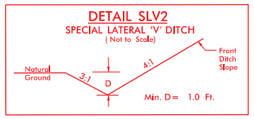
PERMIT DRAWING SHEET 2 OF 14

DETAIL SLV1
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



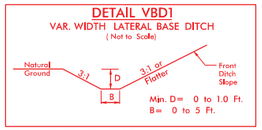
FROM -L- STA. 17+00 TO STA. 17+50 LT
FROM -L- STA. 15+00 TO STA. 17+00 RT
FROM -L- STA. 23+35 TO STA. 25+50 LT
FROM -L- STA. 24+00 TO STA. 24+50 RT

DETAIL SLV2
SPECIAL LATERAL 'V' DITCH
(Not to Scale)



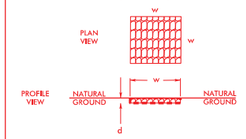
FROM -L- STA. 12+00 TO STA. 15+00 RT
FROM -L- STA. 13+00 TO STA. 17+00 LT
FROM -L- STA. 24+50 TO STA. 26+50 RT
FROM -L- STA. 25+50 TO STA. 26+50 LT

DETAIL VBD1
VAR. WIDTH LATERAL BASE DITCH
(Not to Scale)



FROM -L- STA. 17+00 TO STA. 17+85 RT
FROM -L- STA. 17+50 TO STA. 18+50 LT
FROM -L- STA. 23+35 TO STA. 24+00 RT

DETAIL DP1
DECK DRAIN DISSIPATER PAD
(Not to Scale)



Type of Liner=
CLASS 'I' Rip-Rap
w=6 FT
d=1.5 FT

2.8 TONS CLASS 'I' Rip-Rap
5.0 SY GEOTEXTILE
2.0 CY EXCAVATION

NOTE: PAD TO BE CENTERED UNDER DECK DRAIN

-L- STA. 19+64 LT /RT
-L- STA. 19+79 LT /RT
-L- STA. 19+94 LT /RT
-L- STA. 20+09 LT /RT
-L- STA. 20+24 LT /RT
-L- STA. 20+39 LT /RT
-L- STA. 20+54 LT /RT
-L- STA. 20+69 LT /RT
-L- STA. 20+99 LT /RT
-L- STA. 21+14 LT /RT
-L- STA. 21+29 LT /RT
-L- STA. 21+44 LT /RT
-L- STA. 21+59 LT /RT
-L- STA. 21+89 LT /RT
-L- STA. 22+04 LT /RT
-L- STA. 22+19 LT /RT
-L- STA. 22+34 LT /RT

WETLAND & STREAM IMPACTS

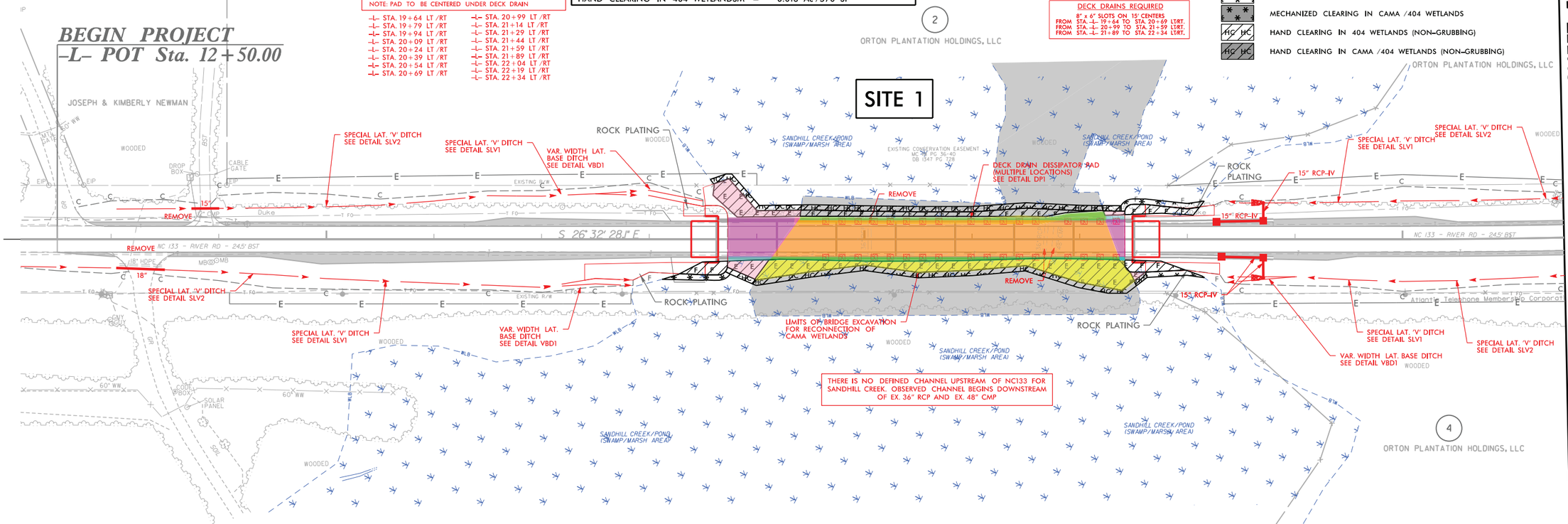
W1

FILL IN 404 WETLANDS = 0.011 Ac / 474 SF
EXCAVATION IN 404 WETLAND = 0.025 Ac /1086 SF
EXCAVATION IN CAMA /404 WETLAND = 0.030 Ac /1304 SF
MECHANIZED CLEARING IN 404 WETLANDS = 0.009 Ac /390 SF
HAND CLEARING IN CAMA /404 WETLANDS = 0.032 Ac /1399 SF
HAND CLEARING IN 404 WETLANDSM = 0.013 Ac /570 SF

DECK DRAINS REQUIRED
8" x 6" SLOTS ON 15' CENTERS
FROM STA. -L- 19+64 TO STA. 20+69 LT/RT.
FROM STA. -L- 20+99 TO STA. 21+59 LT/RT.
FROM STA. -L- 21+89 TO STA. 22+34 LT/RT.

LEGEND
- FILL IN 404 WETLANDS
- FILL IN CAMA /404 WETLANDS
- EXCAVATION IN 404 WETLANDS
- EXCAVATION IN CAMA /404 WETLANDS
- MECHANIZED CLEARING IN 404 WETLANDS
- MECHANIZED CLEARING IN CAMA /404 WETLANDS
- HAND CLEARING IN 404 WETLANDS (NON-GRUBBING)
- HAND CLEARING IN CAMA /404 WETLANDS (NON-GRUBBING)

15+00 -L-
20+00 -L-
25+00 -L-



W3

FILL IN 404 WETLANDS = 0.019 Ac / 845 SF
FILL IN CAMA /404 WETLANDS = 0.000 Ac /3 SF
EXCAVATION IN 404 WETLANDS = 0.011 Ac /480 SF
EXCAVATION IN CAMA /404 WETLANDS = 0.094 Ac /4098 SF
MECHANIZED CLEARING IN 404 WETLANDS = 0.012 Ac /509 SF
HAND CLEARING IN CAMA /404 WETLANDS = 0.041 Ac /1789 SF
HAND CLEARING IN 404 WETLANDS = 0.005 Ac /203 SF

CAMA /404 WETLANDS

404 WETLANDS

5,402 sq. feet	Coastal/404 Beneficial Excavation (Enhancement)
2,222 sq. feet	Coastal/404 Full Restoration
10,071 sq. feet	Coastal/404 Shaded Restoration
1,475 sq. feet	404 Beneficial Excavation (Enhancement)
166 sq. feet	404 Full Restoration
2,345 sq feet	404 Shaded Restoration

7/25/2023
...\BR0139_HYD_prm_psh4.dgn
HNTB