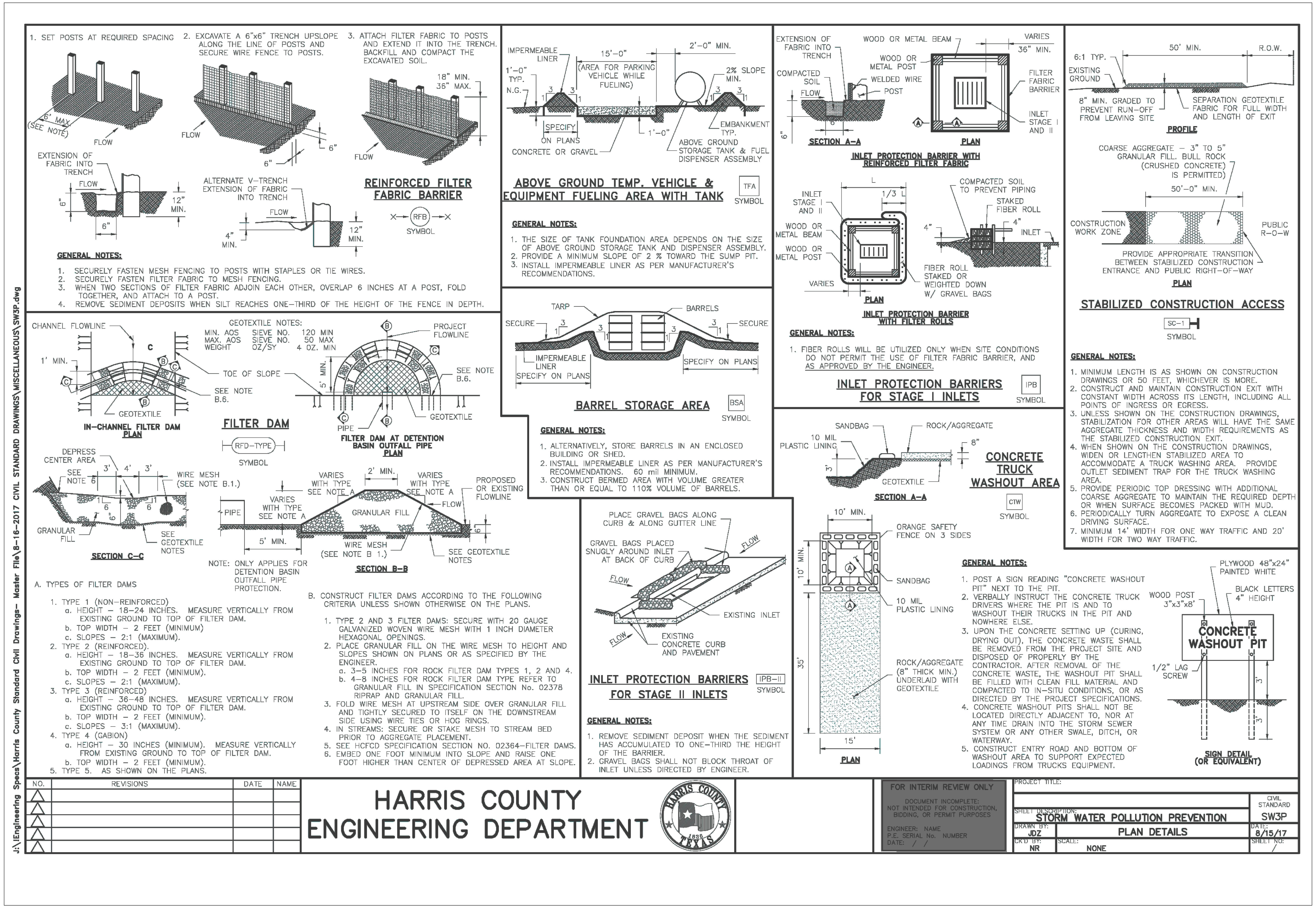
NOTE:

1. FOR STORM WATER POLLUTION PREVENTION PLAN LAYOUT, SEE SHEET C-018.



STORMWATER POLLUTION PREVENTION PLAN DETAILS

SCALE: NOT TO SCALE

TIME: 12-08-20 - 12:53pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-019.dwg

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY: HDR

HDR Engineering, INC TBPELS FIRM Registration No. F-754

SEAL:

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95% REVIEW

APPROVED: DATE

PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

STORMWATER POLLUTION PREVENTION PLAN DETAILS

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002

SHEET NO. C-019 REV. NO. B

E2 CLINTON DMPA

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STORM WATER POLLUTION PREVENTION PLAN

PROJECT NAME:

LOCATION & LIMITS:

See plan cover sheet for vicinity map.

PROJECT SCOPE:

Activity (check all that apply)	
Roadway Expansion	
Roadway New Construction	
Underground Storm Sewer	
Detention Pond	
Bridge Expansion	
Bridge New Construction	

TOTAL PROJECT AREA: ______ Acres ______ Linear Feet

TOTAL AREA DISTURBED: ______ Acres

EXISTING CONDITIONS OF SOIL, VEGETATION, AND DRAINAGE:

PHASED CONSTRUCTION ACTIVITIES:

DESCRIPTION OF DRAINAGE AREAS AND OUTFALLS:

All outfall structures will be constructed in accordance to Harris County Specification 461 and any applicable specification referenced by it. Drainage pathways will shown on plan sheets stored with other attachments to this SWPPP.

TCEQ 303(d) listed water ☐

RECEIVING WATERS/CONVEYANCE:

MAJOR SOIL DISTURBING ACTIVITIES:

ACTIVITY (CHECK ALL THAT APPLY)	
SPEC 102 – Clearing & Grubbing	
SPEC 104/110/400 – Excavating	
SPEC 400 – Fill	
Leveling/Grading	

NOTES:

See Site Plan for detailed planning drawings.

SOIL STABILIZATION AND SEDIMENT CONTROL MEASURE:

MEASURES	TEMPORARY	PERMANENT
SPEC 164 – Seeding		
SPEC 162 – Sodding		
SPEC 165 – Hydro-mulch		
SPEC 164 – Soil Retention Blanket		
SPEC 713 – Reinforced Filter Fabric Barrier		
SPEC 719 – Inlet Protection Barrier		
SPEC 724 – Stabilized Construction Access		
SPEC 730 – Concrete Truck Washout Structures		
SPEC 741 – Inlet Protection Barrier		
SPEC 750 – Rock Filter Dam		
SPEC 725 – Watering for Dust Control		

NOTES:

If sediment escapes off site, these accumulations will be removed to minimize impact. Rock filter dams will be cleared before the reach 1/3 the height of the dam, other control measures will be cleared before their capacity has been reduced by 50%. As required in CGP TXR 150000, soil stabilization measures will be initiated in portions of the site where activities have ceased for a period exceeding 14 days. This stabilization will commence no later than the day following completion of work in these areas. If prompt repair or replacement is not feasible, the reason will be documented in the SWPPP. Records of dates for major grading activities, and initiation of stabilization measures will be maintained in the SWPPP. Daily work logs related to this section will be kept in CAPTRAC. The Harris County SWPPP detail sheet will be used when implementing BMP's and included with this document.

Current construction specification documents can be found at:
http://www.eng.hctx.net/Consultants/Standards-Specifications/Standard-Engineering-Design-Specifications

INSPECTION & MAINTENANCE:

Inspection and Maintenance will be performed according to SPEC 751. Inspections will be conducted at least every 7 calendar days. Inspection forms will be filed with SWPPP supporting documents. If repair or replacement of stabilization or erosion control features is necessary, it must be completed at the earliest date possible. Amendments will be tracked on the SWPPP Amendment Log. Daily work logs related to this section will be kept in CAPTRAC.

POTENTIAL POLLUTION SOURCES:

Concrete	√	Cleaning Solvents	√
Fertilizer	√	Curing Compounds	√
Pesticides	√	Hydraulic Fluid	√
Asphalt	√	Motor Oil	√
Paint	√		
Gasoline	√		
Diesel Fuel	√		
Sanitary Toilets	√		

POLLUTION PREVENTION BMPS

Whenever possible all materials will be stored in their original containers in secure areas where spillage is protected from runoff. Stockpiles and work areas will be constructed in such a way to minimize the amount of sediment that enters receiving waters and wetlands. Spill prevention and control measures are included on attached site maps. Records of spills will be maintained with SWPPP supporting documents. Additional required BMPs can be found in SPEC 725. Temporary materials and structures will be removed from waterways as soon as feasible once they are no longer required.

WASTE MATERIAL:

All solid waste materials will be collected and stored in secure metal dumpsters, then transported to appropriate disposal facilities. Collection will be completed often enough to ensure that no waste materials will be lost due to overfilling of collection containers. Liquid wastes will be stored in sealed containers in designated areas and disposed of according to all applicable regulations. All wasted containers should meet all state and local requirements.

RESPONSIBLE PARTY/CONTRACTOR

Name	
Title	
Company	
Signature	

NO.	REVISIONS	DATE	NAME
△			
△			
△			
△			
△			

HARRIS COUNTY ENGINEERING DEPARTMENT

HARRIS COUNTY TEXAS 1836

FOR INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
ENGINEER: NAME
P.E. SERIAL No. NUMBER
DATE: / /

PROJECT TITLE:
SHEET DESCRIPTION: STORM WATER POLLUTION PREVENTION PLAN WORK FORM
CIVIL STANDARD SW3P-WF
DRAWN BY: JDZ
CK'D BY: MC
SCALE: NONE
DATE: 2/16/18
SHEET NO: /

J:\Engineering Specs\Harris County Standard Civil Drawings- Master File\2018-2-16 Standard Civil Drawings\Miscellaneous\SW3P-WF.dwg

TIME: 12-08-20 - 1:04pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-020.dwg

STORMWATER POLLUTION PREVENTION PLAN WORK FORM

NOTE:

1. PLAN WORK FORM INCLUDED FOR CONTRACTOR'S INFORMATION. CONTRACTOR REQUIRED TO EXECUTE AND PERMIT.
2. FOR STORM WATER POLLUTION PREVENTION PLAN LAYOUT, SEE SHEET C-018.

PORT OF HOUSTON AUTHORITY HOUSTON, TEXAS

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY:

HDR

HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:

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APPROVED: ______ DATE

PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

STORMWATER POLLUTION PREVENTION PLAN WORK FORM

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002

SHEET NO. C-020

REV. NO. B

E2 CLINTON DMPA

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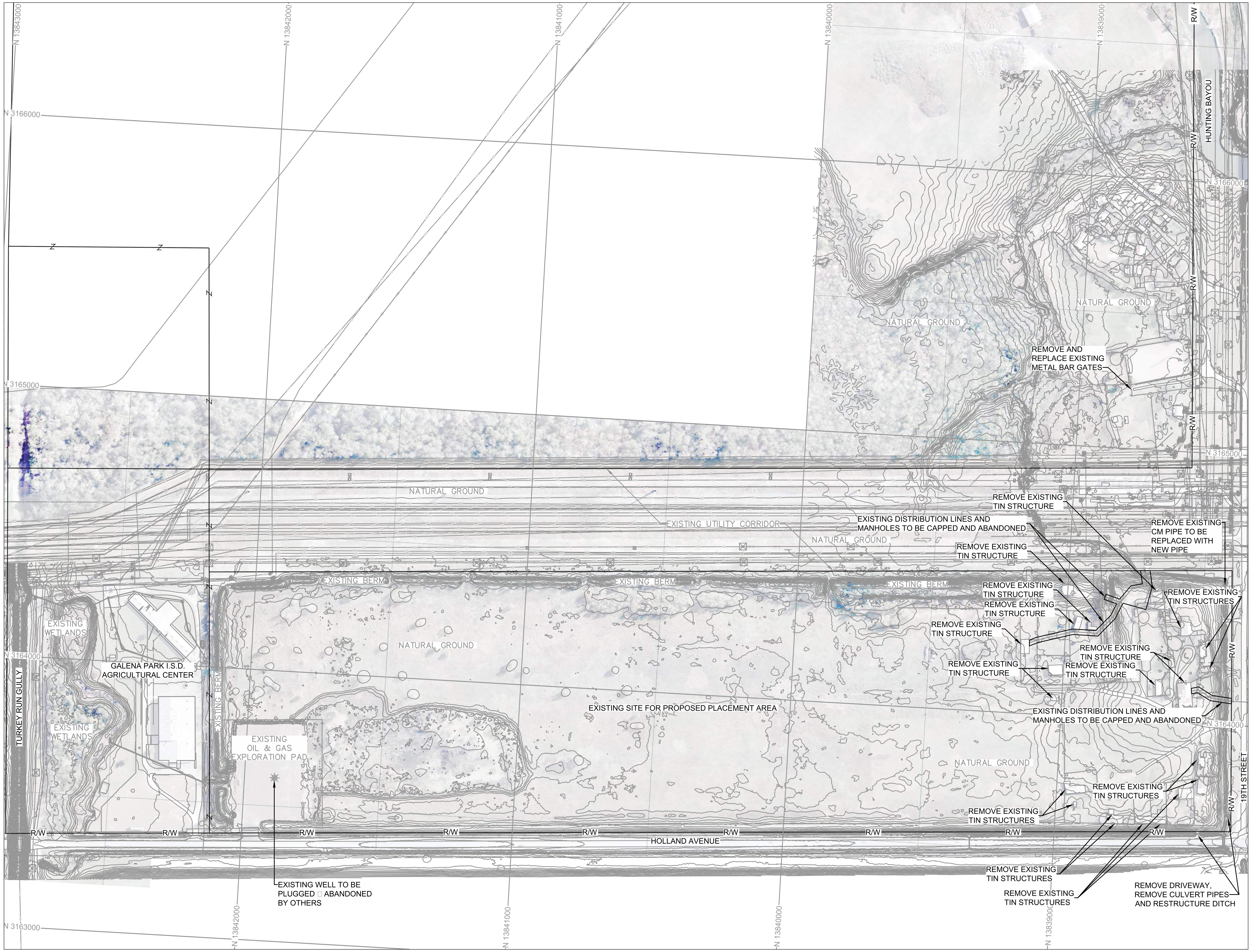

14 SE□UENCE OF CONSTRUCTION: STEP ONE

SCALE: 1" = 200'

0 200' 400'

SE□UENCE OF CONSTRUCTION - STEP ONE:

1. THE CONTRACTOR SHALL BEGIN THIS PHASE OF CONSTRUCTION BY REMOVING ALL METAL FENCING, CORRAL FENCING AND POSTS OFF OF PROPERTY, INCLUDING CHAINLINK FENCING AROUND THE EXISTING OIL AND GAS EXPLORATION PAD AT THE NORTHWEST CORNER OF THE PROPERTY.
2. UNDERGROUND UTILITY LINES IN UTILITY CORRIDOR INCLUDE HIGH PRESSURE GAS PIPELINES.
3. CONTRACTOR SHALL ALSO REMOVE AND DISPOSE OF DEMOLITION MATERIAL OFFSITE IN PERMITTED CONSTRUCTION DEBRIS LANDFILL.
4. AT THE EXISTING OIL AND GAS EXPLORATION PAD, CONTRACTOR TO REMOVE SURFACE AGGREGATE WITHIN LIMITS OF CONSTRUCTION. SCARIFY AND RECOMPACT.
5. EXISTING O/G WELL TO BE PLUGGED AND ABANDONED BY OTHERS. NOT THIS CONTRACT.
6. CONTRACTOR SHALL CONTACT ONECALL AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK ONSITE. PRIOR TO PERFORMING ON-SITE DEMOLITION AND EXCAVATION OF ANY KIND AND FOR LOCATION OF EXISTING UNDERGROUND ELECTRIC, OVERHEAD ELECTRIC AND UNDERGROUND GAS UTILITIES FOR DISCONNECTION, CONTACT CENTERPOINT ENERGY OR CALL:

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

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY: HDR Engineering, INC TBPELS FIRM Registration No. F-754

SEAL:

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APPROVED: DATE

PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

SEQUENCE OF CONSTRUCTION: STEP ONE

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

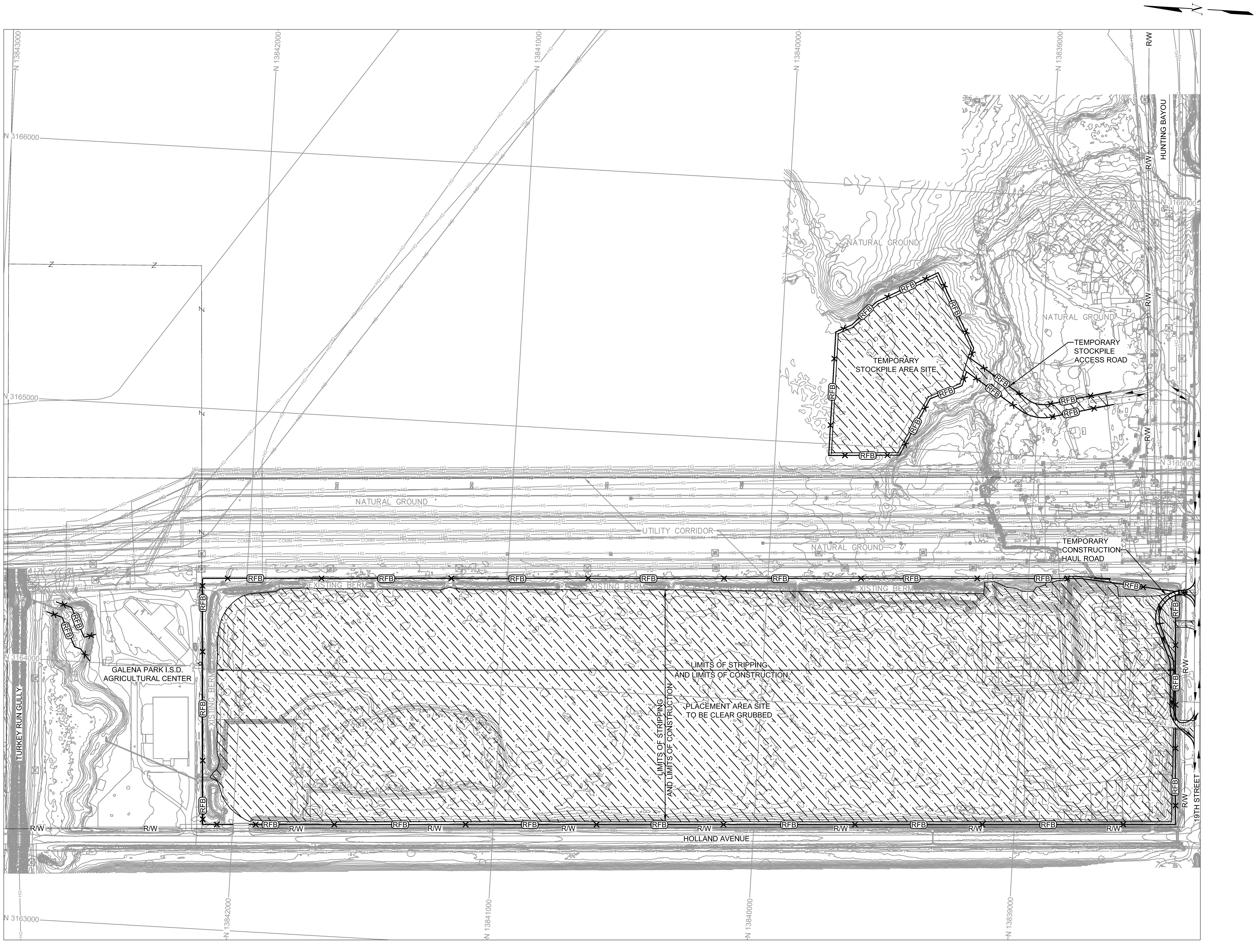
DRAWING NO. C90-D13-P11-002

SHEET NO. C-021 REV. NO. B

E2 CLINTON DMPA

95% REVIEW

TIME: 12-08-20 – 8:17am User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-021.dwg



(15) SEQUENCE OF CONSTRUCTION: STEP TWO

SCALE: 1" = 200'

0 200' 400'

SEQUENCE OF CONSTRUCTION - STEP TWO:

1. THE CONTRACTOR SHALL BEGIN THIS PHASE OF CONSTRUCTION BY PLACING TEMPORARY REINFORCED FILTER FABRIC BARRIERS AROUND THE PLACEMENT AREA PERIMETER AND THE TEMPORARY STOCKPILE AREA PERIMETER AND ARE TO INCLUDE THE TEMPORARY STOCKPILE ACCESS ROAD AND THE DMPA HAUL ROAD.
2. THE CONTRACTOR WILL CONTINUE WITH CLEAR GRUBBING AND STRIPPING 79.2 ACRES, INCLUDING PLACEMENT AREA SITE AND TEMPORARY STOCKPILE AREA SITE.
3. THE CONTRACTOR SHALL REMOVE FROM THE PLACEMENT AREA SITE THE TOP 6" OF SOIL AND STORE IN TEMPORARY STOCKPILE AREA FOR PLACEMENT ON DIKE SLOPES AFTER FINISHED GRADING IS COMPLETE.
4. A ONE-WAY TEMPORARY CONSTRUCTION HAUL ROAD (ENTERING AT EAST END AND EXITING ON THE WEST END) WILL BE CONSTRUCTED ON THE EAST SIDE OF THE PLACEMENT AREA SITE ALONG 19TH STREET.

LEGEND

CLEAR GRUB PRIOR TO SOIL EXCAVATION

TRAFFIC FLOW ARROW

REINFORCED FILTER FABRIC BARRIER — RFB

E2 CLINTON DMPA

PORT OF HOUSTON AUTHORITY · HOUSTON, TEXAS · PHA

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY:

HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:

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APPROVED: DATE

PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

SEQUENCE OF CONSTRUCTION: STEP TWO

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

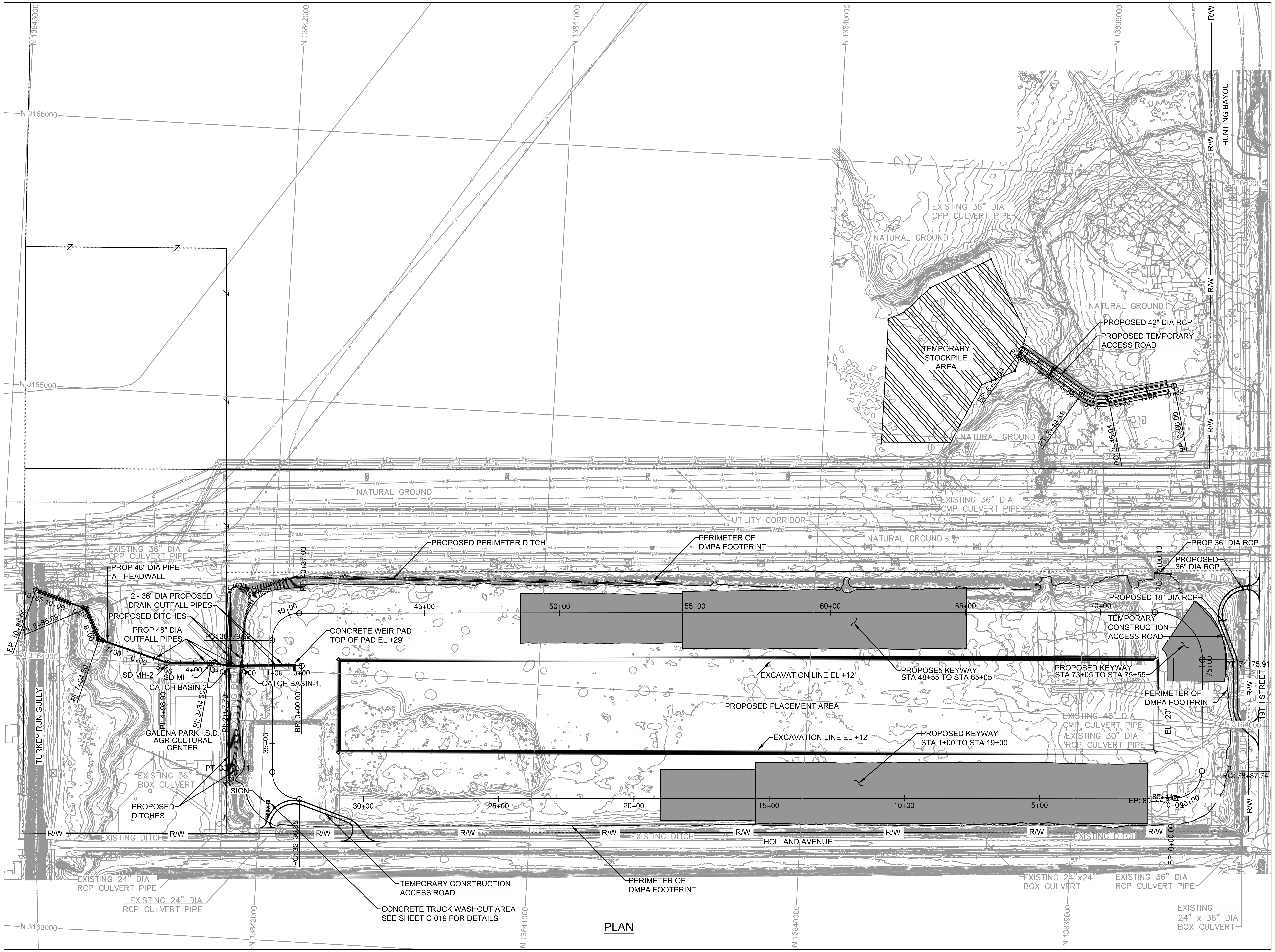
DRAWING NO.: C90-D13-P11-002

SHEET NO.: C-022

REV. NO.: B

95% REVIEW

TIME: 12-08-20 – 10:21am User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-022.dwg



16 SE□UENCE OF CONSTRUCTION: STEP THREE

SCALE: 1" = 200'

0 200' 400'

SE□UENCE OF CONSTRUCTION - STEP THREE:

1. THE CONTRACTOR SHALL BEGIN THIS PHASE OF CONSTRUCTION BY BEGINNING EXCAVATION AND PLACEMENT OF PERIMETER DITCHES ALONG THE NORTH EAST SIDE OF THE PLACEMENT AREA SITE. THE PROPOSED ALIGNMENTS, CROSS SECTIONS AND PROFILES FOR THE PROPOSED PERIMETER DITCHES SHOWN WILL BE PROVIDED IN THE 100% SUBMITTAL.
2. CROSS CULVERT 42" DIAMETER REINFORCED CONCRETE PIPE SHALL BE CONSTRUCTED AT DITCH SOUTH OF TEMPORARY STOCKPILE AREA DURING CONSTRUCTION OF PROPOSED TEMPORARY ACCESS ROAD. PROPOSED SWALES ALONG EAST AND WEST SIDE OF TEMPORARY ACCESS ROAD TO BE CONSTRUCTED AS WELL.
3. CONSTRUCTION OF PROPOSED TEMPORARY ACCESS ROAD SHALL BE PERFORMED BEGINNING WITH CLEAR GRUB AND STRIP PRIOR TO SOIL EXCAVATION PLACEMENT AFTER WHICH 6" OF GRAVEL IS TO BE USED FOR ROAD SURFACE.
4. CONSTRUCT 36" DIAMETER REINFORCED CONCRETE PIPE AT DITCH ALONG THE EAST EXTERIOR TOE OF DMPA NEAR THE SOUTHEAST CORNER OF PLACEMENT AREA. THIS WILL ALLOW FLOW ALONG EXISTING DITCH AT AN IMPEDING HIGH POINT AREA IN FLOWLINE AND PIPE WILL BORE UNDERNEATH FUTURE ACCESS ROAD 3:1 SLOPE.
5. CONSTRUCT THE STABILITY KEYWAYS ON THE EAST AND WEST SIDE OF PLACEMENT AREA AND THE SOUTHEAST CORNER OF THE PLACEMENT AREA. CONSTRUCTION OF KEYWAYS RE□UIRE EXCAVATION REMOVAL OF MATERIAL, ADD AND MIXING OF LIMESTONE, AND PROCESSING, SPREADING AND RECOMPACTION OF INSITU MATERIAL.
6. EXCAVATE AND PLACE DRAINAGE OUTFALL SYSTEM TRUNK LINE FROM THE OUTFALL AT DELINEATED WETLANDS SOUTH OF TURKEY RUN GULLY UP TO THE PROPOSED WEIR BOX LOCATION AT NORTH END OF PLACEMENT AREA. BACKFILL AND RESTORE SURFACES TO PRE-CONSTRUCTION CONDITIONS AFTER OPEN CUT TRENCHING ALONG THE GALENA PARK INDEPENDENT SCHOOL DISTRICT AGRICULTRAL CENTER GROUNDS. REMOVE AND REPLACE EXISTING FENCE CROSSINGS AND EXISTING CONCRETE DRAINAGE FLUMES AND SIDEWALK.
7. CONTRACTOR SHALL COORDINATE EXCAVATION WITH CITY OF GALENA PARK WATER DEPARTMENT AND WASTEWATER DEPARTMENT TO ENSURE UTILITY LINE CROSSINGS AT STATION 4+85 AND STATION 5+08 HAVE BEEN AD USTED, SO AS NOT TO CONFLICT WITH THE PROPOSED EXCAVATION.
8. TEMPORARY CONSTRUCTION DEWATERING TO BE PROVIDED BY CONTRACTOR UNTIL FINISHED GRADING IS COMPLETED. PUMP FROM SUMP ON NORTH END OF +12' EXCAVATION INTO WEIR BOX OUTFALL PIPES AT +29' INVERT.

LEGEND

PROPOSED KEYWAY AREA

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY: HDR

HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:

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APPROVED: DATE

PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

SEQUENCE OF CONSTRUCTION: STEP THREE

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

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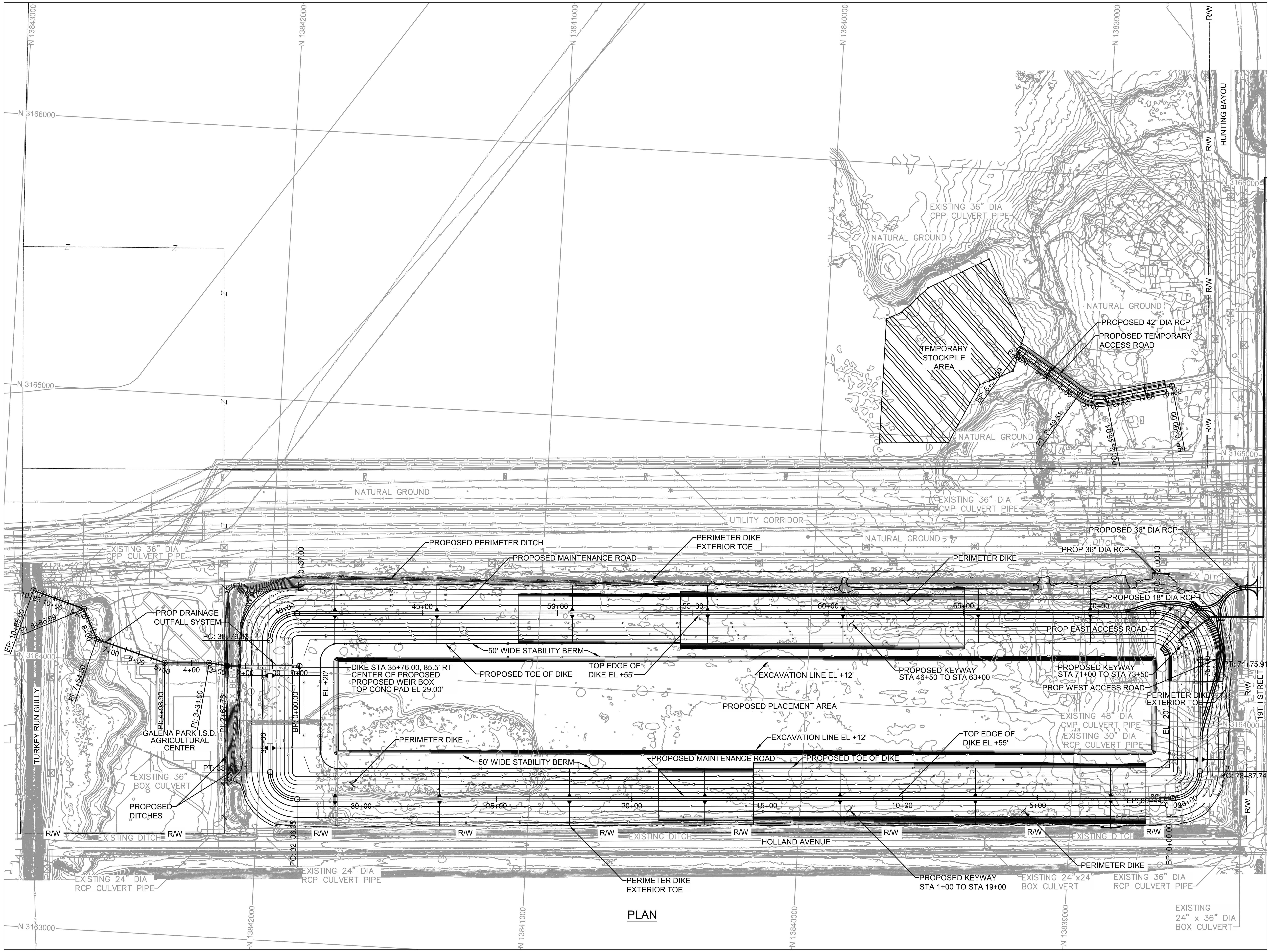
SHEET NO. C-023 REV. NO. B

E2 CLINTON DMPA

95% REVIEW

TIME: 12-08-20 – 10:13am User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-023.dwg



(17) SEQUENCE OF CONSTRUCTION: STEP FOUR

SCALE: 1" = 200'

0 200' 400'

SEQUENCE OF CONSTRUCTION - STEP FOUR:

1. THE CONTRACTOR SHALL BEGIN THIS PHASE OF CONSTRUCTION BY BEGINNING EXCAVATION OF PLACEMENT AREA SITE FLOOR DOWN TO FINISHED EL +12' USING 2:1 SIDE SLOPES DOWN FROM EL +20'.
2. CONSTRUCT STABILITY BERM FROM TOP EDGE OF 2:1 SLOPE ACROOS 50' IN WIDTH TO THE LOCATION OF THE INSIDE TOE OF THE 3:1 DMPA INTERIOR SIDE SLOPE.
3. CONSTRUCT DMPA PERIMETER CONTAINMENT DIKE USING A 3:1 INTERIOR SIDE SLOPE AND 4:1 EXTERIOR SIDE SLOPE UP TO TOP OF DIKE ELEVATION +55' ALLOWING FOR A 15' WIDE MAINTENANCE ROAD AT TOP OF DIKE.
4. AT THE TOP OF THE DIKE, CONSTRUCT THE 15' WIDE MAINTENANCE ROAD SURFACE WITH A 12" THICK AGGREGATE SURFACE AND A 5% CENTERLINE CROWN FOR DIKE OVERBUILD TO MAINTAIN TOP ELEVATION WITH LONG TERM SETTLEMENT.
5. CONSTRUCT EAST AND WEST ACCESS ROADS AT THE SOUTHEAST CORNER OF THE DMPA PERIMETER CONTAINMENT DIKE. CONSTRUCT A 36" DIAMETER RCP CROSS CULVERT AT STATION 0+82 AND AN 18" DIAMETER RCP CROSS CULVERT AT STATION 2+45.
6. CONSTRUCT WEIR BOX DROP-OUTLET STRUCTURE AND ACCESS BRIDGE WALKWAY, SOUTH FACE OF WEIR CONCRETE PAD CENTERED AT DIKE STA 35+76.00, 85.50' RT. TOP OF CONCRETE PAD EL 29.00' CONNECT (2) 36" DIA x 0.5" WT STEEL PIPES TO WEIR BOX STRUCTURE BY PLACING PIPES 2.07' ONTO THE WEIR CONCRETE PAD.

E2 CLINTON DMPA

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY: HDR

HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:

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APPROVED: ____ DATE

PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

SEQUENCE OF CONSTRUCTION: STEP FOUR

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002

SHEET NO. C-024

REV. NO. B

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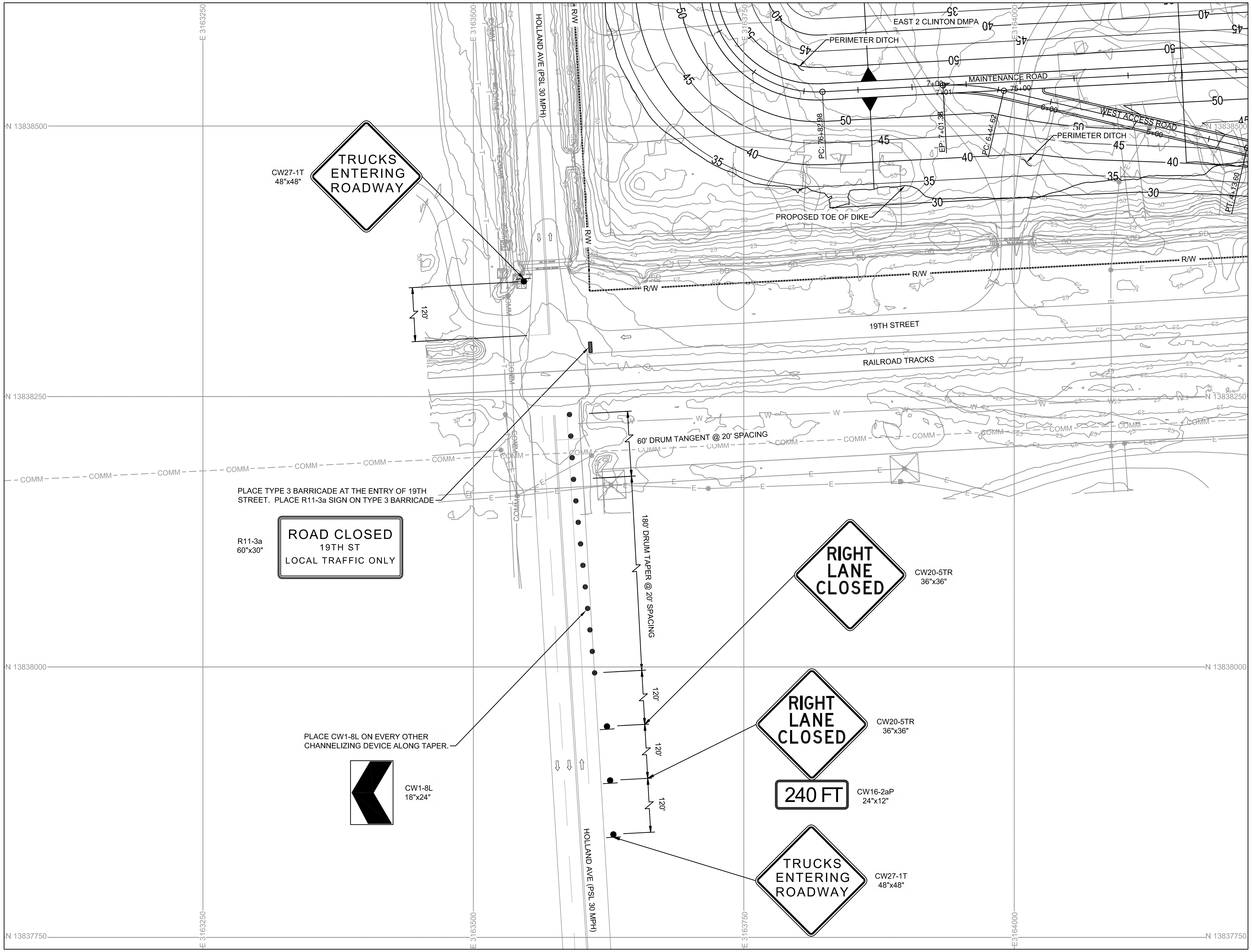

TRAFFIC CONTROL PLAN

SCALE: 1" = 40'

NOTES:

1. FOR TYPE III BARRICADES DETAILS, SEE SHEET C-026.

LEGEND

- SIGN
- TYPE III BARRICADE
- TRAFFIC FLOW
- CHANNELIZING DEVICE

PORT OF HOUSTON AUTHORITY

CONSULTANT: HDR — DESIGN PREPARED BY: HDR Engineering, INC TBPELS FIRM Registration No. F-754

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APPROVED: ____ DATE

PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE: HOUSTON SHIP CHANNEL (HSC) EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP) PROJECT 11: PACKAGE # 8

SHEET TITLE: SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA TRAFFIC CONTROL PLAN

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	HN/JDL
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002

SHEET NO. C-025 REV. NO. B

E2 CLINTON DMPA

95% REVIEW

TIME: 12-08-20 – 12:49pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-025.dwg

NOTES:

1. FOR PLAN LAYOUT SHOWING TYPE III BARRICADES, SEE TRAFFIC CONTROL PLAN SHEET C-025.

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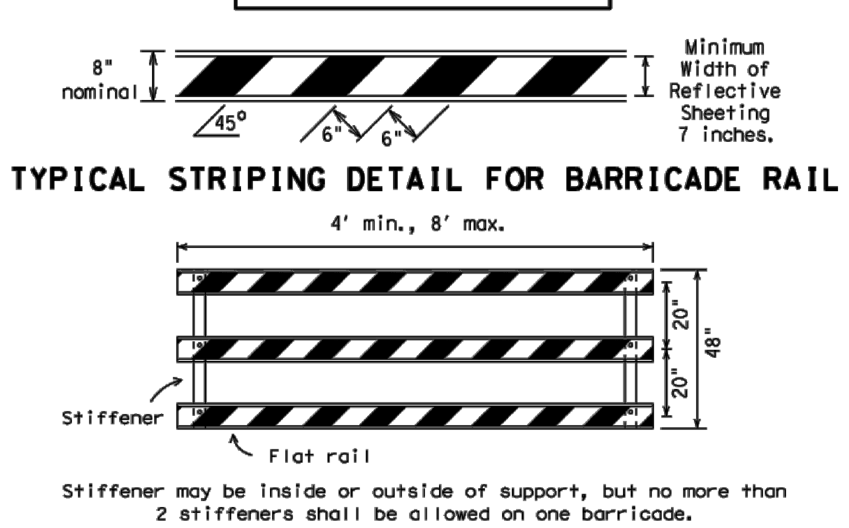
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

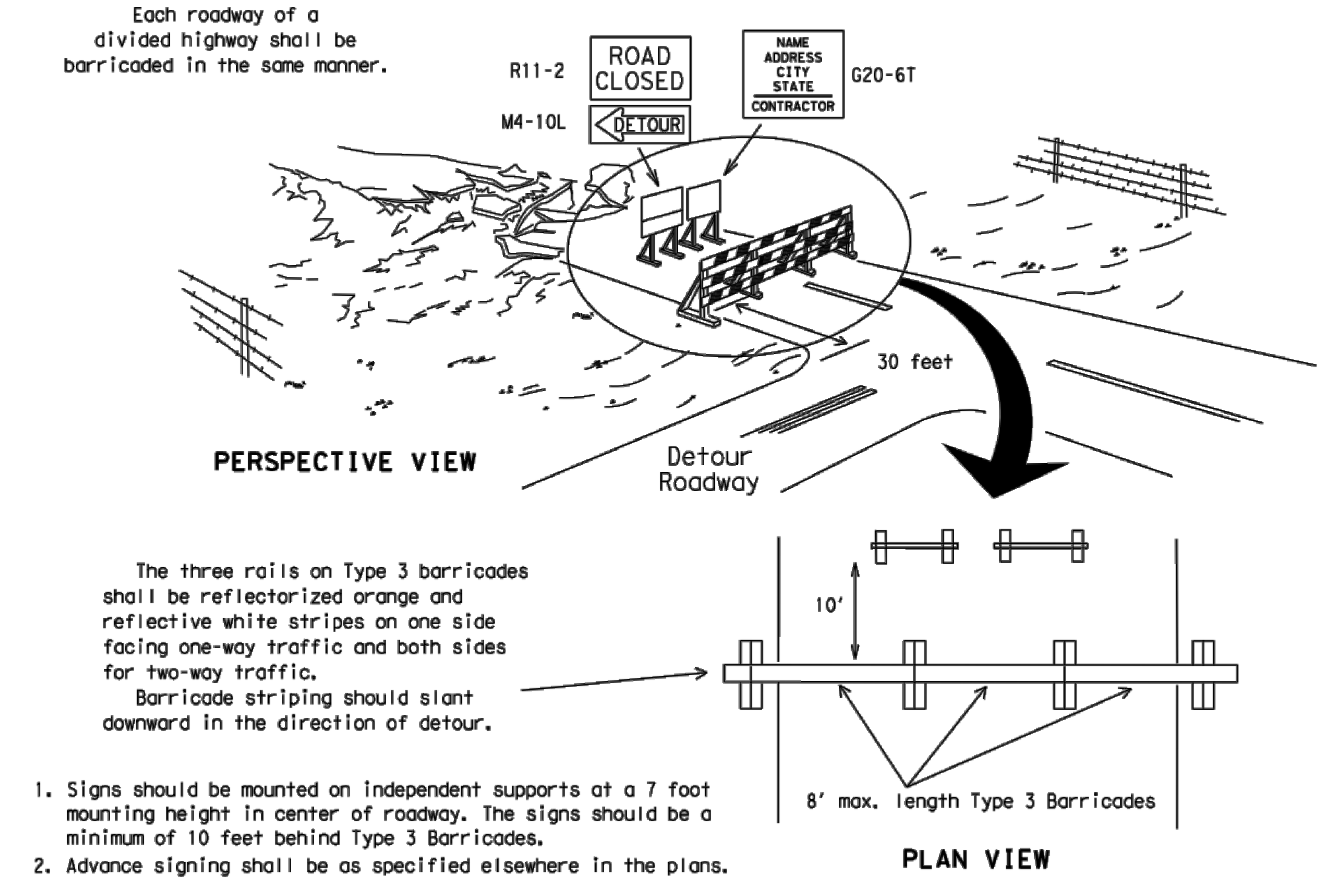
Barricades shall NOT be used as a sign support.



TYPICAL STRIPING DETAIL FOR BARRICADE RAIL

Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

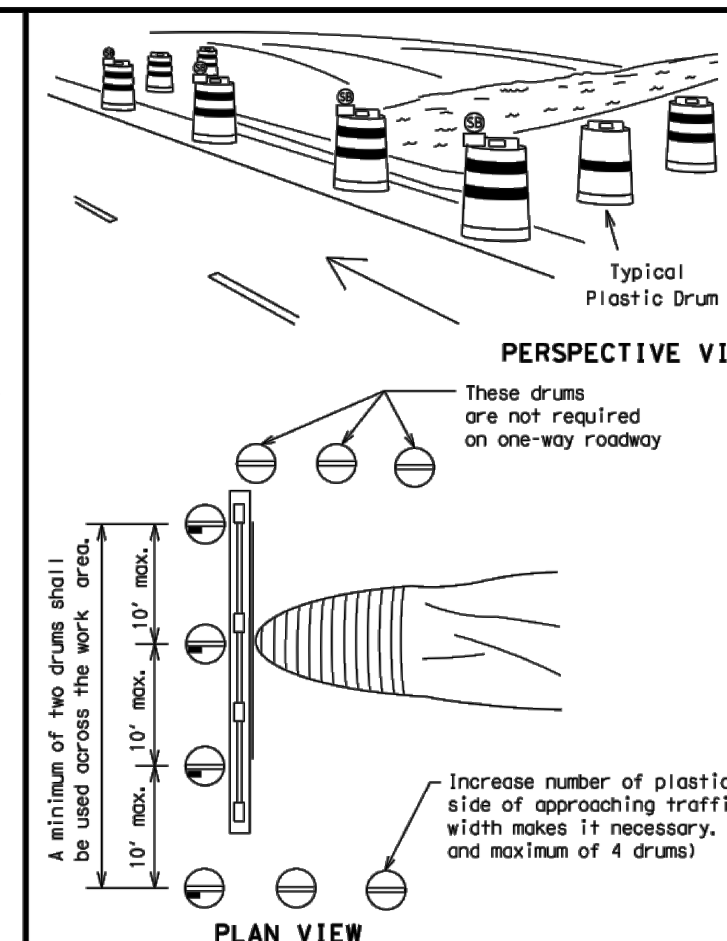


The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

Barricade striping should slant downward in the direction of detour.

1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION

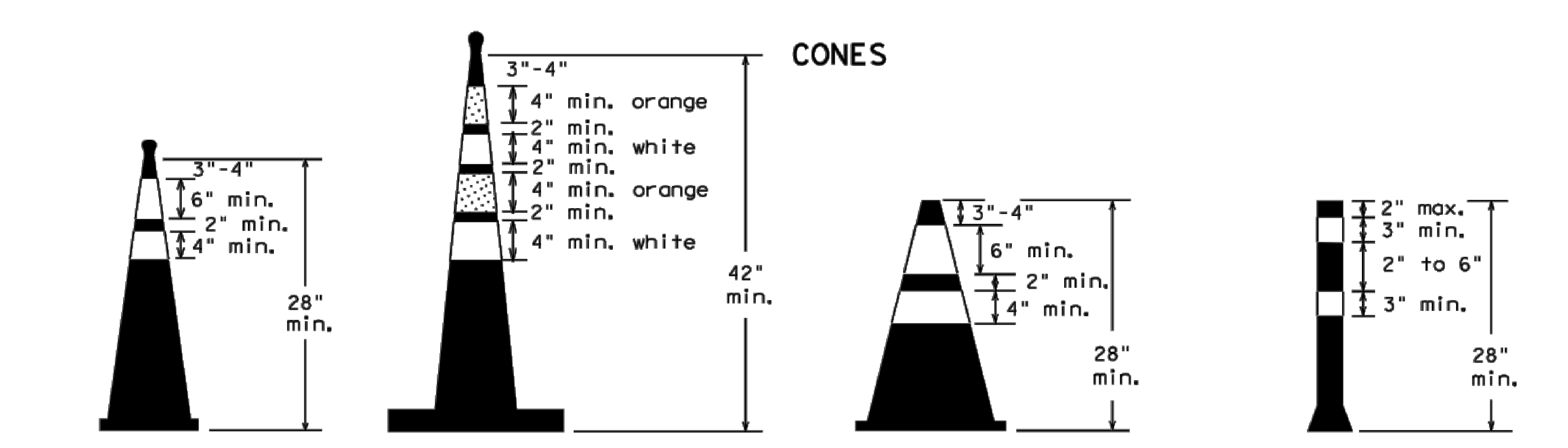


1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

CONES



Two-Piece cones

One-Piece cones

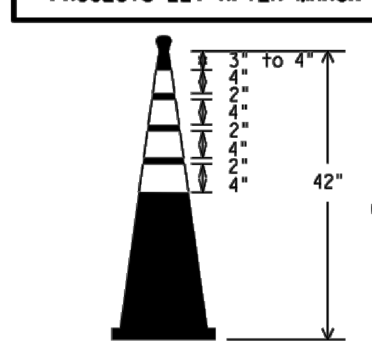
Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

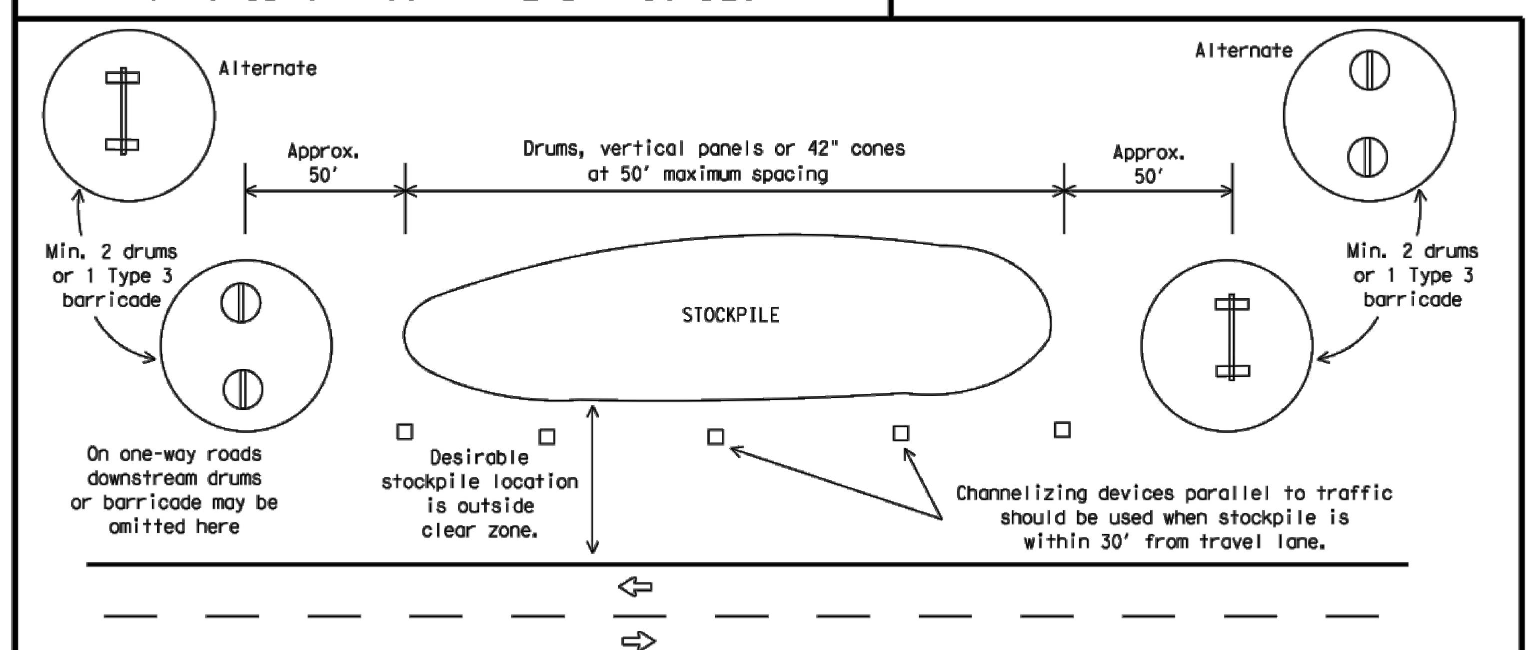
1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers used at night shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



EDGELINE CHANNELIZER

1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	DIST	COUNTY		SHEET NO.

104

DATE:
FILE:

TXDOT TYPE III BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES SHEET

NOT TO SCALE

TIME: 12-08-20 - 2:25pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-026.dwg

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY:

HDR

HDR Engineering, INC. TBPELS FIRM Registration No. F-754

SEAL:

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95% REVIEW

APPROVED: ____ DATE

PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR - ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

TXDOT TYPE III BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES SHEET

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

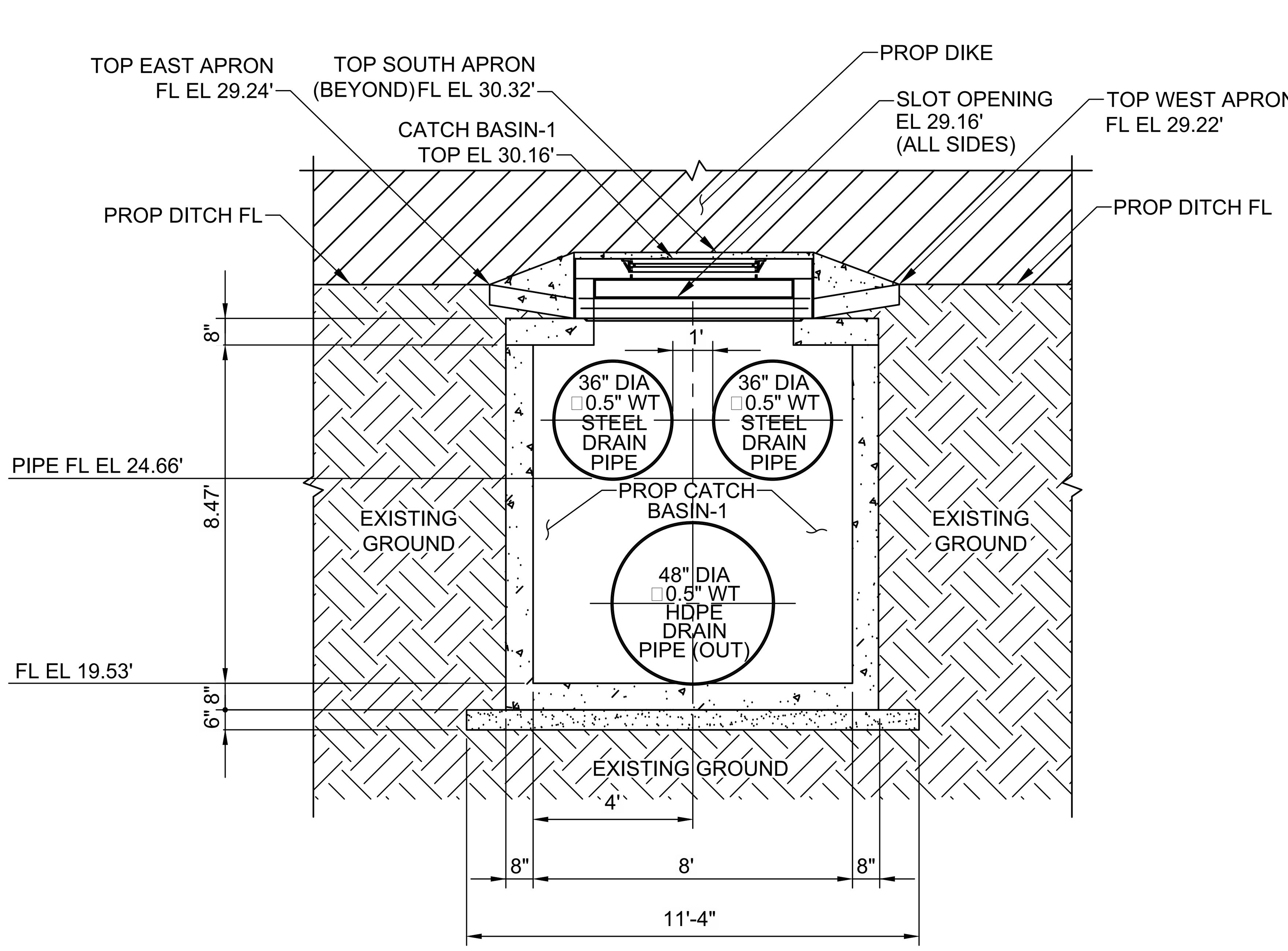
DESIGNER:	G.PENNISON
CADD:	HN/JDL
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	NO SCALE

DRAWING NO. C90-D13-P11-002

SHEET NO. C-026 | REV. NO. B

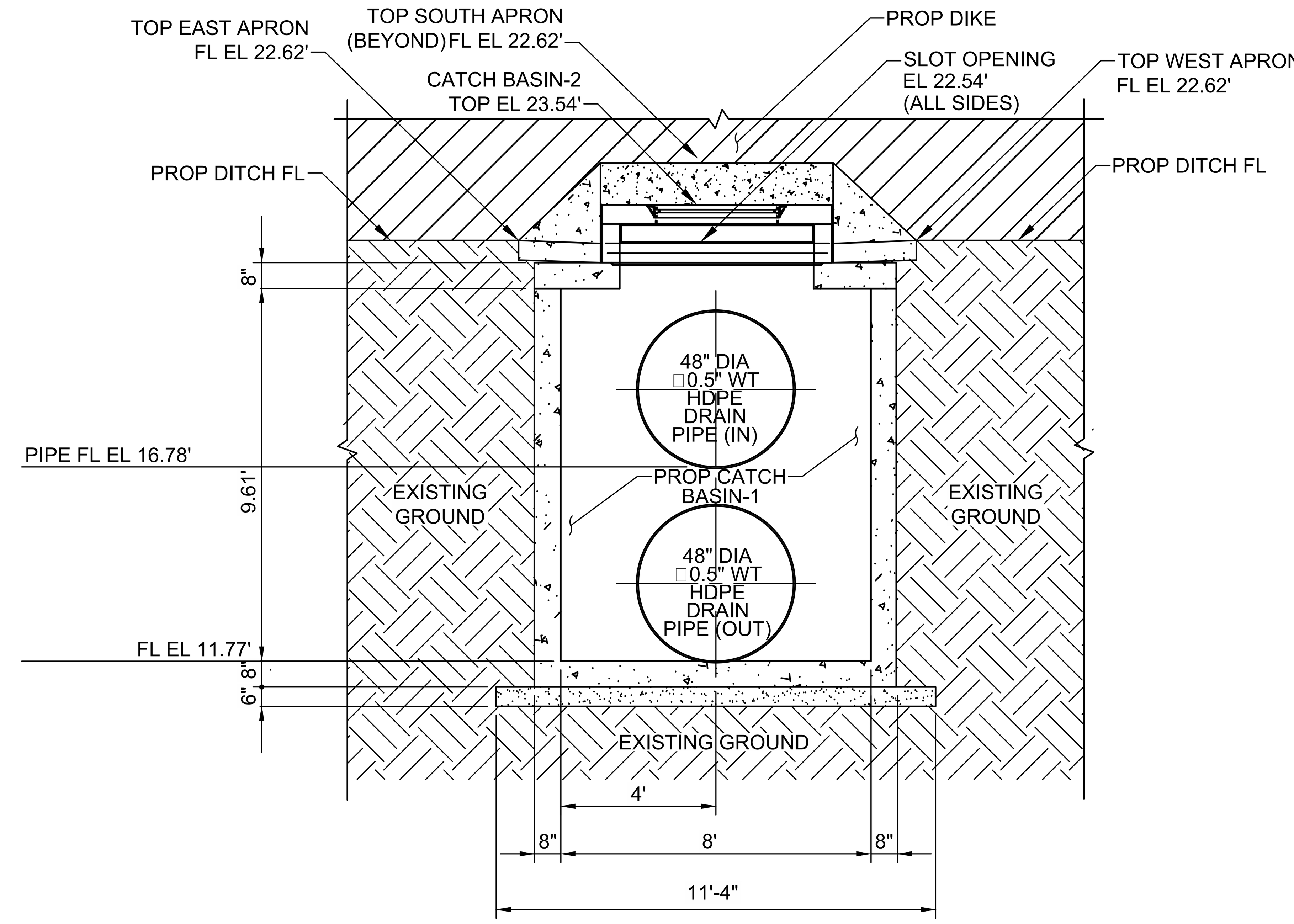
E2 CLINTON DMPA

95% REVIEW



PROPOSED CATCH BASIN-1 DISCHARGE PIPE DETAIL

SCALE: 1" = 3'   0 3' 6'

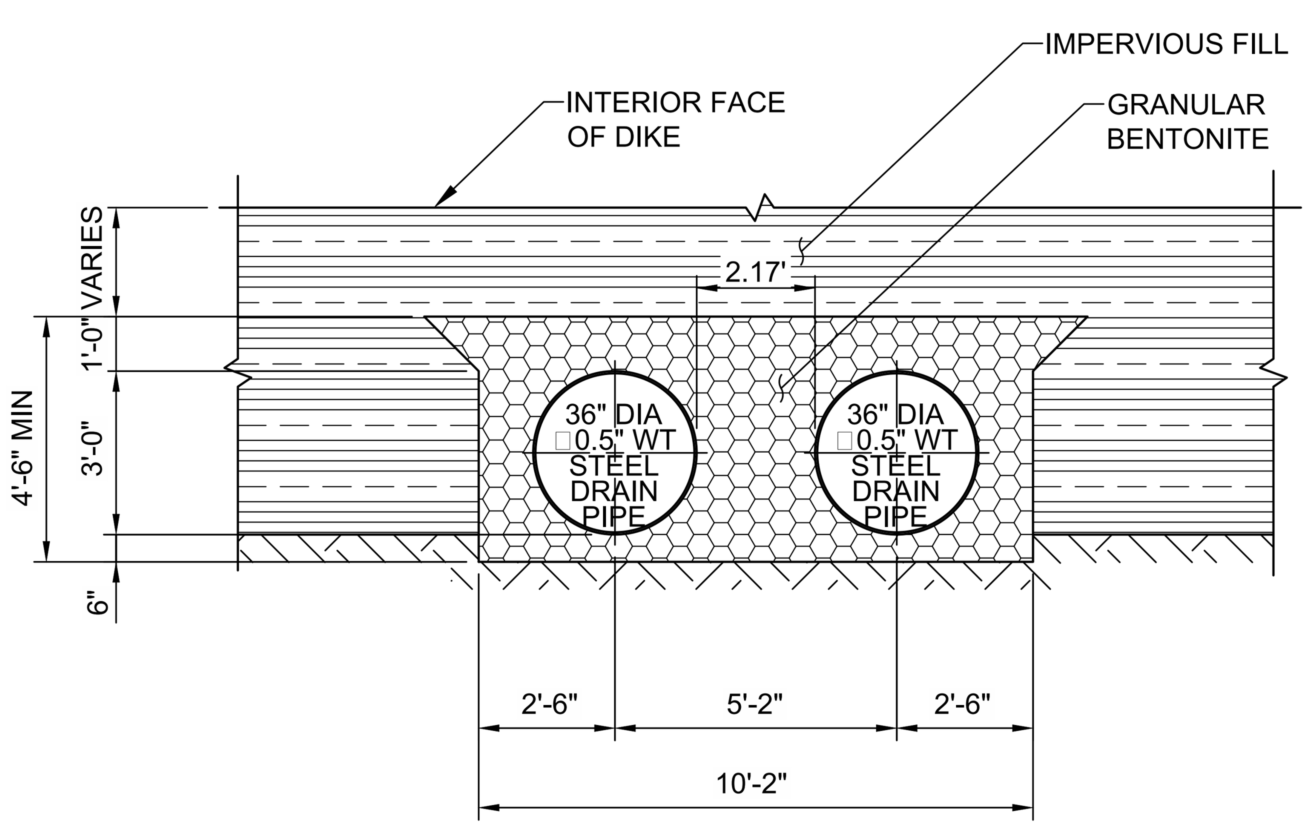


PROPOSED CATCH BASIN-2 DISCHARGE PIPE DETAIL

SCALE: 1" = 3'   0 3' 6'

NOTES:

1. FOR PLAN LAYOUT OF PROPOSED CATCH BASIN-1, CATCH BASIN-2 AND EXISTING CONCRETE DRAINAGE FLUME REPAIRS, SEE SHEET C-011.
2. FOR PLAN LAYOUT OF DISCHARGE DRAIN PIPES AT INTERIOR SLOPE OF DIKE, SEE SHEET C-011.

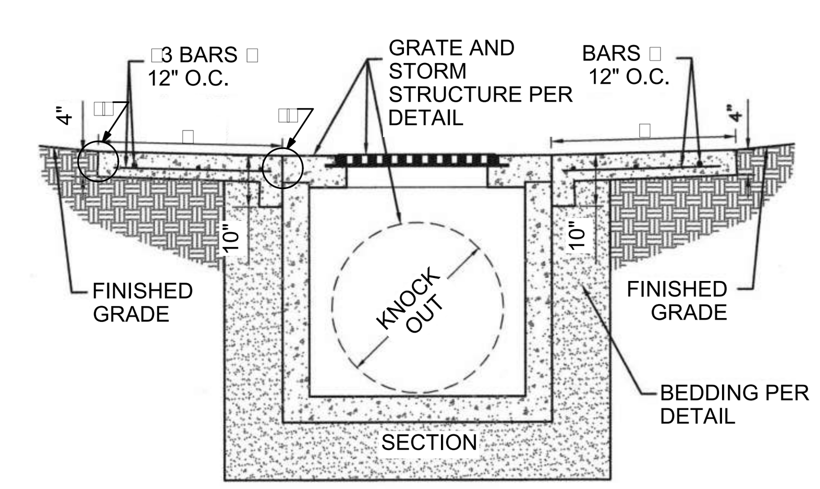


DISCHARGE DRAIN PIPE FLOWABLE FILL SECTION

SCALE: 1" = 3'   0 3' 6'

APRON WIDTH VARIES PER PLANS AND SLOPE AS DETERMINED BY EXISTING GROUND

WHEN REPLACING EXISTING CONCRETE FLUMES SHOWN IN PLAN SHEET C-011, USE THE SLIP-DOWEL INSTALL METHOD USING 3 BARS AT 12" O.C. AND GREENSTREAK SPEED DOWEL PLASTIC SLEEVES WHEN ATTACHING NEW CONCRETE APRON TO EXISTING CONCRETE PAVEMENT AND EXISTING CATCH BASIN.



CATCH BASIN APRON DETAIL

SCALE: NOT TO SCALE

DISCHARGE PIPE AND CATCH BASIN APRON DETAILS

SCALE: AS SHOWN

TIME: 12-08-20 - 8:54am User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-027.dwg

E2 CLINTON DMPA

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY:
HDR
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:

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95% REVIEW

APPROVED: DATE

PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA
DISCHARGE PIPE AND CATCH BASIN APRON DETAILS

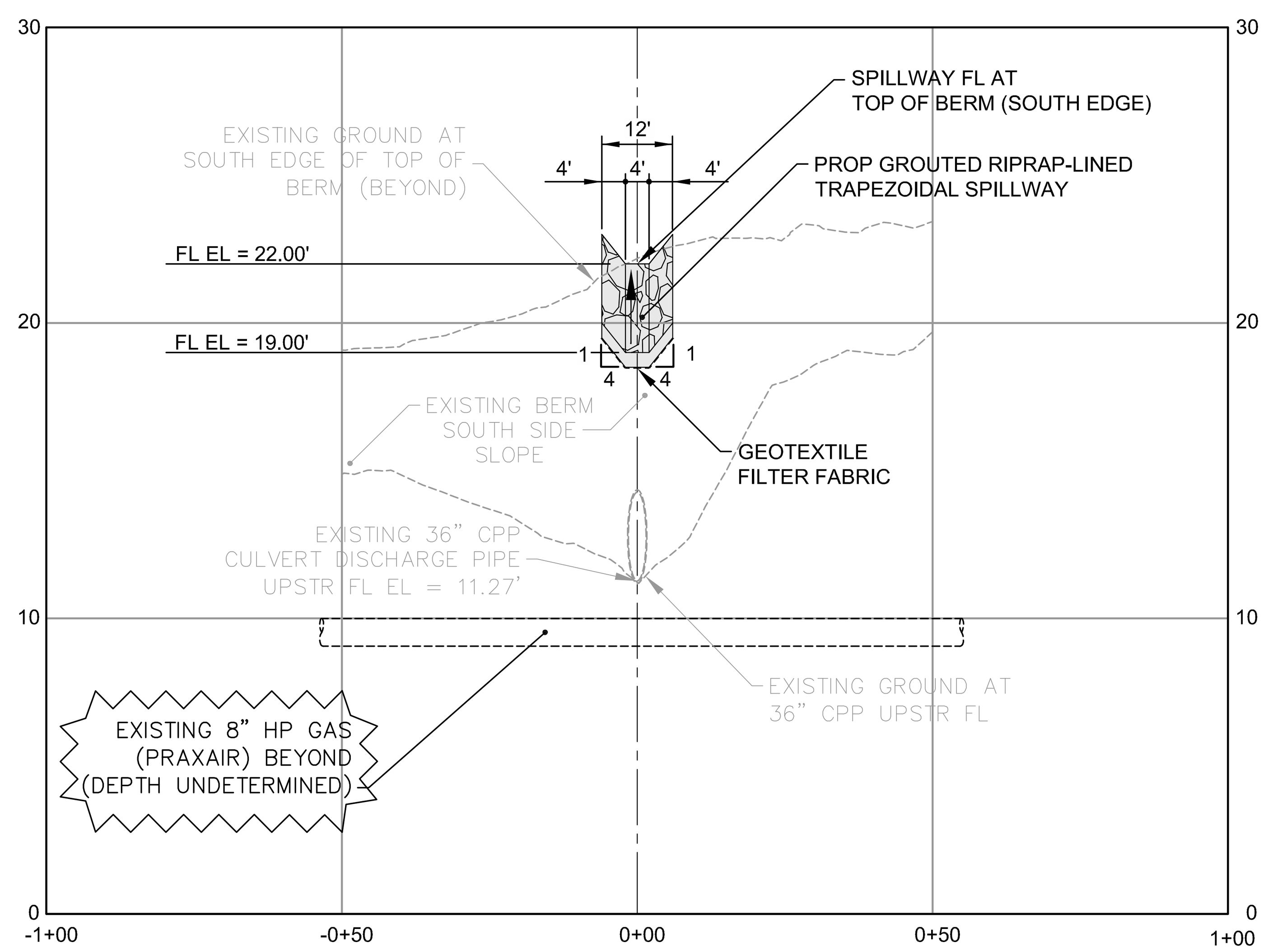
REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	JDL/FB
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO.
C90-D13-P11-002

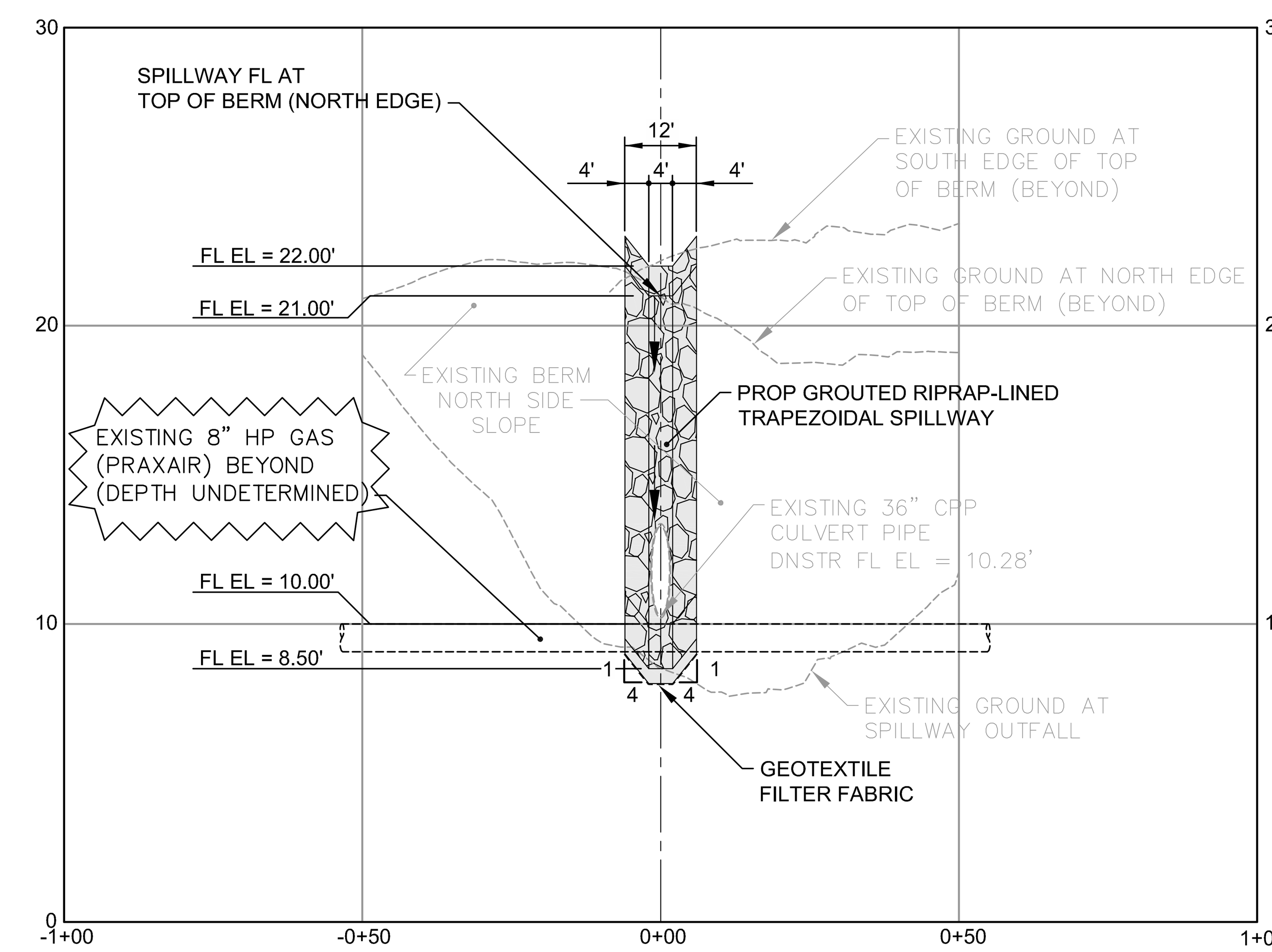
SHEET NO. C-027   REV. NO. B

95% REVIEW



STATION 9+04.85 DISCHARGE PIPE AND GROUTED RIPRAP-LINED SPILLWAY (DOWNSTREAM LOOKING NORTH)

B C-011 SCALE: NOT TO SCALE

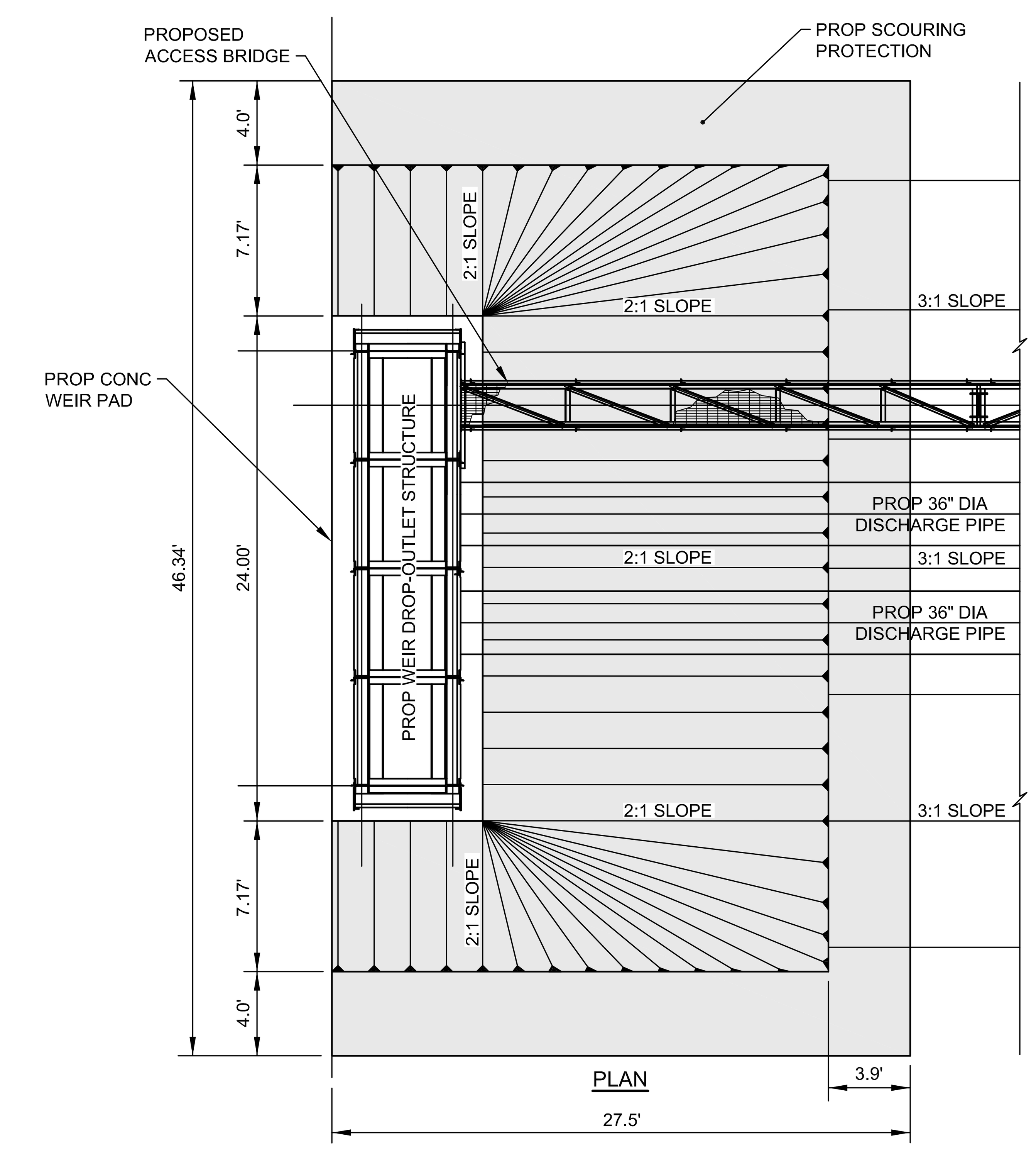


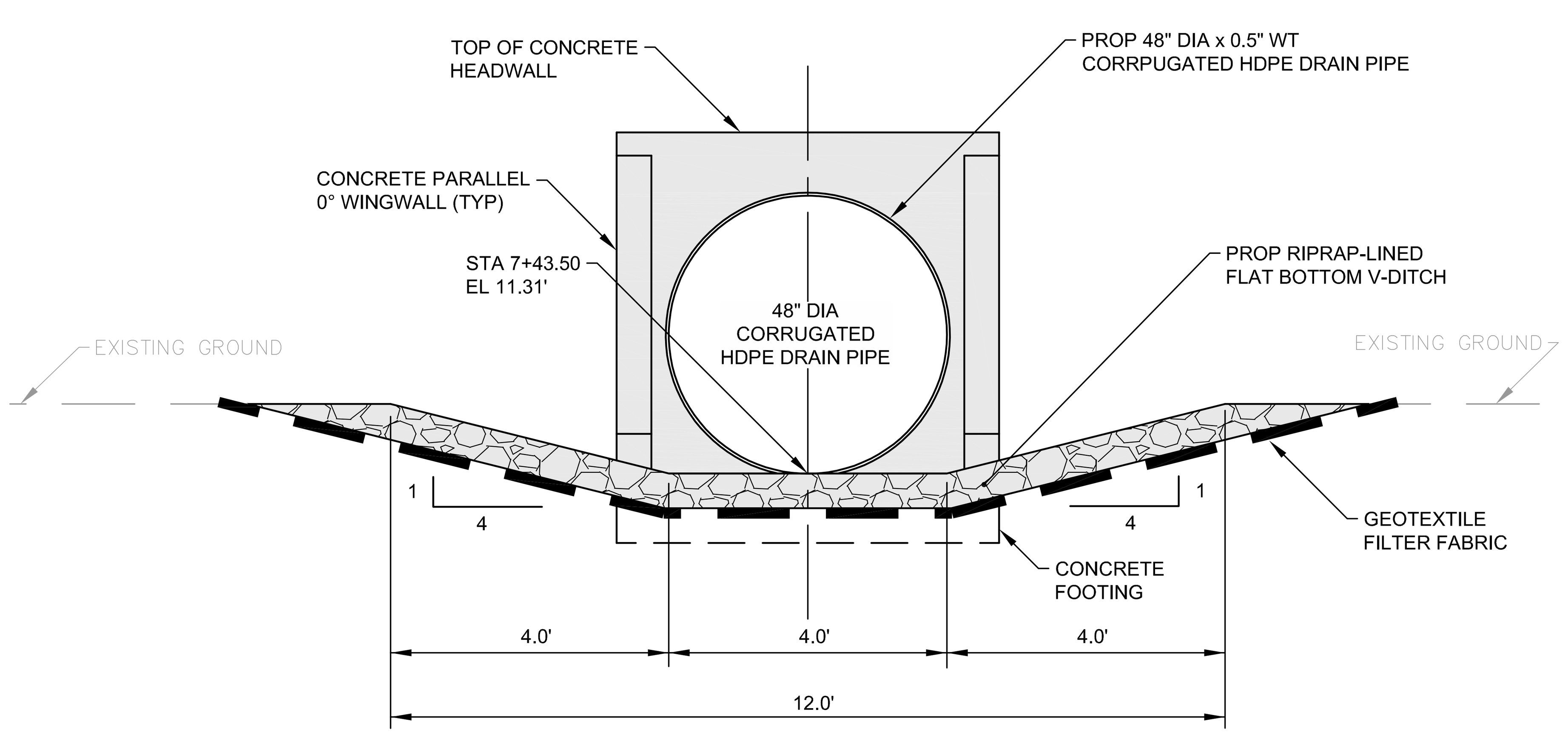
STATION 10+72.80 DISCHARGE PIPE AND GROUTED RIPRAP-LINED SPILLWAY (DOWNSTREAM LOOKING SOUTH)

C C-011 SCALE: NOT TO SCALE

NOTES:

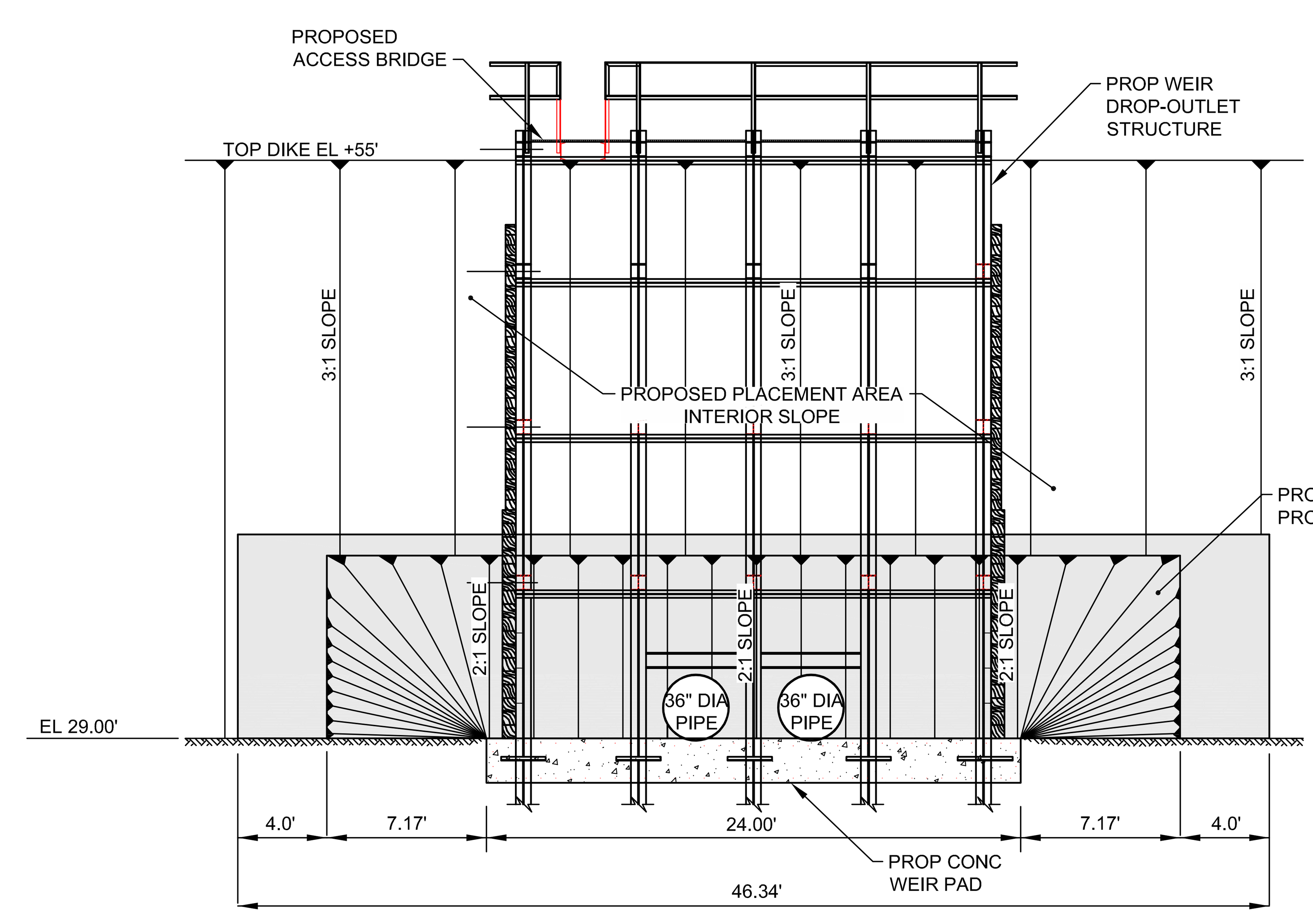
1. FOR PLAN LAYOUT OF PROPOSED DRAINAGE OUTFALL DISCHARGE PIPE, RIPRAP-LINED V-DITCH AND GROUT RIPRAP-LINED TRAPEZOIDAL SPILLWAY, SEE SHEET C-011.

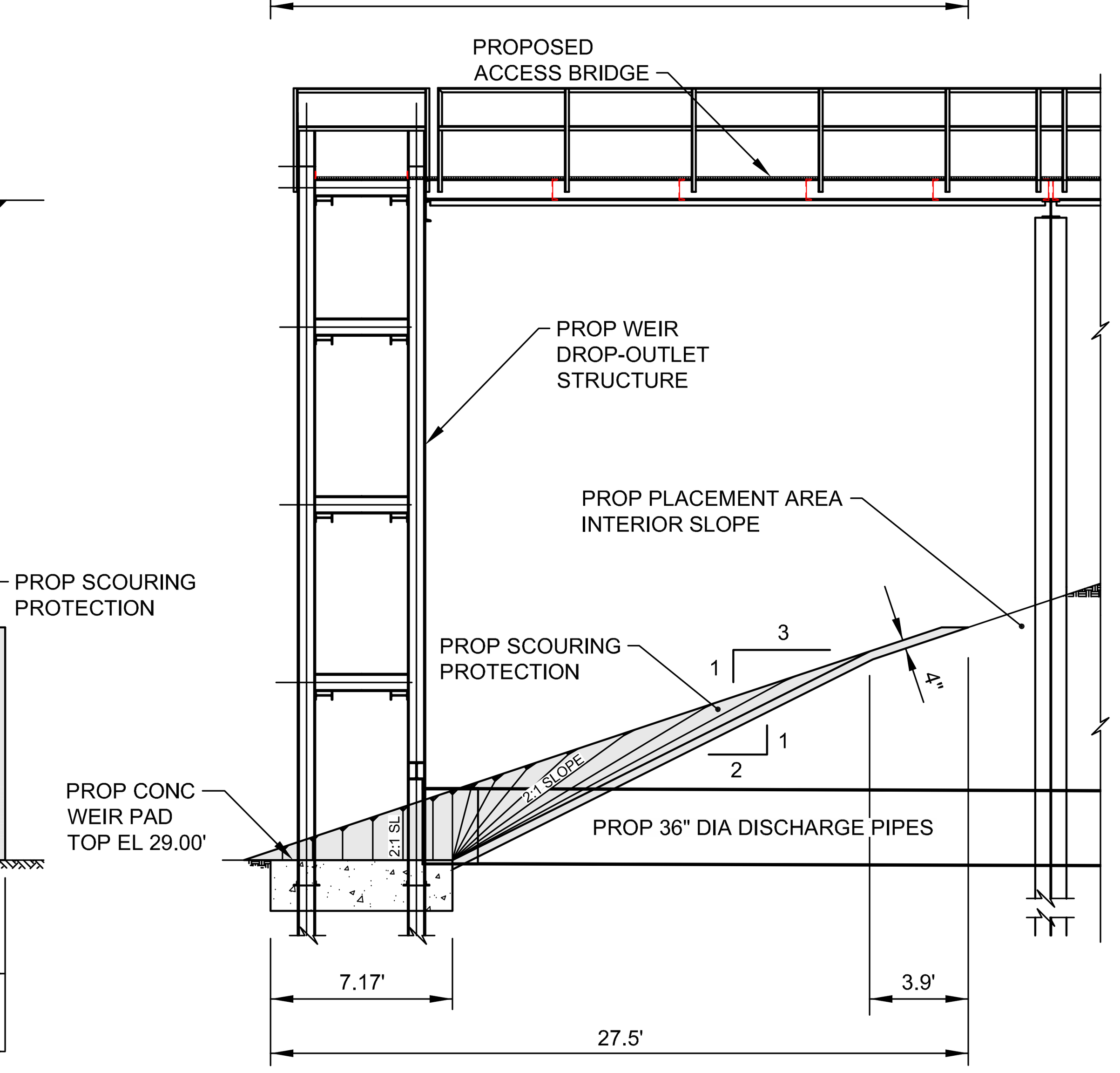




STATION 7+43.50 DISCHARGE PIPE AND GROUTED RIPRAP-LINED V-DITCH (DOWNSTREAM LOOKING SOUTH)

A C-011 SCALE: NOT TO SCALE





CL DIKE STATION 37+79.60 DRAINAGE OUTFALL SCOURING PROTECTION AT WEIR BOX LOCATION

D C-011 SCALE: NOT TO SCALE

DRAIN OUTFALL DISCHARGE PIPE, WEIR, V-DITCH & SPILLWAY DETAILS & SECTIONS

PORT OF HOUSTON AUTHORITY

CONSULTANT:

DESIGN PREPARED BY: HDR

HDR Engineering, INC TBPELS FIRM Registration No. F-754

SEAL:

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APPROVED: DATE

PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:

HOUSTON SHIP CHANNEL (HSC)

EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)

PROJECT 11: PACKAGE # 8

SHEET TITLE:

SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA

DRAIN OUTFALL DISCHARGE PIPE WEIR, V-DITCH & SPILLWAY DETAILS & SECTIONS

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	JDL/FB
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002

SHEET NO. C-028 REV. NO. B

E2 CLINTON DMPA

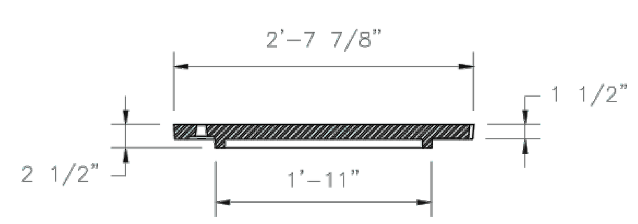
95% REVIEW

TIME: 12-08-20 – 9:01am User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-028.dwg

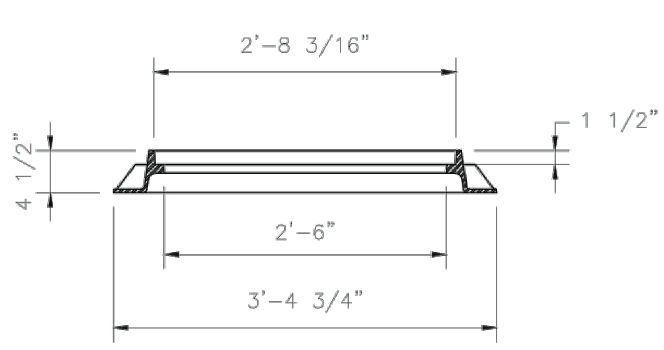
NOTES:

1. FOR PLAN LAYOUT OF PROPOSED PRECAST MANHOLES SD MH-1 AND SD MH-2, SEE SHEET C-011.

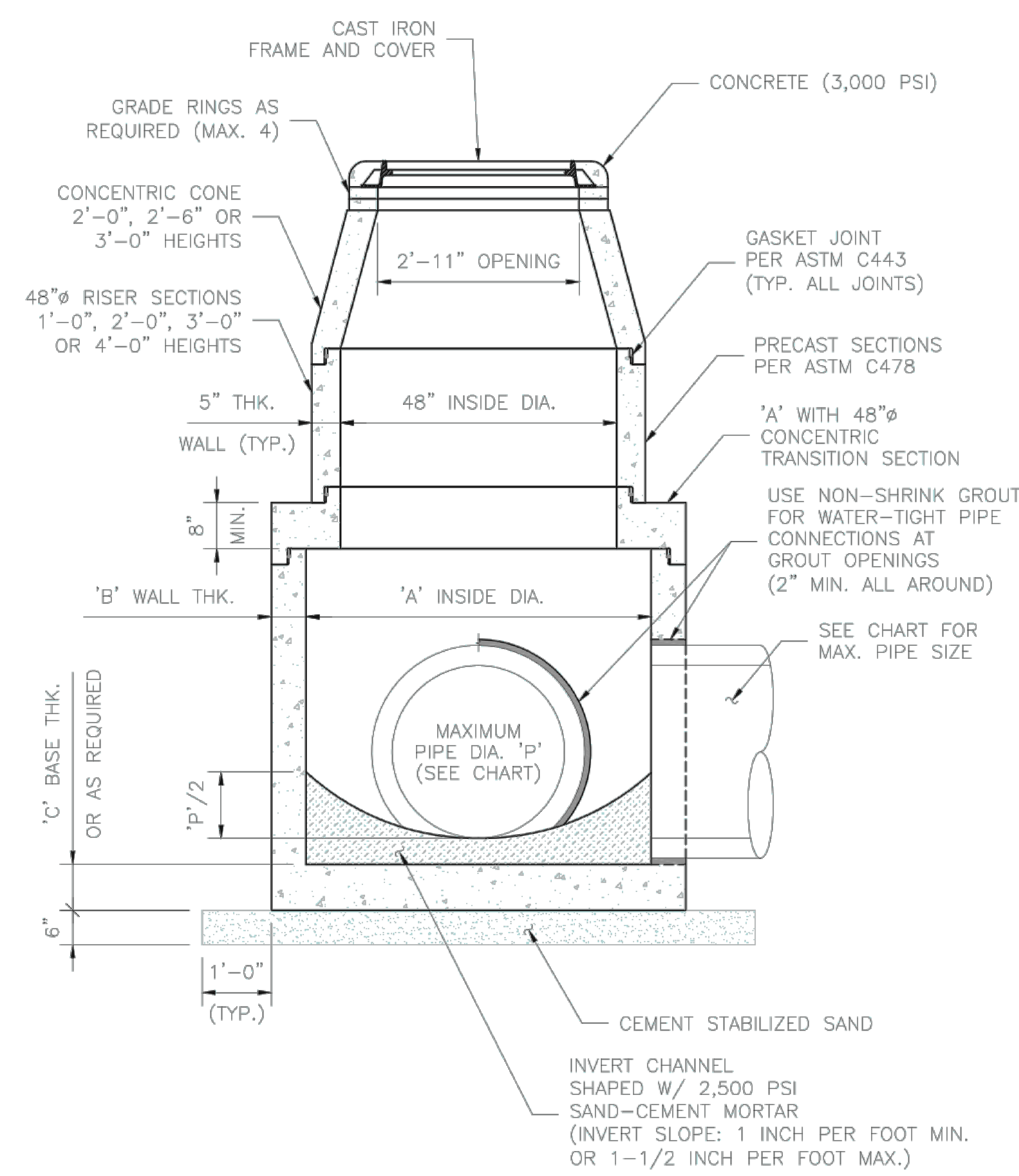
PLAN VIEW
FRAME AND COVER
SCALE: 1" = 1'-0"



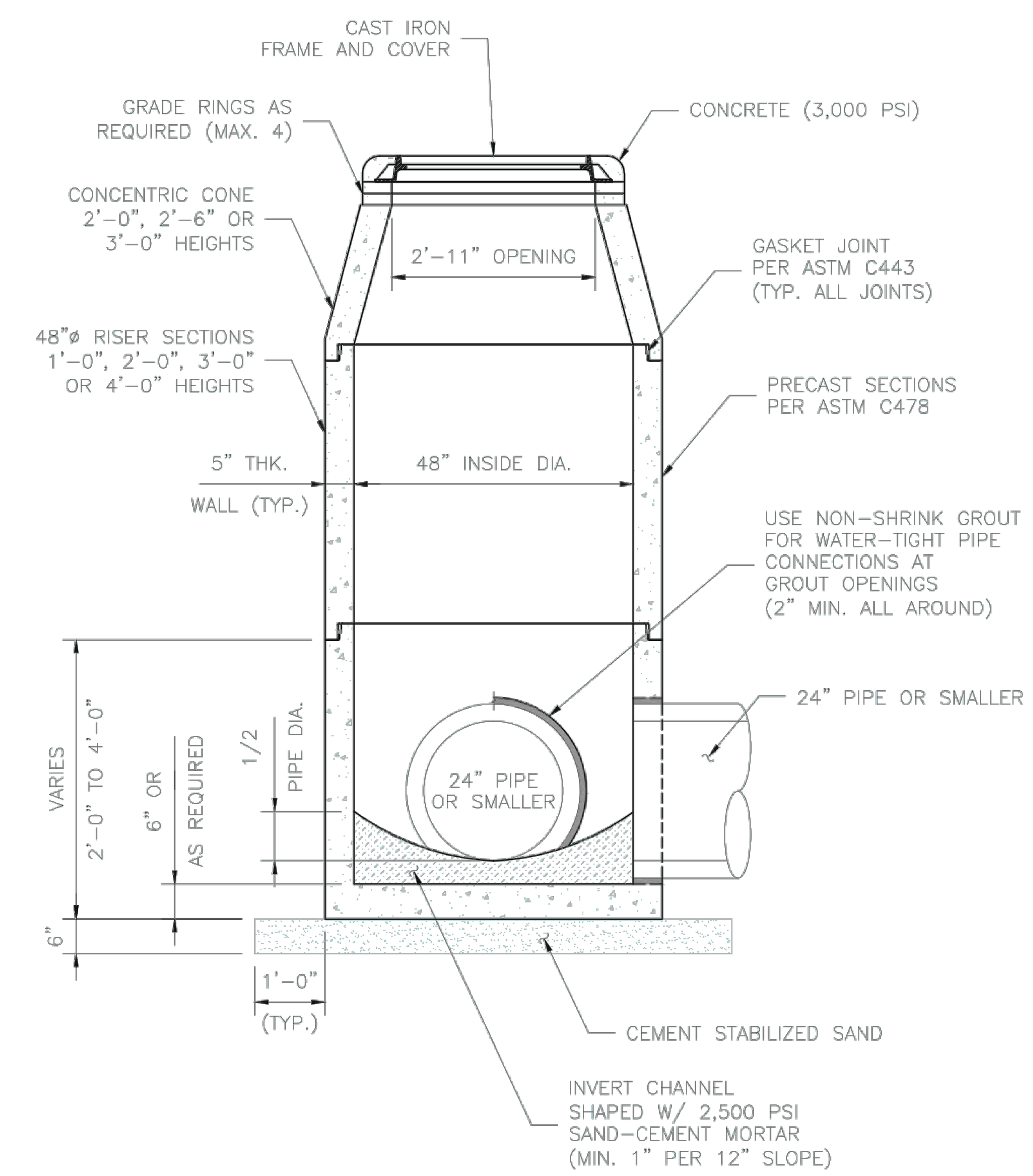
COVER SECTION A-A
SCALE: 1" = 1'-0"



FRAME SECTION A-A
SCALE: 1" = 1'-0"



PRECAST CONCENTRIC MANHOLE
FOR PIPE SIZES GREATER THAN 24"
SCALE: 1" = 1'-6"



48"ø PRECAST CONCENTRIC MANHOLE
FOR PIPE SIZES 24" OR SMALLER
SCALE: 1" = 1'-6"

MAXIMUM PIPE DIA. 'P'	INSIDE DIA. 'A'	MIN. WALL THICKNESS 'B'	MIN. BASE THICKNESS 'C'
30"	60"	6"	8"
42"	72"	7"	8"
54"	84"	8"	10"
60"	96"	9"	10"

GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 471 "PRECAST CONCRETE MANHOLES".
2. CONCRETE FOR MANHOLE: MINIMUM 4,000 PSI IN 28 DAYS
3. HL-93 LOADING; MANHOLE DESIGN SHALL MEET OR EXCEED ASTM C478 REQUIREMENTS.
4. GASKET JOINT: PER ASTM C443
5. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1420 OR APPROVED EQUAL.
6. SHOP DRAWINGS WITH MANUFACTURER'S CERTIFICATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY
ENGINEERING DEPARTMENT

FOR INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
ENGINEER: NAME
P.E. SERIAL No. NUMBER
DATE: / /

PROJECT TITLE:
SHEET DESCRIPTION: PRECAST CONCRETE STORM SEWER MANHOLE DETAILS
CIVIL STANDARD: PMH
DRAWN BY: JDZ
DATE: 8/15/17
CK'D BY: PDG
SCALE: AS NOTED
SHEET NO.

J:\Engineering Specs\Harris County Standard Civil Drawings- Master File\8-16-2017 CIVIL STANDARD DRAWINGS\STORM SEWER\PMH.dwg

TIME: 12-08-20 - 5:26pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-029.dwg

HARRIS COUNTY PRECAST CONC. STORM SEWER MANHOLE DETAILS

SCALE: AS SHOWN

E2 CLINTON DMPA

PORT OF HOUSTON AUTHORITY

CONSULTANT:
DESIGN PREPARED BY:
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:
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APPROVED: DATE
PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA
HARRIS COUNTY PRECAST CONC. STORM SEWER MANHOLE DETAILS

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

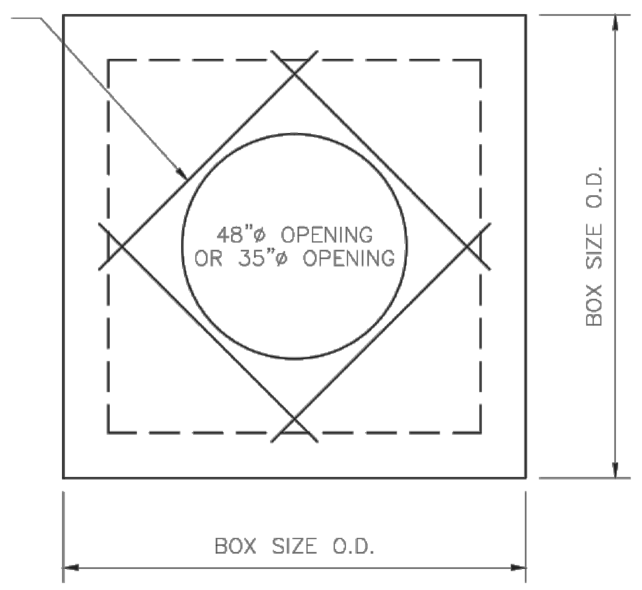
DRAWING NO. C90-D13-P11-002
SHEET NO. C-029
REV. NO. B

95% REVIEW

NOTES:

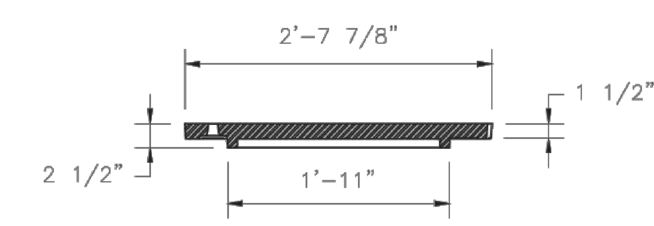
1. FOR PLAN LAYOUT LOCATIONS OF PROPOSED CATCH BASIN-1 AND CATCH BASIN-2, SEE SHEET C-011.

BOX SIZE I.D.	MAX. OPENING SIZE	FLAT SLAB THK.	MIN. WALL THK.	MIN. BASE THK.
4'X4'	48"	8"	6"	6"
5'X5'	60"	10"	6"	8"
6'X6'	72"	10"	8"	8"
7'X7'	84"	10"	8"	8"
8'X8'	96"	10"	8"	8"

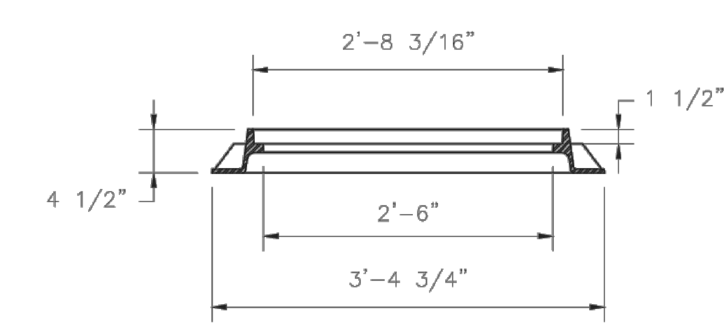


PLAN VIEW
FLAT SLAB WITH OPENING
SCALE: 1"=1'-6"

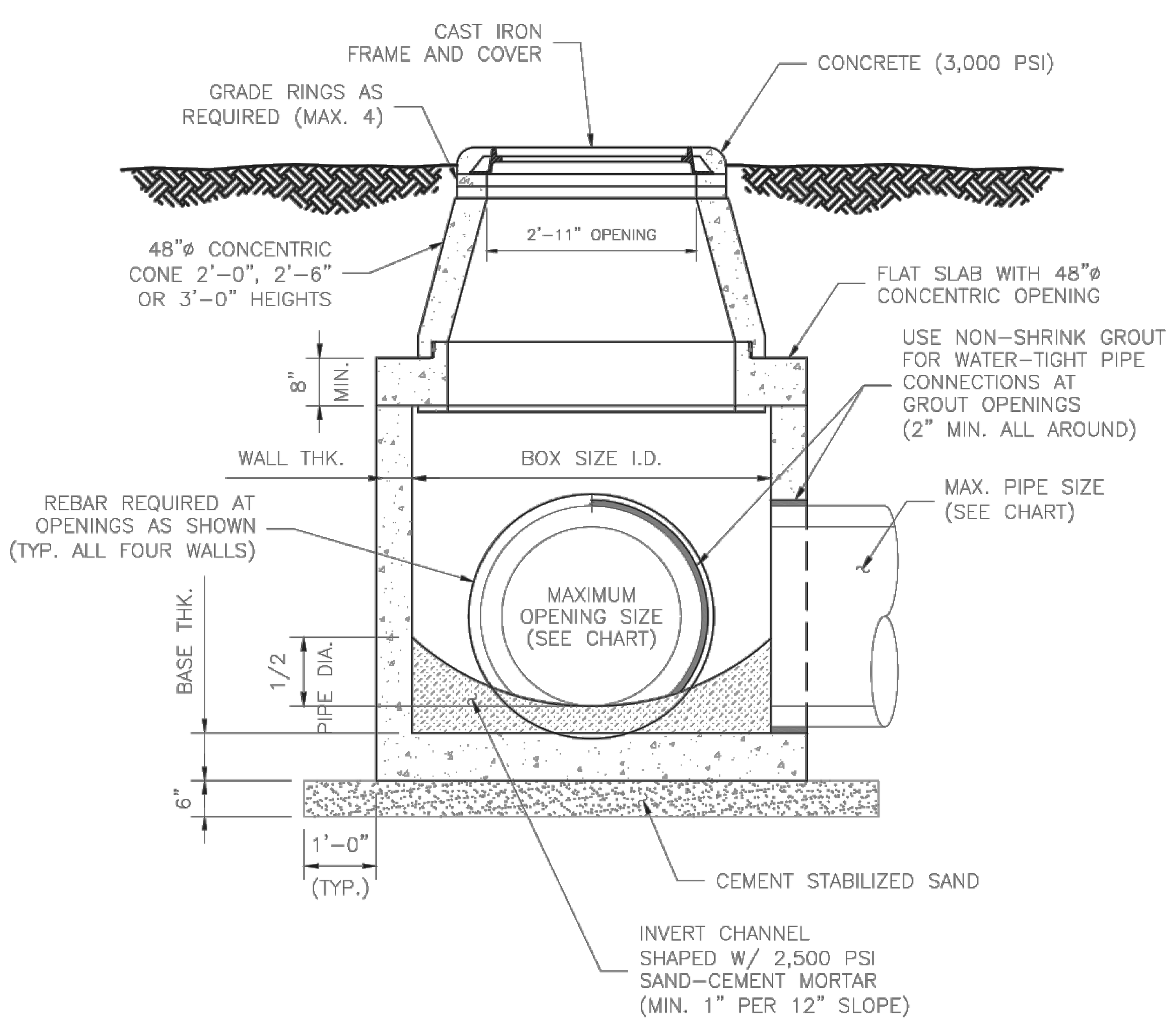
PLAN VIEW
FRAME AND COVER
SCALE: 1"=1'-0"



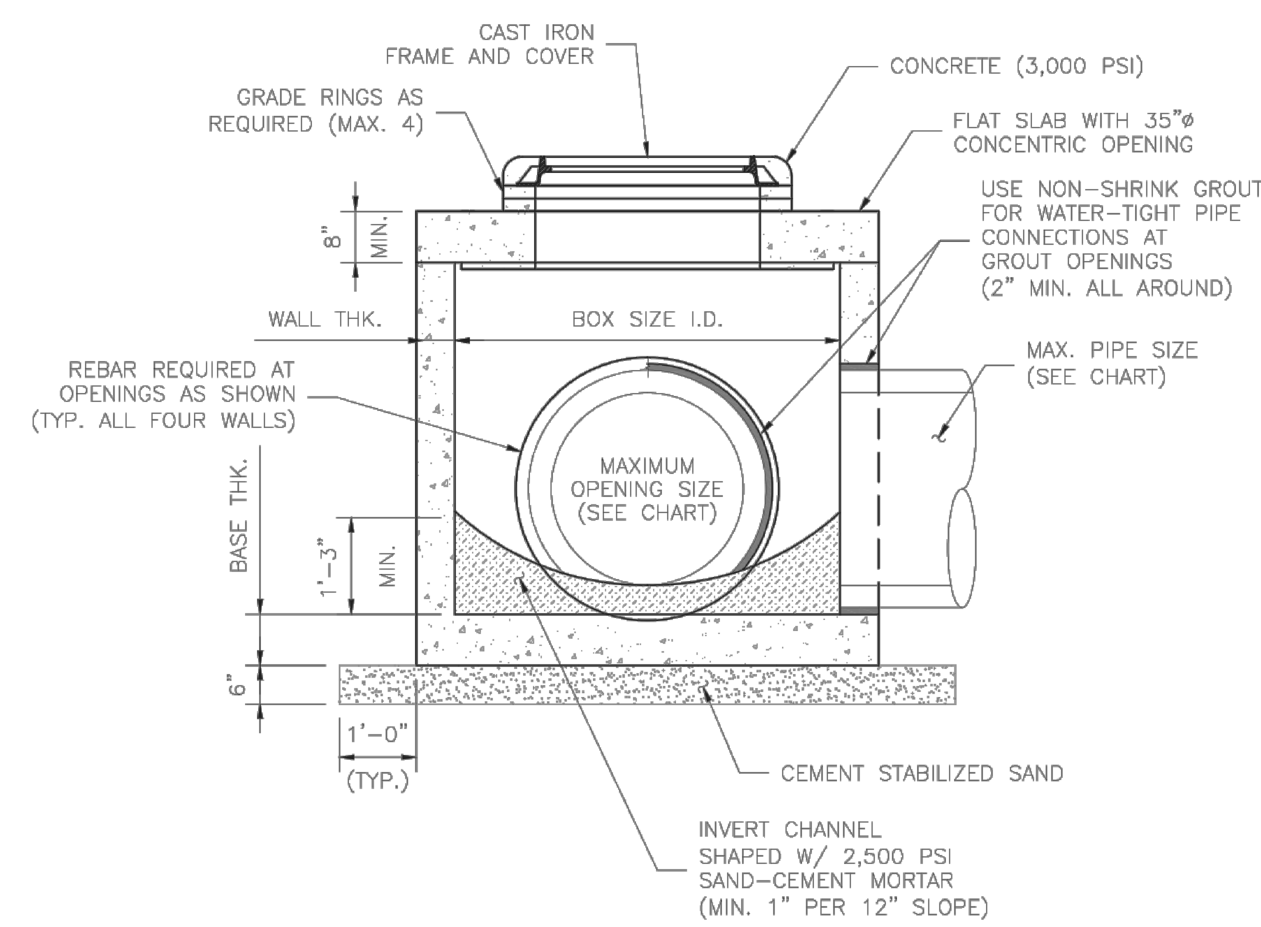
COVER SECTION A-A
SCALE: 1"=1'-0"



FRAME SECTION A-A
SCALE: 1"=1'-0"



JUNCTION BOX/MANHOLE
WITH CONCENTRIC CONE
SCALE: 1"=1'-6"



JUNCTION BOX/MANHOLE
WITH FLAT SLAB
SCALE: 1"=1'-6"

GENERAL NOTES:

1. CONSTRUCTION AND MATERIALS SHALL MEET REQUIREMENTS OF ITEM 471 "PRECAST CONCRETE MANHOLES AND JUNCTION BOXES".
2. CONCRETE FOR JUNCTION BOX: MINIMUM 4,000 PSI IN 28 DAYS
3. HL-93 LOADING; MANHOLE DESIGN SHALL MEET OR EXCEED ASTM C478 AND ASTM C913 REQUIREMENTS.
4. JOINT SEALANT: RAM-NEK GASKET MATERIAL
5. FRAME AND COVER SHALL BE EAST JORDAN IRON WORKS MODEL V-1420 OR APPROVED EQUAL.
6. SHOP DRAWINGS WITH MANUFACTURER'S CERTIFICATION SHALL BE SUBMITTED FOR ENGINEER'S APPROVAL.

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY
ENGINEERING DEPARTMENT

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DOCUMENT INCOMPLETE: NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
ENGINEER: NAME
P.E. SERIAL No. NUMBER
DATE: / /

PROJECT TITLE:
SHEET DESCRIPTION: PRECAST CONCRETE JUNCTION BOX MANHOLE DETAILS
CIVIL STANDARD: PJBM
DRAWN BY: JDZ
DATE: 8/14/17
CK'D BY: PDG
SCALE: AS NOTED
SHEET NO.: /

HARRIS COUNTY PRECAST CONC. JUNCTION BOX MANHOLE DETAILS

SCALE: NOT TO SCALE

J:\Engineering Specs\Harris County Standard Civil Drawings-- Master File\8-16-2017 CIVIL STANDARD DRAWINGS\STORM SEWER\PJBM.dwg

TIME: 12-08-20 - 1:09pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-030.dwg

PORT OF HOUSTON AUTHORITY

CONSULTANT:
DESIGN PREPARED BY: HDR
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:
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APPROVED: DATE
PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR - ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4
BOGGY BAYOU TO SIMS BAYOU TURNING BASIN
E2 CLINTON DMPA & BELTWAY 8 DMPA
HARRIS COUNTY PRECAST CONC. JUNCTION BOX MANHOLE DETAILS

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

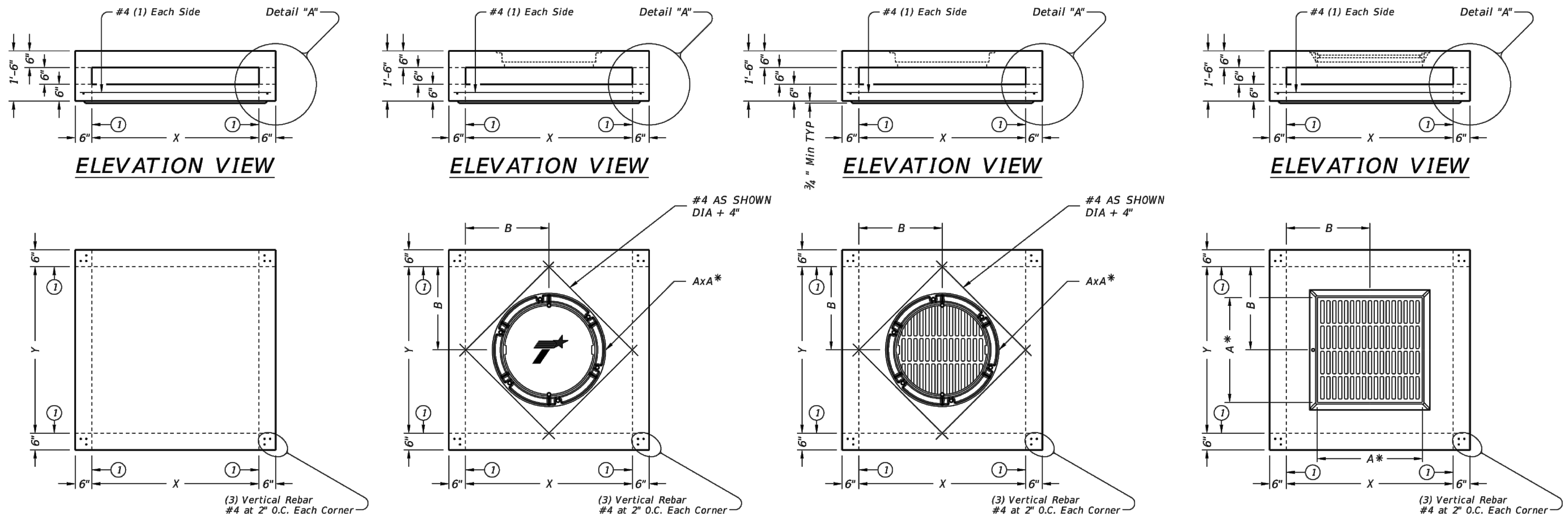
DRAWING NO. C90-D13-P11-002
SHEET NO. C-030
REV. NO. B

E2 CLINTON DMPA

95% REVIEW

NOTES:

1. FOR PLAN LAYOUT OF PRECAST AREA ZONE DRAINS ON TOP OF CATCH BASIN-1 AND CATCH BASIN-2, SEE SHEET C-011.



(1) Matches inside face of wall of precast base or riser below inlet.

Style	Size (X x Y)	A x A*	B x B	Short Span Reinf Steel Area	Long Span Reinf Steel Area
SL	3'x3'	n/a	n/a	0.37 in²/ft	0.37 in²/ft
RC,RG	3'x3'	32" Dia	1.5'x1.5'	0.37 in²/ft	0.37 in²/ft
FG	3'x3'	3'x3'	1.5'x1.5'	0.37 in²/ft	0.37 in²/ft
SL	4'x4'	n/a	n/a	0.34 in²/ft	0.34 in²/ft
RC,RG	4'x4'	32" Dia	2'x2'	0.34 in²/ft	0.34 in²/ft
FG	4'x4'	3'x3'	2'x2'	0.34 in²/ft	0.34 in²/ft
FG	4'x4'	4'x4'	2'x2'	0.34 in²/ft	0.34 in²/ft
SL	5'x5'	n/a	n/a	0.43 in²/ft	0.43 in²/ft
RC,RG	5'x5'	32" Dia	2.5'x2.5'	0.68 in²/ft	0.68 in²/ft
FG	5'x5'	3'x3'	2.5'x2.5'	0.43 in²/ft	0.43 in²/ft
FG	5'x5'	4'x4'	2.5'x2.5'	0.43 in²/ft	0.43 in²/ft

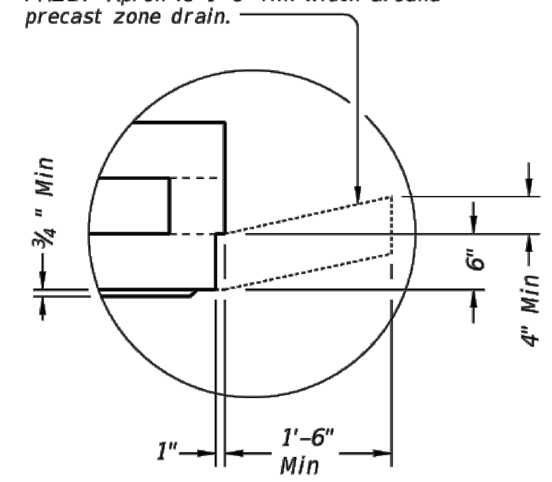
* Nominal frame/grate or ring/cover size.

FABRICATION NOTES:
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide clear cover of ¾" to reinforcing from bottom of slab for structural reinforcement. Place short span reinforcing closest to surface.
4. No substitution is allowed for diagonal #4 bars around openings.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:
1. PAZD is for use in ditches and medians outside of the horizontal clearance (clear zone). Precast Area Zone Drain is not intended for direct traffic and may not be placed in roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:
1. Designed according to ASTM C913.
2. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Construct cast-in-place reinforced concrete apron when shown elsewhere in plans. Use Class "A" concrete. Apron is subsidiary to PAZD. Apron is 1'-6" Min width around precast zone drain.



DETAIL "A"

(Reinforcing not shown for clarity)
When an apron is to be cast around PAZD, use detail above to create an apron ledge on all 4 sides.

Texas Department of Transportation — Bridge Division Standard

PRECAST AREA ZONE DRAIN

PAZD

FILE: prestd08-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY		SHEET NO.

DATE:
FILE:

TXDOT STANDARD DETAIL PRECAST AREA ZONE DRAIN

SCALE: NOT TO SCALE

TIME: 12-08-20 - 1:14pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-031.dwg

PORT OF HOUSTON AUTHORITY

CONSULTANT:
DESIGN PREPARED BY:
HDR
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:
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95% REVIEW

APPROVED: DATE
PORT CONTRACT REPRESENTATIVE
MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA
TXDOT STANDARD DETAIL PRECAST AREA ZONE DRAIN

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

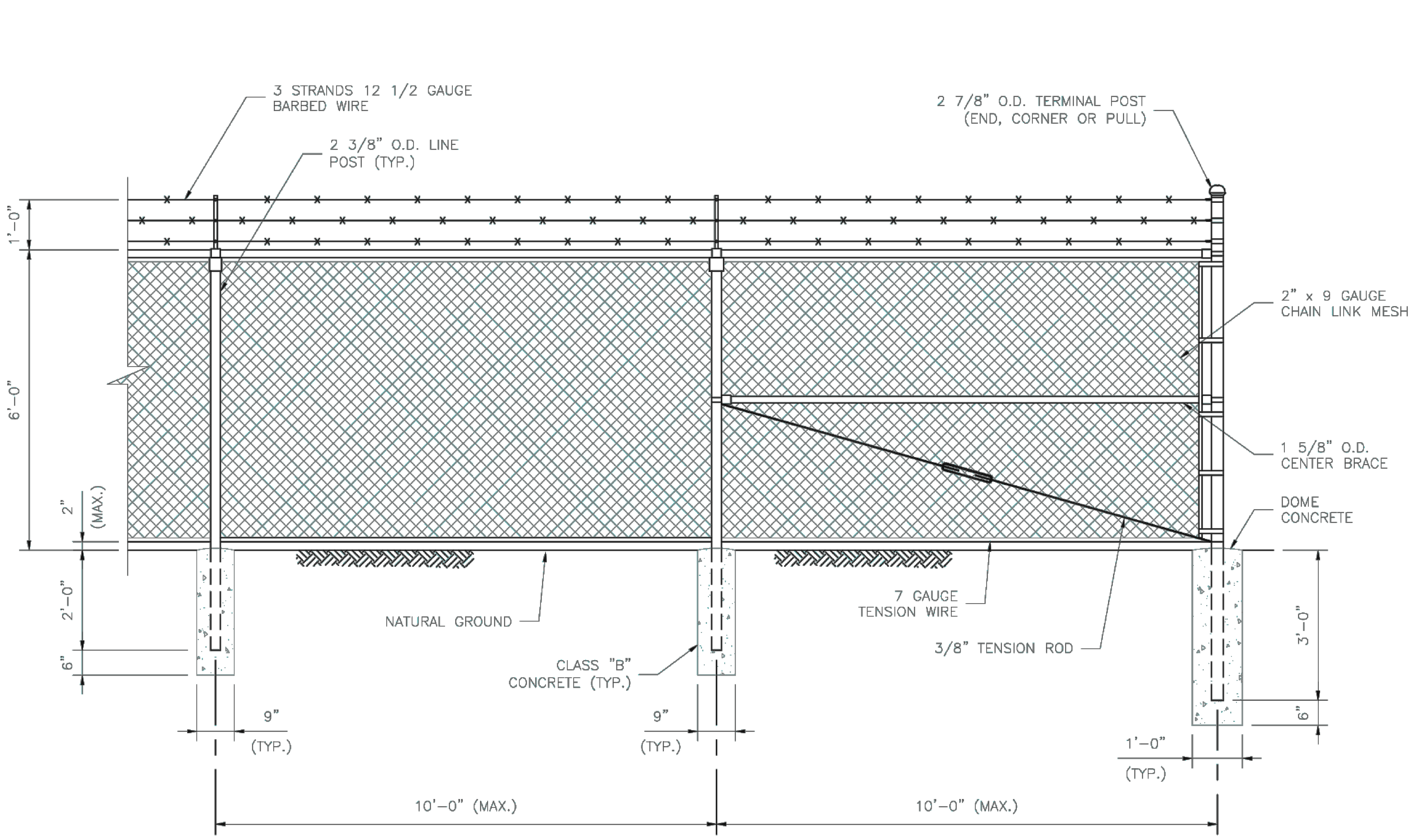
DRAWING NO. C90-D13-P11-002
SHEET NO. C-031
REV. NO. B

E2 CLINTON DMPA

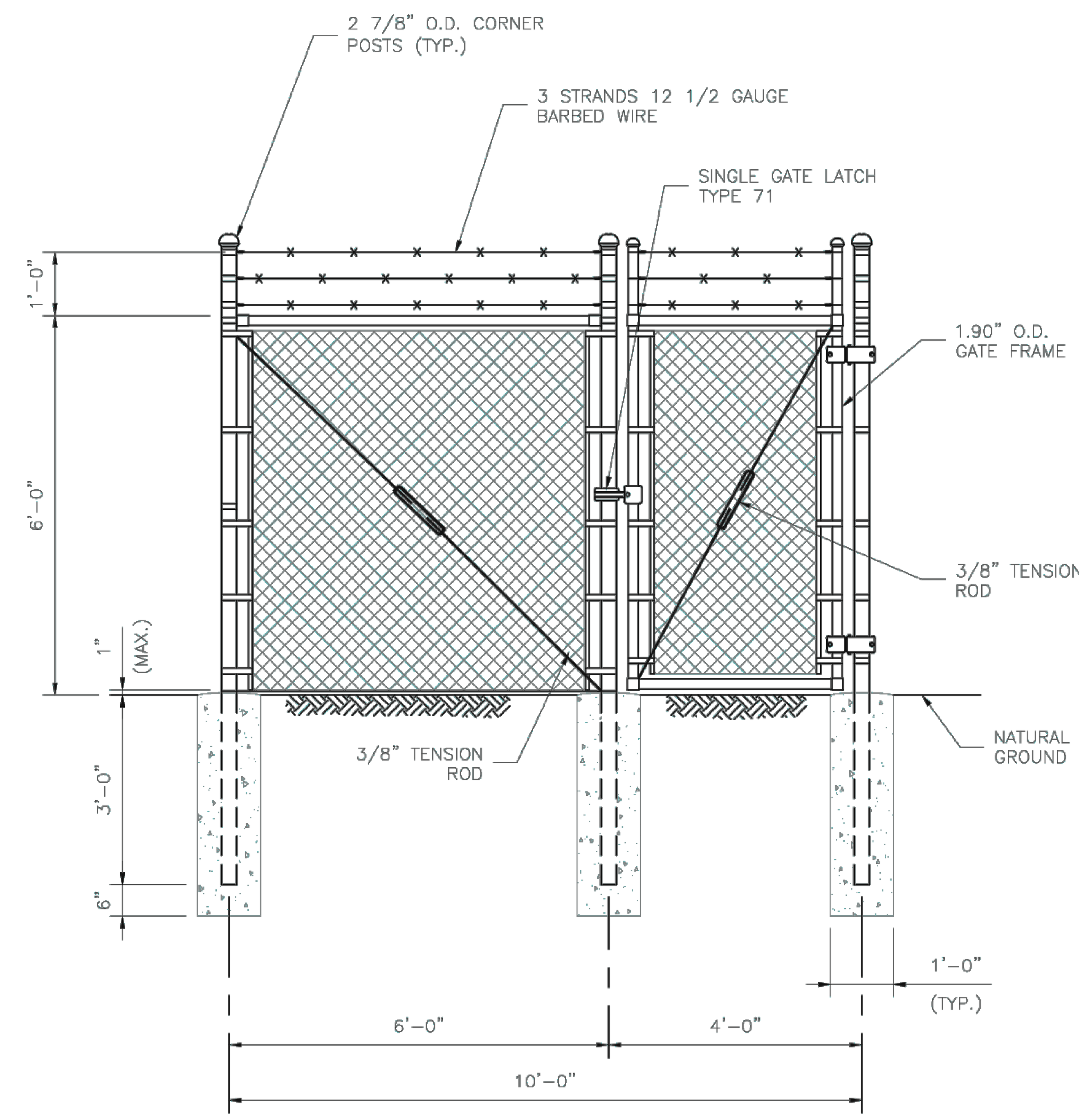
95% REVIEW

NOTES:

1. FOR PLAN LAYOUT OF LOCATIONS OF FENCE REMOVAL AND REPLACEMENT AT G.P.I.S.D. AGRICULTURAL CENTER, SEE SHEET C-011.
2. EXISTING SCHOOL FENCING TO BE REPLACED DOES NOT REQUIRE BARB WIRE.
3. HEIGHT OF REPLACEMENT FENCE SHOULD MATCH EXISTING.



ELEVATION WITH CORNER POST



SECURITY FENCE AND GATE FOR ELECTRICAL PANEL BOARD

NO.	REVISIONS	DATE	NAME

HARRIS COUNTY ENGINEERING DEPARTMENT

FOR INTERIM REVIEW ONLY
DOCUMENT INCOMPLETE: NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES
ENGINEER: NAME
P.E. SERIAL No. NUMBER
DATE: / /

PROJECT TITLE:
SHEET DESCRIPTION: CHAIN LINK FENCING DETAILS
CIVIL STANDARD: CLF
DRAWN BY: JDZ
DATE: 8/15/17
CK'D BY: PDG
SCALE: 1" = 1'-6"
SHEET NO: /

J:\Engineering Specs\Harris County Standard Civil Drawings- Master File\8-16-2017 CIVIL STANDARD DRAWINGS\MISCELLANEOUS\CLF.dwg

HARRIS COUNTY CHAIN LINK FENCING DETAILS (CLF)

SCALE: NOT TO SCALE

TIME: 12-08-20 - 1:21pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-032.dwg

PORT OF HOUSTON AUTHORITY

CONSULTANT:
DESIGN PREPARED BY:
HDR
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:
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95% REVIEW

APPROVED: ______ DATE
PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4
BOGGY BAYOU TO SIMS BAYOU TURNING BASIN
E2 CLINTON DMPA & BELTWAY 8 DMPA
HARRIS COUNTY CHAIN LINK FENCING DETAILS CLF

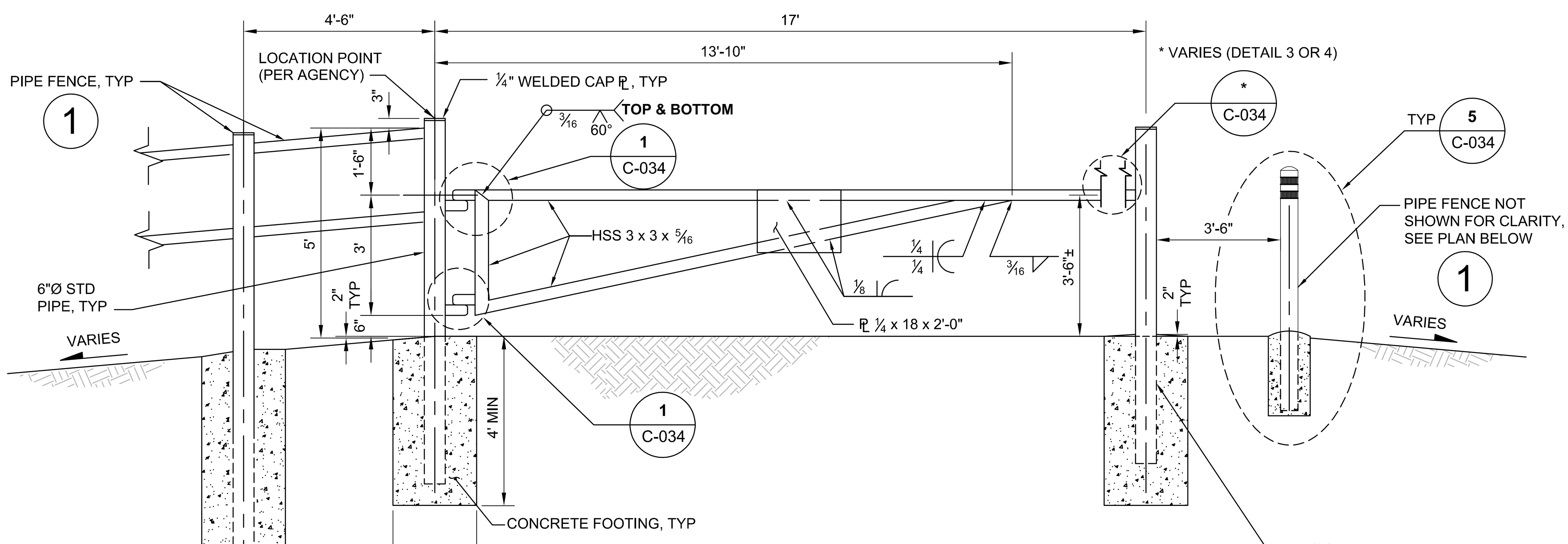
REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

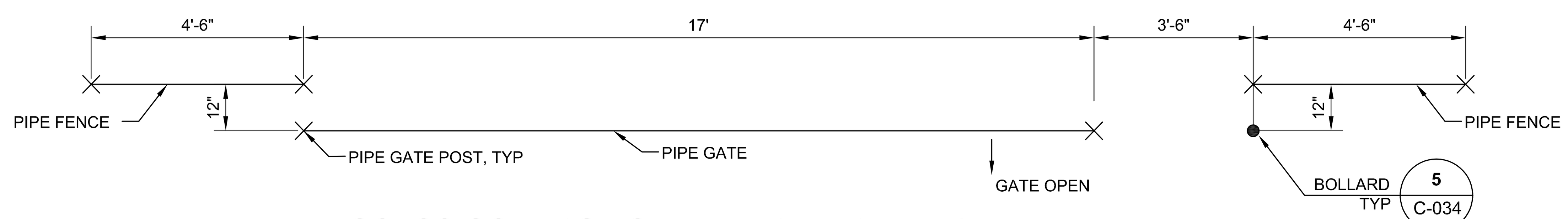
DRAWING NO. C90-D13-P11-002
SHEET NO. C-032
REV. NO. B

E2 CLINTON DMPA

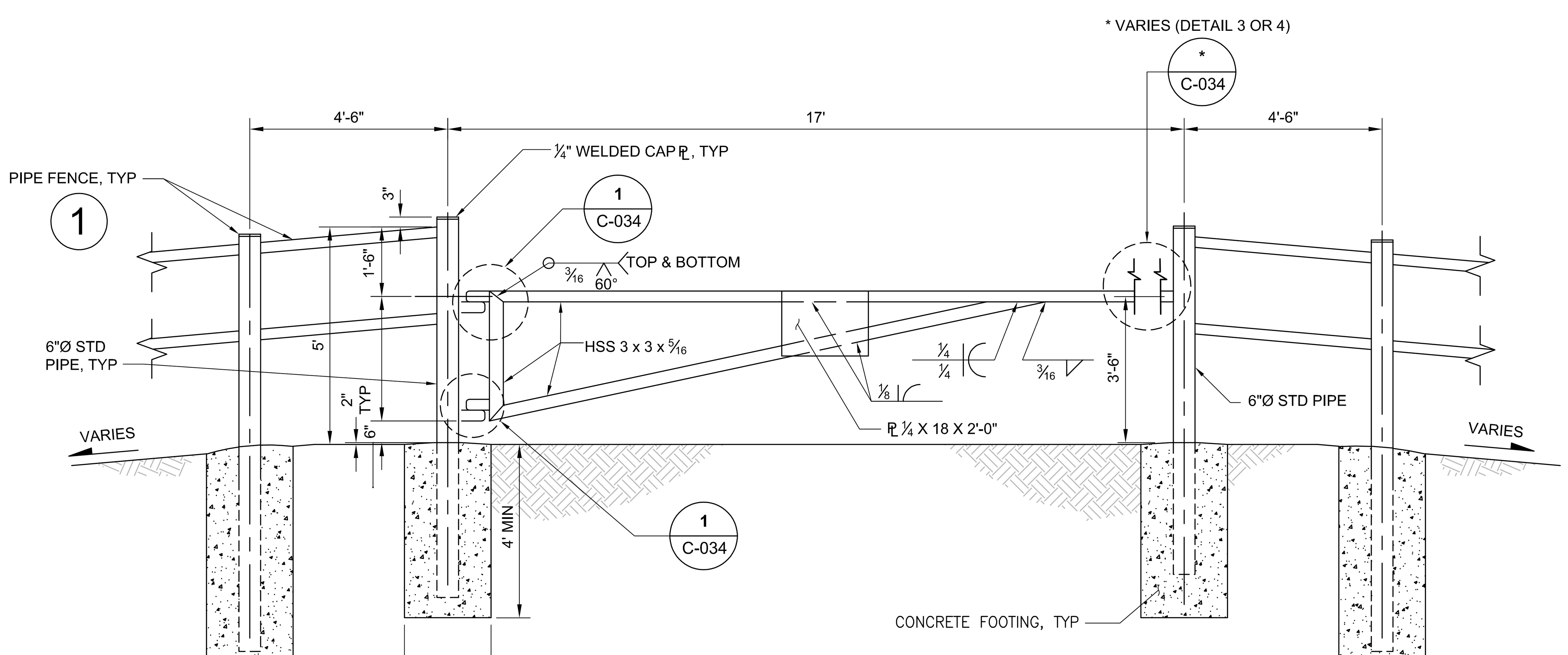
95% REVIEW



ACCESS CONTROL GATE, TYPE A - VIEW
NTS



ACCESS CONTROL GATE, TYPE A PLAN VIEW
NTS



ACCESS CONTROL GATE, TYPE B - VIEW
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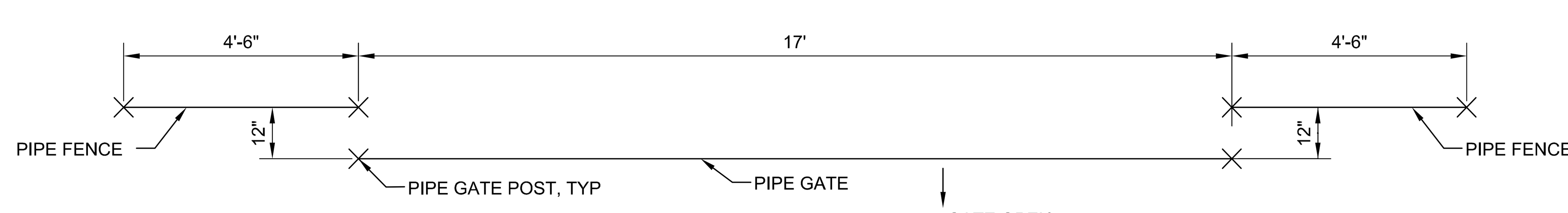
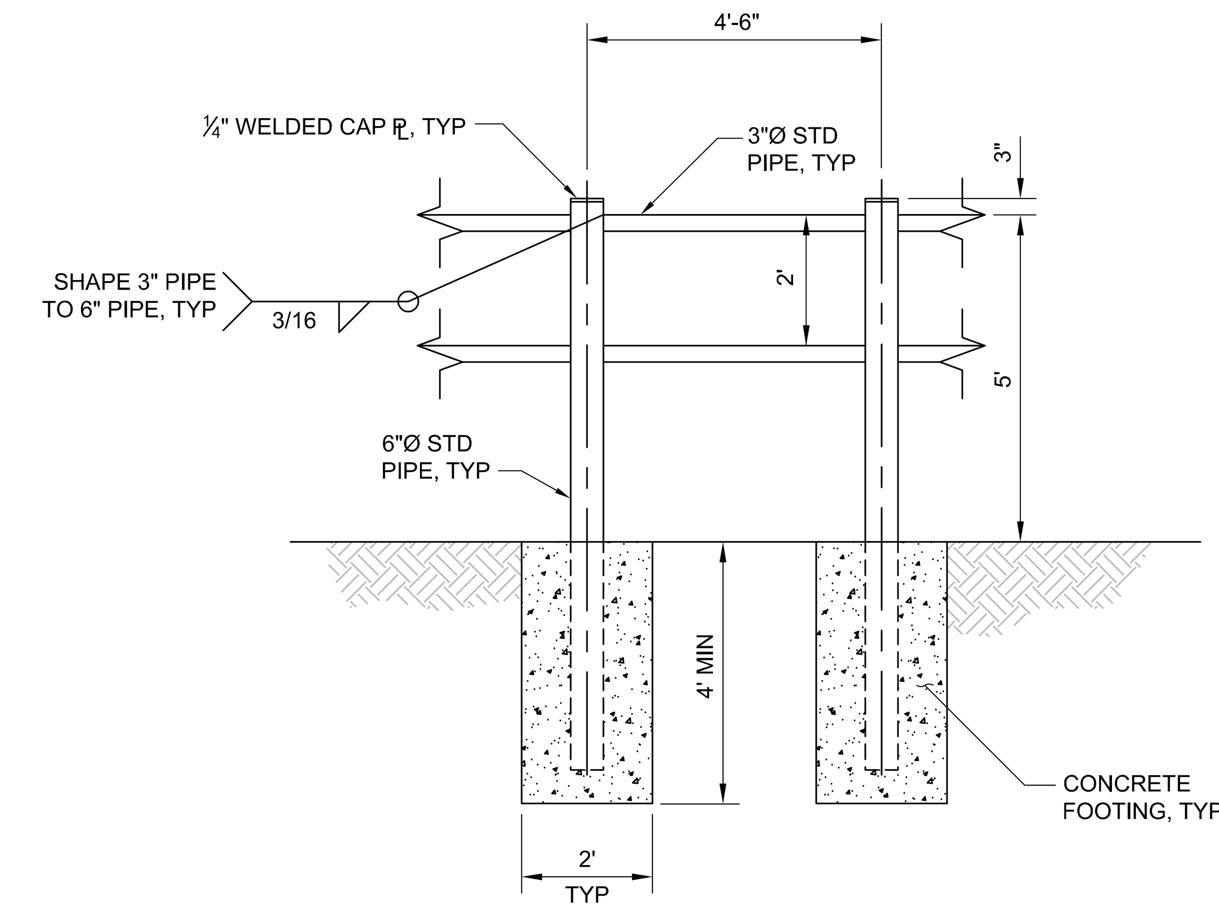


ACCESS CONTROL GATE, TYPE B PLAN VIEW
NTS



1 PIPE FENCE DETAIL
NTS

ACCESS CONTROL GATE DETAILS SHEET 1 OF 2
NOT TO SCALE

NOTES:

1. FOR PLAN LAYOUTS OF PROPOSED ACCESS CONTROL GATE LOCATIONS, SEE SHEETS C-007, C-009 AND C-010.
2. FOR ACCESS CONTROL GATE CORROSION PROTECTION COATING, USE COAL TAR EPOXY, 16 MILS DFT.

PORT OF HOUSTON AUTHORITY

CONSULTANT:
DESIGN PREPARED BY:
HDR Engineering, INC
TBPELS FIRM
Registration No. F-754

SEAL:
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95% REVIEW

APPROVED: DATE
PORT CONTRACT REPRESENTATIVE MANAGING DIRECTOR – ENGINEERING DESIGN & SUPPORT

PROJECT TITLE:
HOUSTON SHIP CHANNEL (HSC)
EXPANSION CHANNEL IMPROVEMENT PROJECT (ECIP)
PROJECT 11: PACKAGE # 8

SHEET TITLE:
SEGMENT 4 BOGGY BAYOU TO SIMS BAYOU TURNING BASIN E2 CLINTON DMPA & BELTWAY 8 DMPA
ACCESS CONTROL GATE DETAILS SHEET 1 OF 2

REV	DATE	DESCRIPTION
A	8/15/20	65% SUBMITTAL
B	12/08/20	95% SUBMITTAL

DESIGNER:	G.PENNISON
CADD:	J.DELEON
CHECKER:	N.McLELLAN
DATE:	12/08/2020
SCALE:	AS NOTED

DRAWING NO. C90-D13-P11-002
SHEET NO. C-033
REV. NO. B

E2 CLINTON DMPA

95% REVIEW

TIME: 12-08-20 – 4:28pm User: JDELEON DWG: C:\pwworking\central01\d1713444\C90-D13-P11-008-C-033.dwg