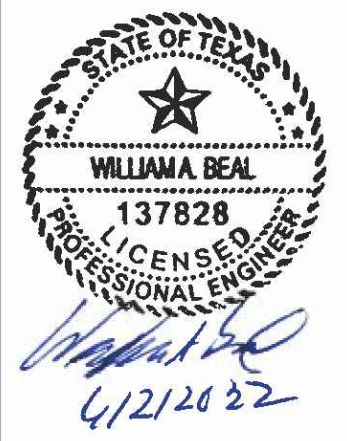


SAN JACINTO RIVER WASTE PITS REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

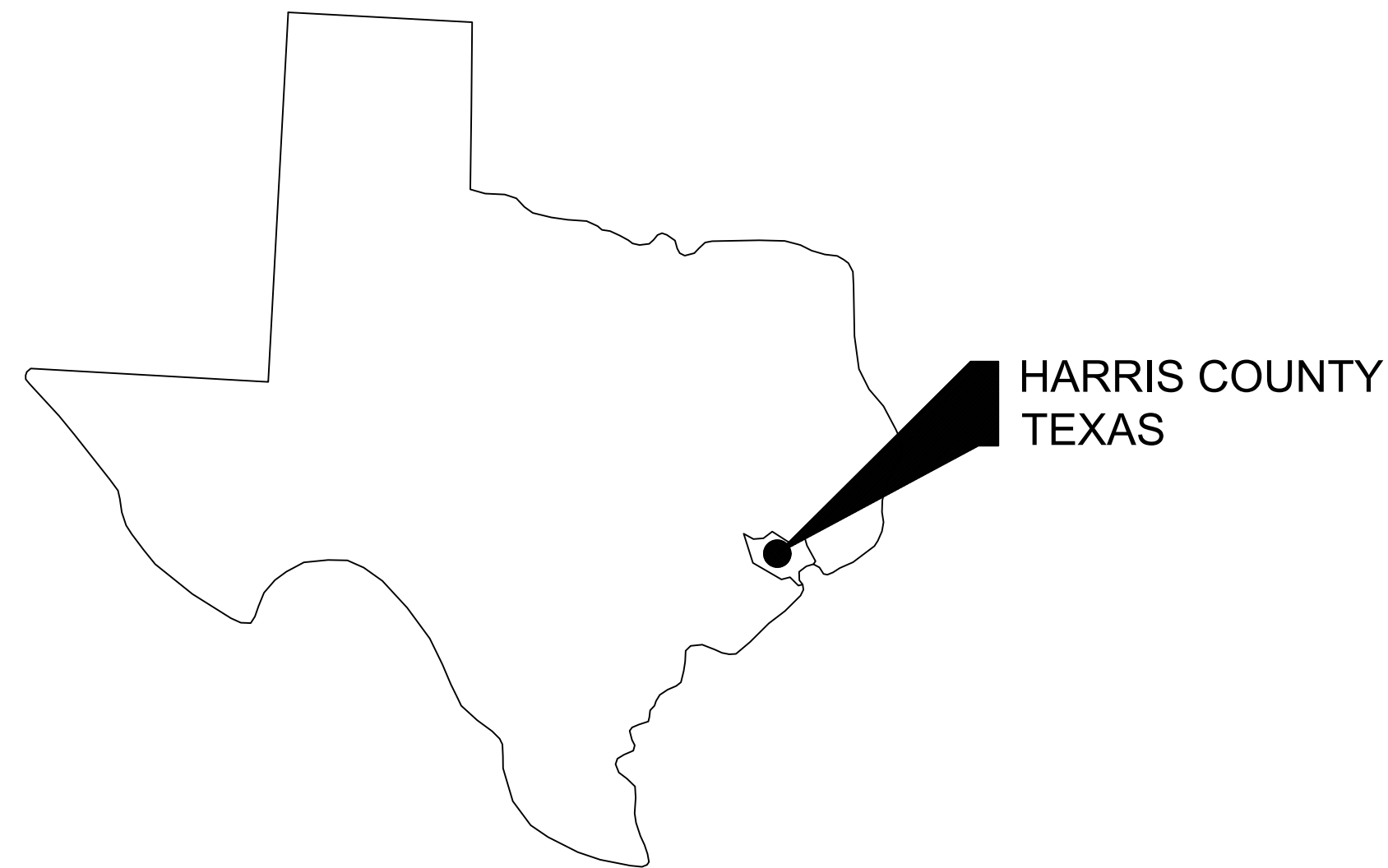
JUNE 2022
11215131-02



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STATE OF TEXAS
VICINITY MAP



HARRIS COUNTY
VICINITY MAP



LOCATION MAP

DRAWING NUMBER	DRAWING NAME
GENERAL SERIES	
G-01	COVER SHEET
CIVIL SERIES	
C-01	OVERALL PLAN
C-02	EXISTING CONDITIONS
C-03	GENERAL SITE WORKS
C-03A	SITE WORKS WATER AND MATERIAL HANDLING SEASON 1
C-03B	SITE WORKS WATER AND MATERIAL HANDLING SEASON 2
C-04	SOIL EROSION AND SEDIMENT CONTROL PLAN
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C-06	PROJECT TRAFFIC CONTROL PLAN
C-07	NORTHEAST EXCAVATION AREA OVERBURDEN SAMPLING PLAN
C-08	NORTHEAST EXCAVATION AREA SIDEWALL SAMPLING PLAN
C-09	NORTHEAST EXCAVATION AREA BOTTOM OF EXCAVATION SAMPLING PLAN
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C-15	NORTH CENTRAL EXCAVATION AREA OVERBURDEN SAMPLING PLAN
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C-17	NORTH CENTRAL EXCAVATION AREA BOTTOM OF EXCAVATION SAMPLING PLAN
C-18	NORTH CENTRAL EXCAVATION AREA OVERBURDEN EXCAVATION PLAN
C-19	NORTH CENTRAL EXCAVATION AREA FINAL EXCAVATION PLAN
C-20	NORTH CENTRAL EXCAVATION AREA EXCAVATION SECTIONS 1 OF 2
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C-31	SOUTHWEST EXCAVATION AREA OVERBURDEN SAMPLING PLAN
C-32	SOUTHWEST EXCAVATION AREA SIDEWALL SAMPLING PLAN
C-33	SOUTHWEST EXCAVATION AREA BOTTOM OF EXCAVATION SAMPLING PLAN
C-34	SOUTHWEST EXCAVATION AREA OVERBURDEN EXCAVATION PLAN
C-35	SOUTHWEST EXCAVATION AREA FINAL EXCAVATION PLAN
C-36	SOUTHWEST EXCAVATION AREA SHEET PILE WALL EXCAVATION PLAN
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P-01	WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM/SCHEDULES
P-02	WATER TREATMENT SYSTEM P&ID (1 OF 4)
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Client
**SAN JACINTO RIVER
WASTE PITS**

Project
**REMEDIAL DESIGN
SOUTHERN IMPOUNDMENT
HARRIS COUNTY, TEXAS**

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

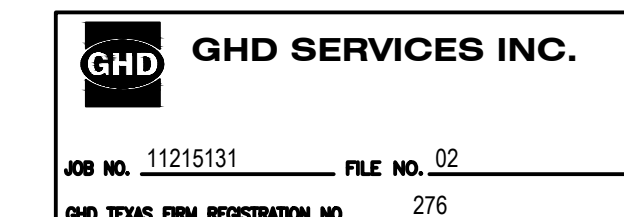
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Drafting Check	JC	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022

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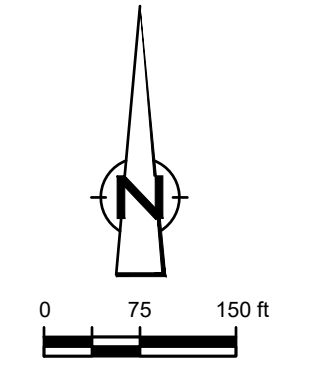
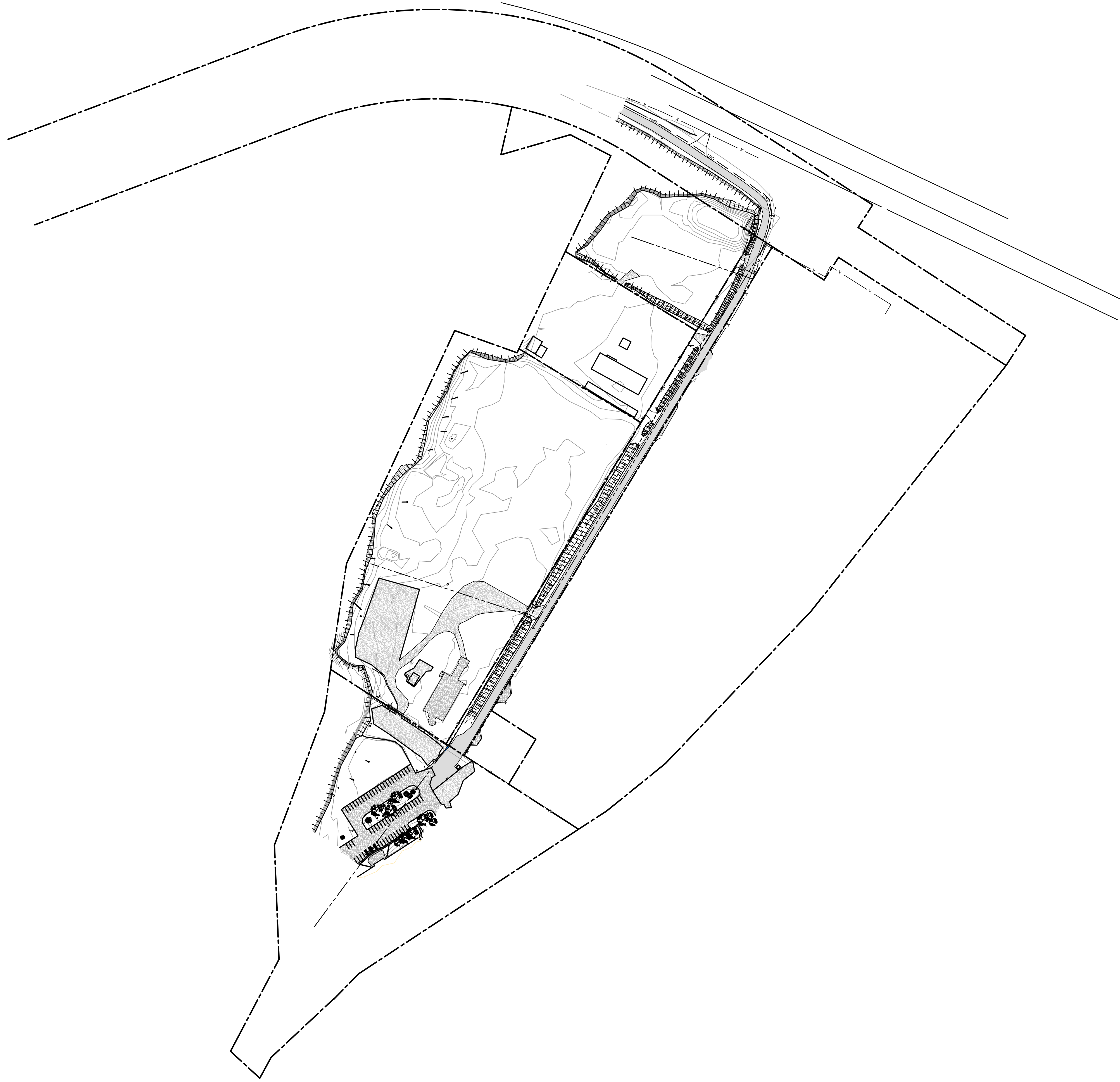
Project No. 11215131

Title
COVER SHEET

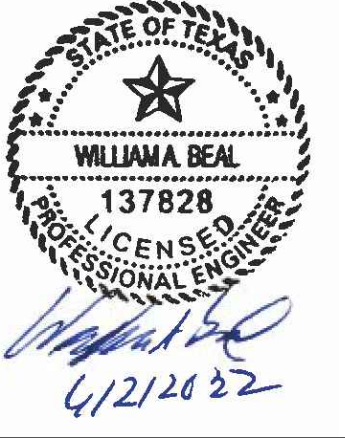
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---	PROPERTY BOUNDARY
- - - -	PROPERTY EASEMENT
---x---	EXISTING CONTOUR INTERVAL
----	FENCELINE
-----	SHORELINE
	TOP OF BANK
-----	TOE OF SLOPE
-----	OVERHEAD ELECTRICAL
-----	GUARDRAIL
-----	UNDERGROUND CCTV LINE
-----	UNDERGROUND AT&T LINE
●	POI/RI BORING LOCATION
●	MONITORING WELL
●	POWER POLE
●	LIGHT POLE
○	WELL
▨	ASPHALT
▩	CONCRETE
▧	GRAVEL

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIATION DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

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Drawn	MW	Designer	RH
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Project Coordinator	CM	Date	Jun 2, 2022

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Project No. **11215131**
 Title
OVERALL PLAN

Sheet No.
C-01
 Sheet 2 of 46

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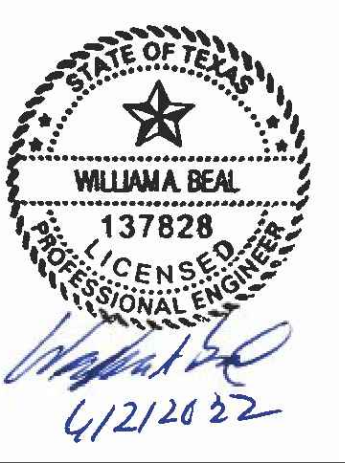
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---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
■ SJSB002	POIRI BORING LOCATION
● MW	MONITORING WELL
● P.P.	POWER POLE
● L.P.	LIGHT POLE
○ WELL	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn **MW** Designer **RH**

Drafting Check **JC** Design Check **WB**

Project Coordinator **CM** Date **Jun 2, 2022**

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Project No. **11215131**

Title **EXISTING CONDITIONS**

Sheet No.

C-02

Sheet 3 of 46

SOURCE:
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PARCELS 1, 2 & 3 PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdry - 07-24-2020

NOTES:
 1. FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER, THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.

2. FOR THE AREAS REQUIRING SOIL REMOVAL ON THE SOUTHWEST PORTION OF THE SOUTHERN IMPOUNDMENT, A BULKHEAD WILL BE INSTALLED ADJACENT TO THE SAN JACINTO RIVER. THE EXCAVATION WILL BE COMPLETED UP TO THE LATERAL LIMIT OF THIS BULKHEAD.

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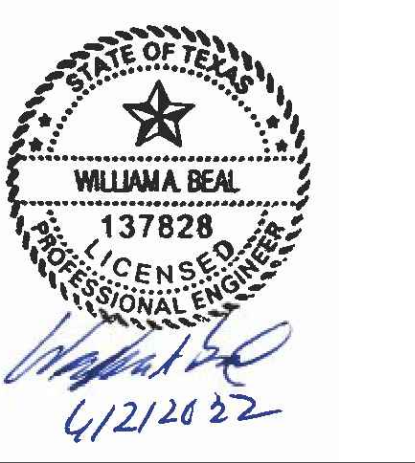
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---	PROPERTY EASEMENT
---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
●	POI/R1 BORING LOCATION
●	MONITORING WELL
●	POWER POLE
●	L.P.
○	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	SHEET PILE WALL ALIGNMENT

Client
SAN JACINTO RIVER WASTE PITS
 Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
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Drawn	MW	Designer	RH
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Project Coordinator	CM	Date	Jun 2, 2022

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Project No. 11215131
 Title
GENERAL SITE WORKS

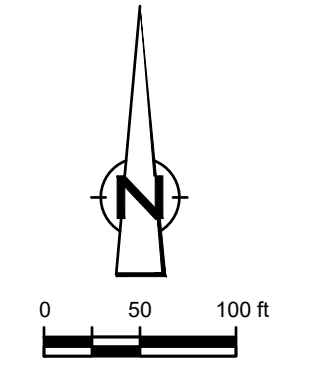
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 - EXISTING CONCRETE PAD TO BE REMOVED DURING REMEDIAL ACTION AND WILL BE REPLACED BASED ON AGREEMENT BETWEEN THE LANDOWNER AND RESPONSIBLE PARTY.

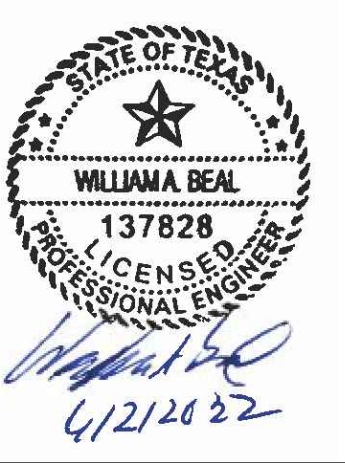
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---	PROPERTY EASEMENT
---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
---	PO/RI BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	SHEET PILE WALL ALIGNMENT
---	PIPELINE

Client
SAN JACINTO RIVER WASTE PITS
 Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
2	100% RD ADDENDUM	MW	WB	06/02/2022
1	FOR CLIENT REVIEW	MW	RH	05/06/2022

Drawn	MW	Designer	RH
Drafting Check	JC	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022
Original Size	Arch D	Scale	1" = 100'
Project No.	11215131	Title	SITE WORKS WATER AND MATERIAL HANDLING SEASON 1

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019
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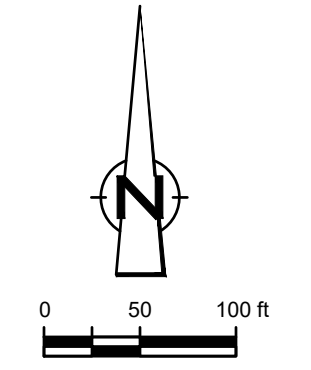
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 3. EXISTING CONCRETE PAD TO BE REMOVED DURING REMEDIAL ACTION AND WILL BE REPLACED BASED ON AGREEMENT BETWEEN THE LANDOWNER AND RESPONSIBLE PARTY.

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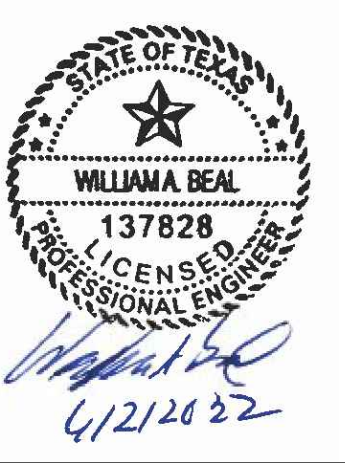
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C-03A
 Sheet 5 of 46



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---	TOE OF SLOPE
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---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
---	POI/R BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	SHEET PILE WALL ALIGNMENT
---	PIPELINE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

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2	100% RD ADDENDUM	MW	WB	06/02/2022
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Project Coordinator	CM	Date	Jun 2, 2022

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Project No. 11215131
 Title

SITE WORKS WATER AND MATERIAL HANDLING SEASON 2

Sheet No.
C-03B
 Sheet 6 of 46

- SOURCE:
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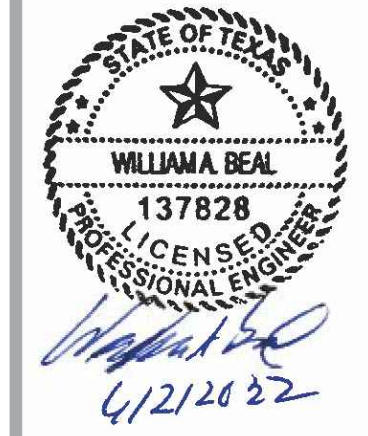
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	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	POI/RI BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	AREA OF IMPACT
	ASPHALT
	CONCRETE
	GRAVEL
	SILT FENCE
	TURBIDITY CURTAIN

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
Drawn	MW	Designer	RH	

Drafting Check	Design Check
JC	WB

Project Coordinator: CM
 Date: Jun 1, 2022

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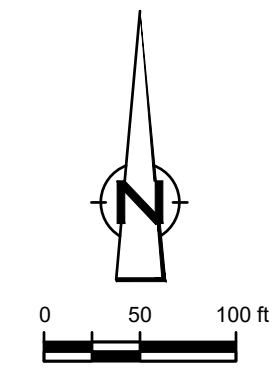
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 Bar is one inch on original size drawing

Project No. 11215131

SOIL EROSION AND SEDIMENT CONTROL PLAN

Sheet No.

C-04



SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdry - 07-24-2020

NOTES:
 1. FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER, THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.

2. FOR THE AREAS REQUIRING SOIL REMOVAL ON THE SOUTHWEST PORTION OF THE SOUTHERN IMPOUNDMENT, A BULKHEAD WILL BE INSTALLED ADJACENT TO THE SAN JACINTO RIVER. THE EXCAVATION WILL BE COMPLETED UP TO THE LATERAL LIMIT OF THIS BULKHEAD.

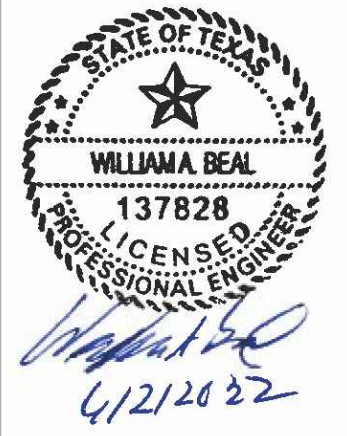
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 JOB NO. 11215131 FILE NO. 02
 GHD TEXAS FIRM REGISTRATION NO. 276

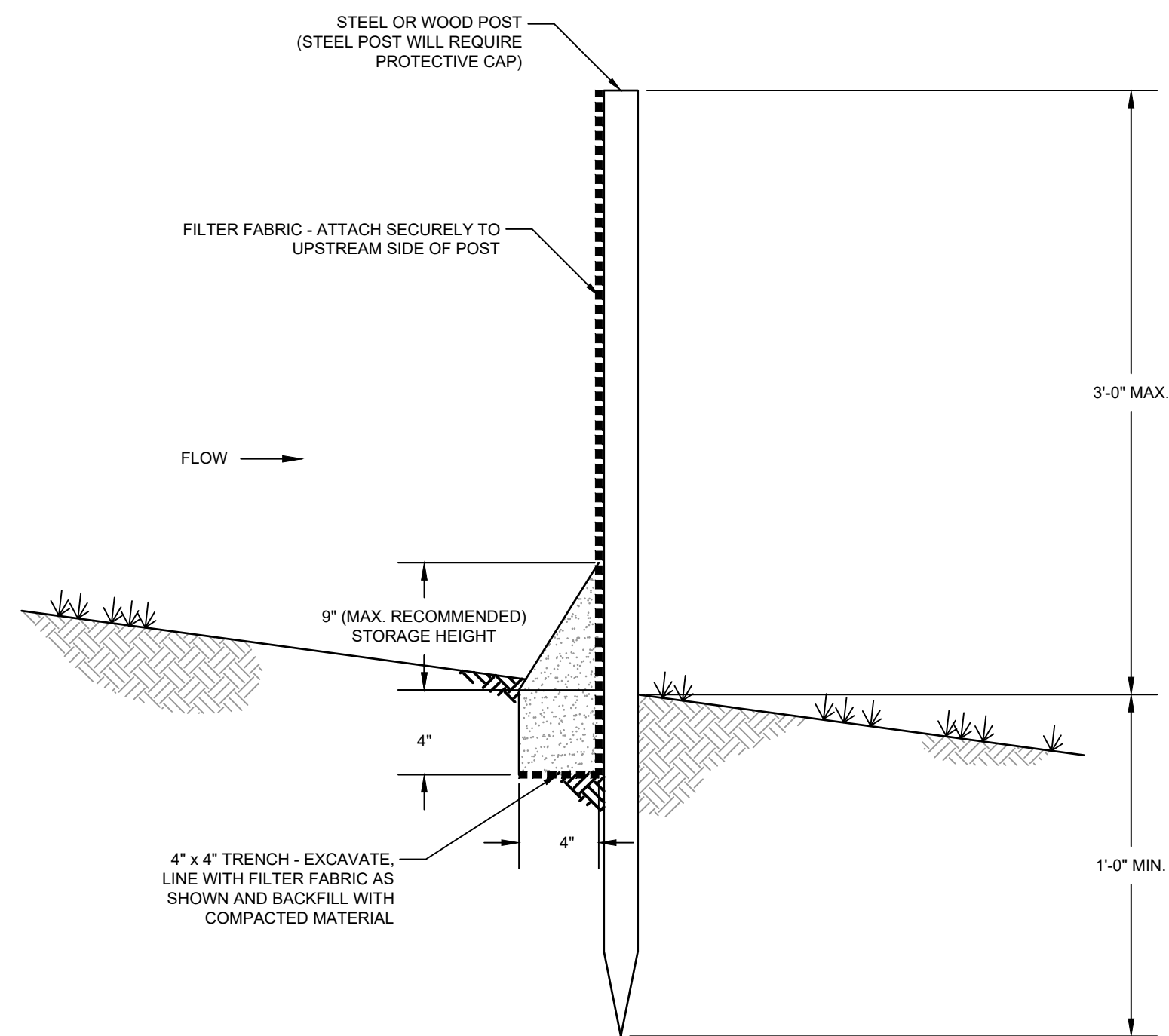
100% REMEDIAL DESIGN ADDENDUM



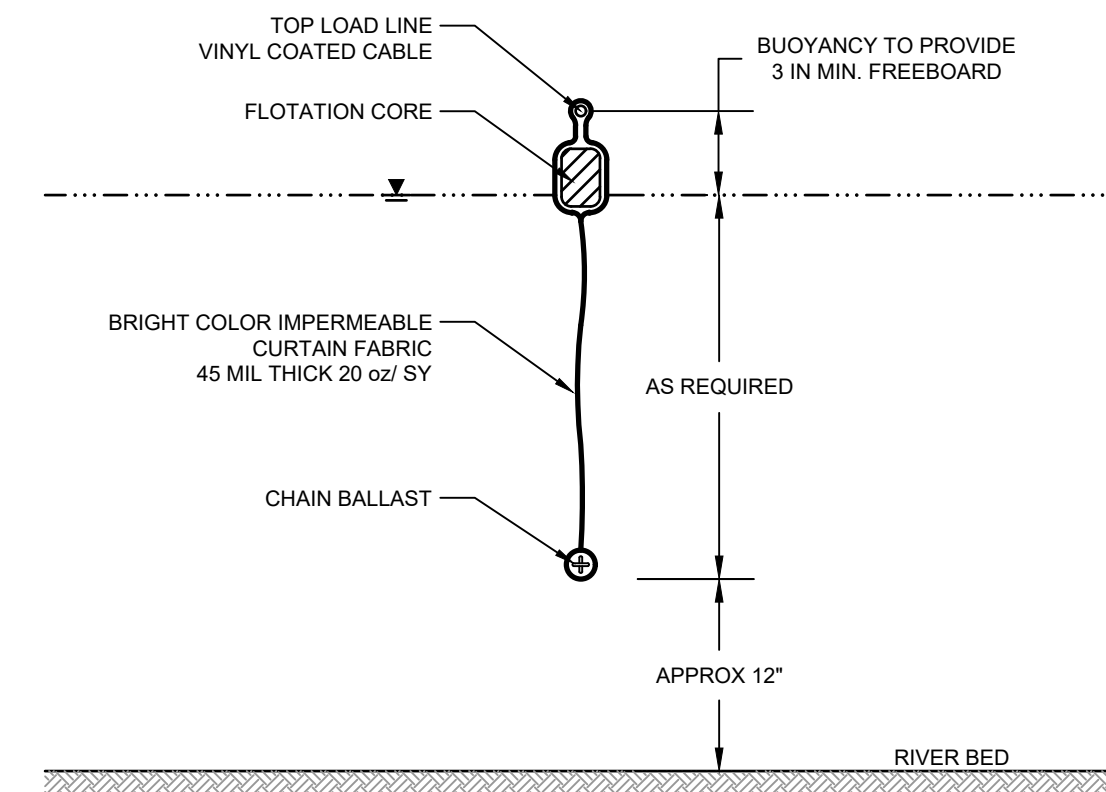
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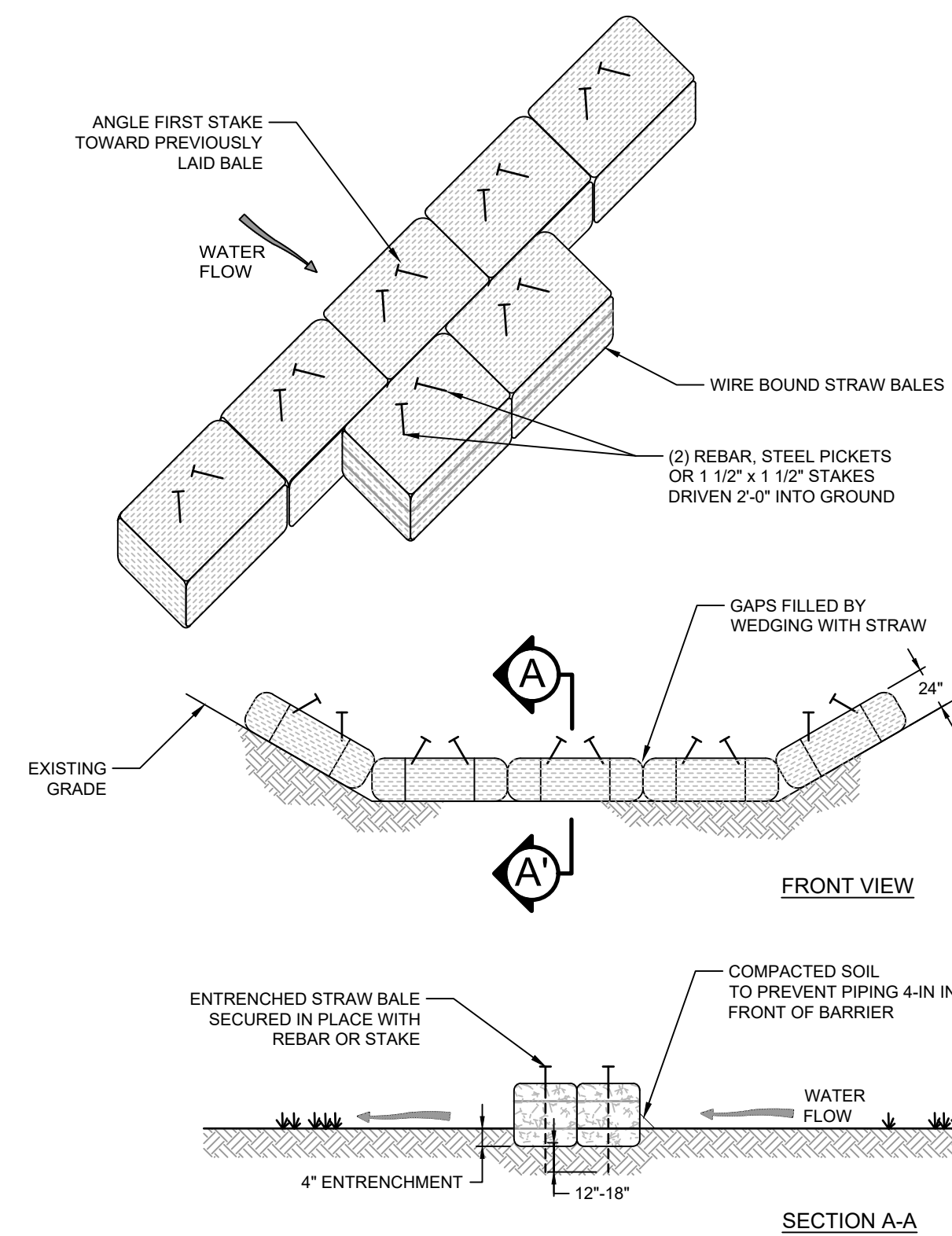
DETAIL 1 TEMPORARY SILT FENCE
N.T.S. C-04



NOTES

- TURBIDITY CURTAIN SHALL BE TYPE II ACCORDING TO DEPARTMENT OF THE ARMY, US ARMY CORPS OF ENGINEERS WASHINGTON, DC, ENGINEERING AND DESIGN 'HANDBOOK FOR THE PREPARATION OF STORM WATER POLLUTION PREVENTION PLANS FOR CONSTRUCTION ACTIVITIES', APPENDIX 'C' BMP-27 TURBIDITY CURTAIN, DOCUMENT EP1110-1-16, 1997.
- CURTAIN SYSTEM SHALL BE EQUIPPED WITH LOAD TRANSFER TYPE PANEL CONNECTORS, HEAT SEALED FABRIC SEAMS AND TIGHT SKIRT JOINTS.
- INCLUDE MOORING SYSTEM IF REQUIRED.

DETAIL 2 TURBIDITY CURTAIN
N.T.S. C-04



NOTE:
INSTALL SECOND ROW OF STRAW BALES IN BOTTOM OF SWALE ONLY.

DETAIL 3 STRAW BALE BARRIER
N.T.S. C-04

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Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
-----	-------	-------	----------	------

Drawn MW Designer RH

Drafting JC Design Check WB

Project Coordinator CM Date Jun 1, 2022

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Original Size Arch D Bar is one inch on original size drawing 0 1"

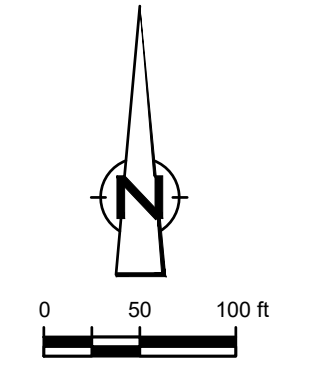
Project No. 11215131

Title
SOIL EROSION AND SEDIMENT CONTROL DETAILS

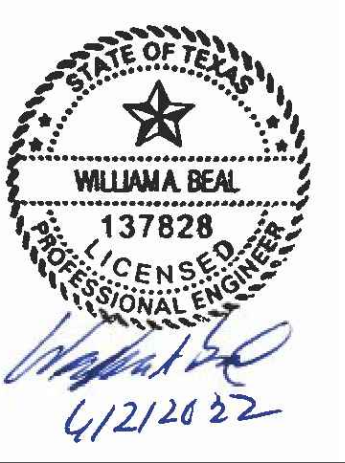
Sheet No.

C-05

Sheet 8 of 46



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LEGEND

---	PROPERTY BOUNDARY
---	PROPERTY EASEMENT
---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
---	PDI/RI BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	TRAFFIC FLOW

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

9	100% RD ADDENDUM	MW	WB	06/02/2022
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7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
Drawn	MW	Designer	RH	

Drafting	JC	Design	WB
Check		Check	

Project	CM	Date	Jun 2, 2022
Coordinator			

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Project No. 11215131
Title

PROJECT TRAFFIC CONTROL PLAN

Sheet No.

C-06

SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

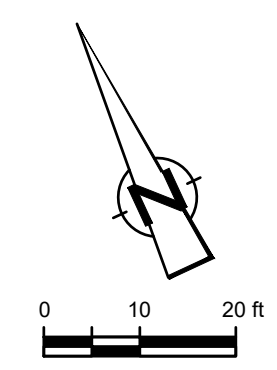
PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdry - 07-24-2020

NOTES:
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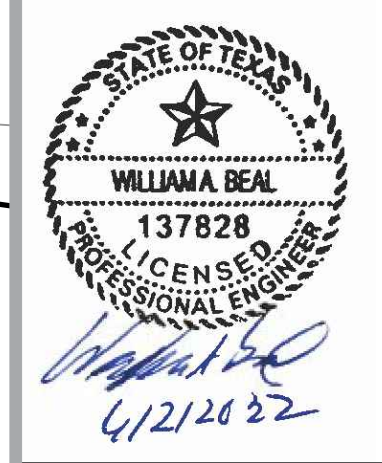
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---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
■ SJSB002	PDV/RI BORING LOCATION
● MW	MONITORING WELL
● P.P.	POWER POLE
● L.P.	LIGHT POLE
○ W.B.L.	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	EXCAVATION CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022

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 Original Size
Arch D
 Bar is one inch on original size drawing
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Project No. 11215131
 Title

NORTHEAST EXCAVATION AREA OVERBURDEN EXCAVATION PLAN

Sheet No.

C-10

NOTES:

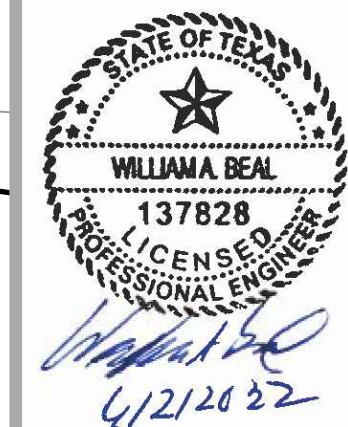
- FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.

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LEGEND	
	PROPERTY BOUNDARY
	PROPERTY EASEMENT
	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	PDI/RI BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	AREA OF IMPACT
	ASPHALT
	CONCRETE
	GRAVEL
	EXCAVATION CONTOUR INTERVAL
	EXCAVATION TOP OF BANK
	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022

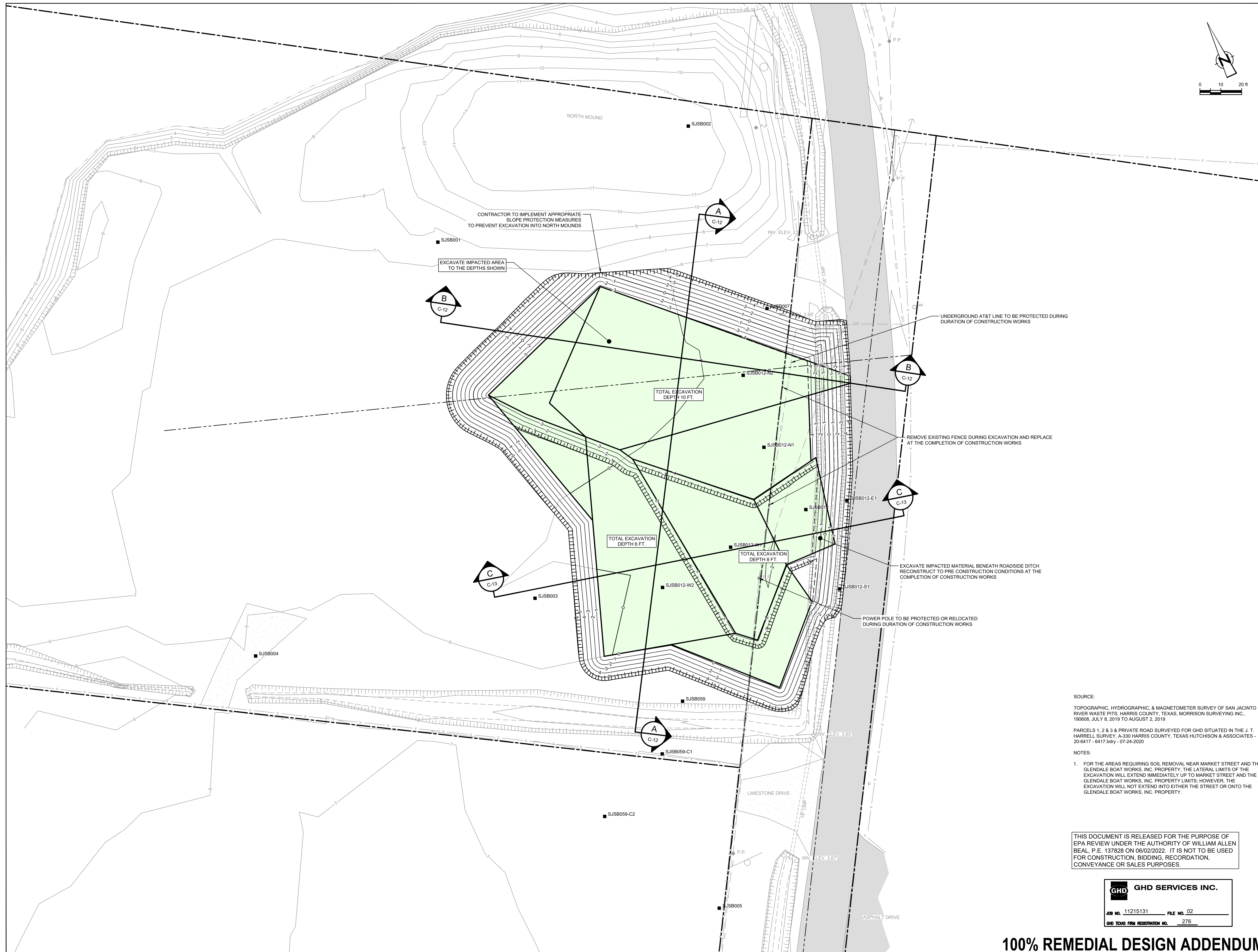
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		Bar is one inch on original size drawing	0 1"

Project No. 11215131

Title
NORTHEAST EXCAVATION AREA FINAL EXCAVATION PLAN

Sheet No.

C-11



SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

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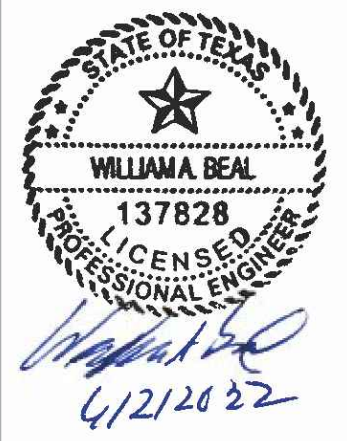
JOB NO. 11215131 FILE NO. 02

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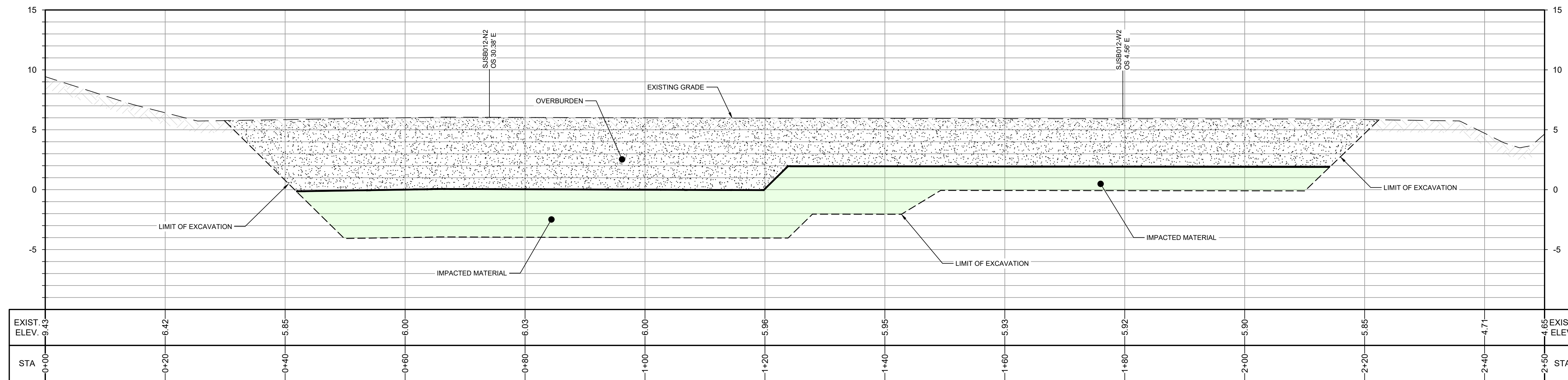
100% REMEDIAL DESIGN ADDENDUM



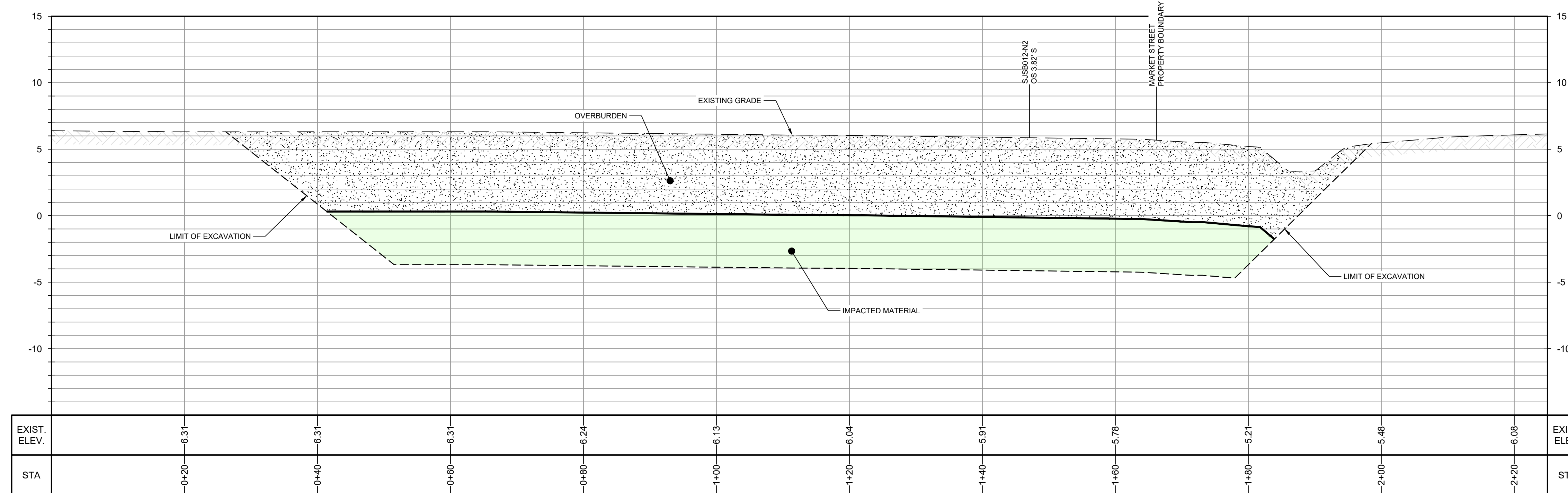
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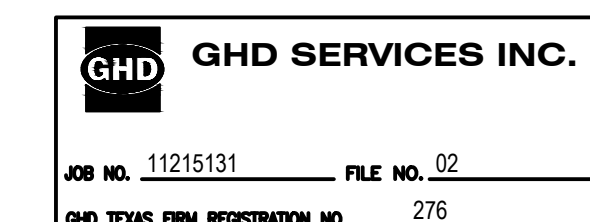


SECTION A
HORIZ: 1"=10'
VERT: 1"=5'
C-10, C-11



SECTION B
HORIZ: 1"=10'
VERT: 1"=5'
C-10, C-11

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Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022
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Original Size		Bar is one inch on original size drawing 0 1"	

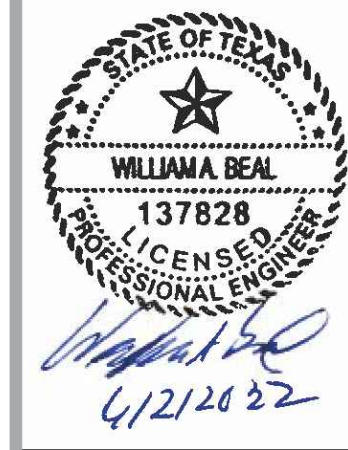
Project No. 11215131
Title: **NORTHEAST EXCAVATION AREA EXCAVATION SECTIONS 1 OF 2**

Sheet No.

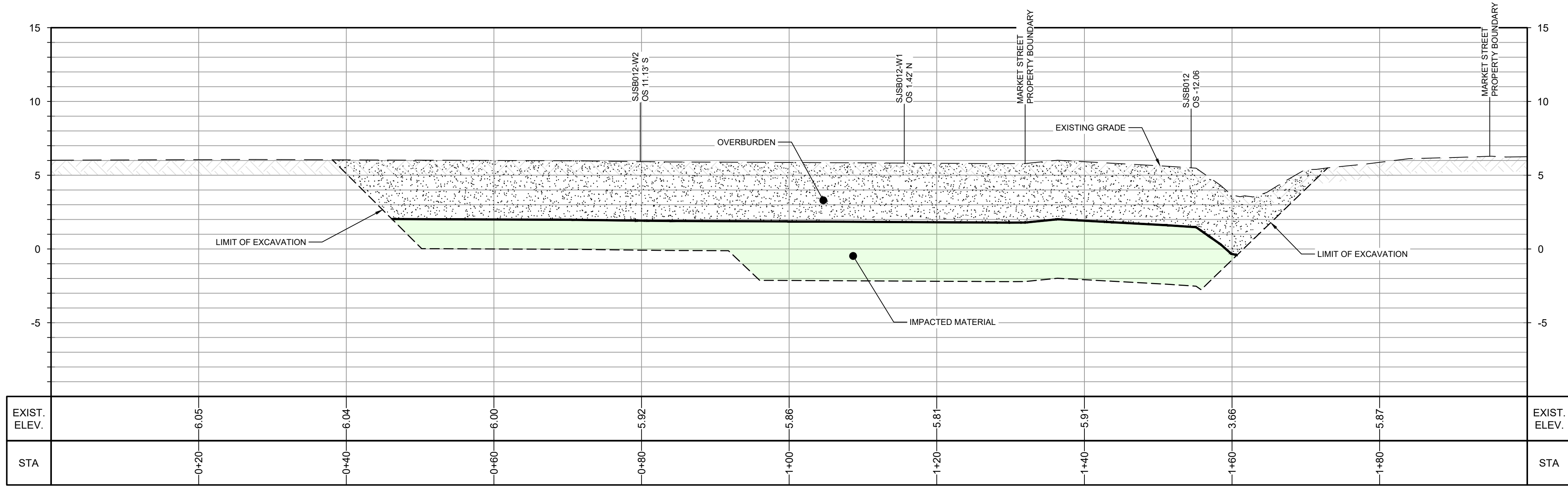
C-12



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SECTION C
HORIZ: 1"=10'
VERT: 1"=5'
C-10,C-11

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Client: **SAN JACINTO RIVER WASTE PITS**
Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022

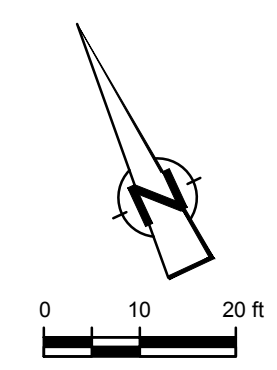
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Scale: **AS SHOWN**

Original Size: **Arch D**
Bar is one inch on original size drawing
0 1"

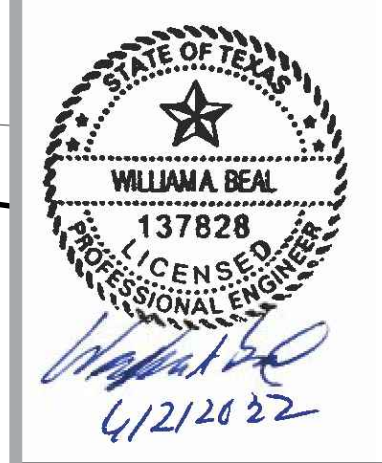
Project No. **11215131**

Title: **NORTHEAST EXCAVATION AREA EXCAVATION SECTIONS 2 OF 2**

Sheet No. **C-13**



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---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
■ SJSB002	PDV/R BORING LOCATION
● MW	MONITORING WELL
● P.P.	POWER POLE
● L.P.	LIGHT POLE
○ WELL	WELL
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	RESTORATION CONTOUR INTERVAL
---	RESTORATION LIMIT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIATION DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
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4	100% EPA SUBMITTAL	MW	RH	12/18/2020
No.	Issue	Drawn	Approved	Date
Drawn	JC		Designer RH	
Drafting	MW		Design Check WB	
Project Coordinator	CM		Date Jun 1, 2022	
			Scale 1" = 20'	

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

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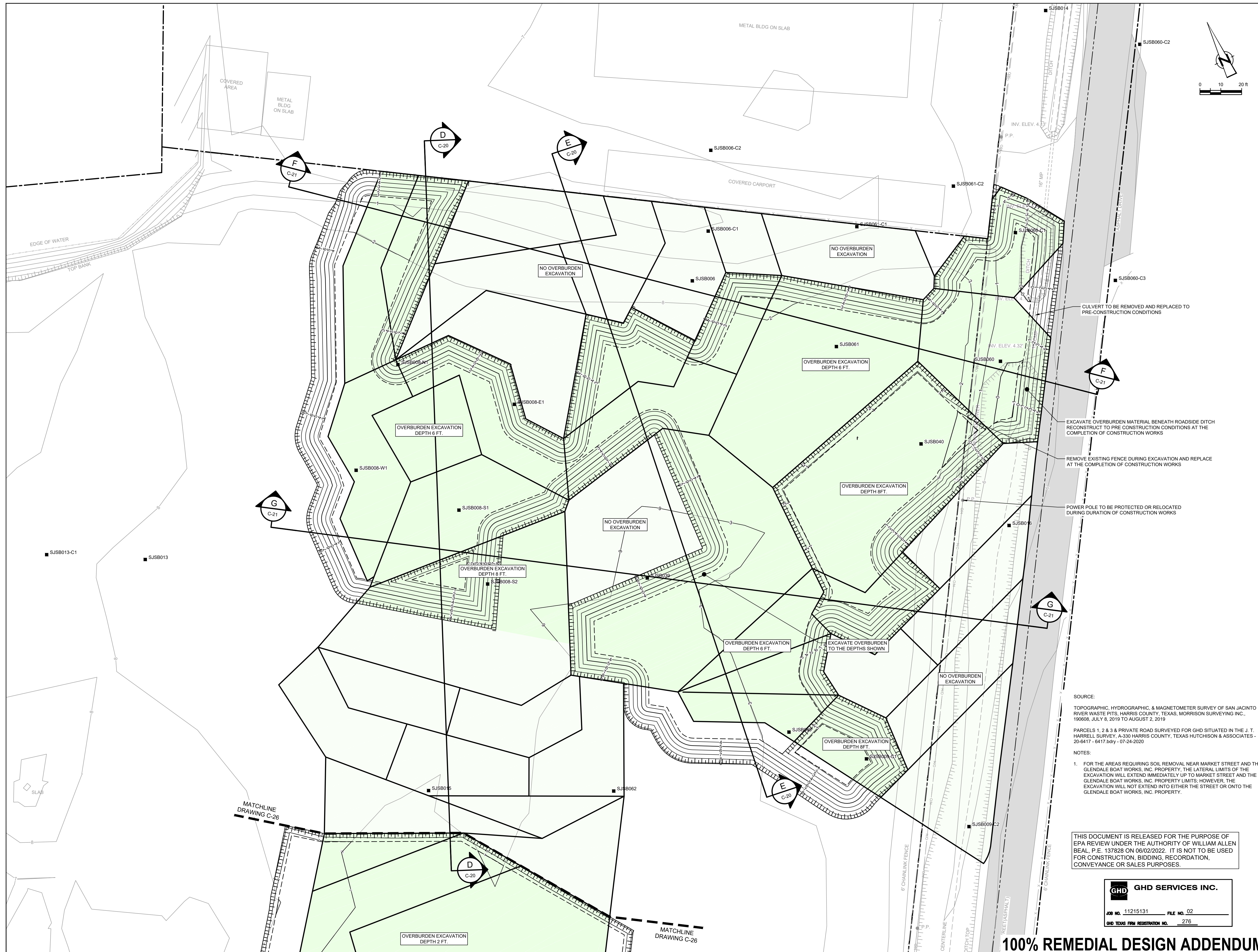
JOB NO. 11215131 FILE NO. 02
 GHD TEXAS FIRM REGISTRATION NO. 276

Original Size
Arch D
 Bar is one inch on original size drawing
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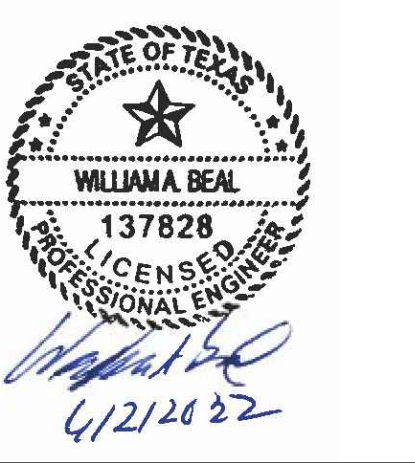
Project No. 11215131
 Title
NORTHEAST EXCAVATION AREA RESTORATION PLAN

Sheet No.
C-14
 Sheet 14 of 46

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LEGEND

---	PROPERTY BOUNDARY
- - -	PROPERTY EASEMENT
...	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
---	POI/R BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	PROPOSED CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN POUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022
Original Size	Arch D	Scale	1" = 20'
		Bar is one inch on original size drawing	0 1"

Project No. 11215131
 Title

NORTH CENTRAL EXCAVATION AREA OVERBURDEN EXCAVATION PLAN

Sheet No.

C-18
 Sheet 15 of 46

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

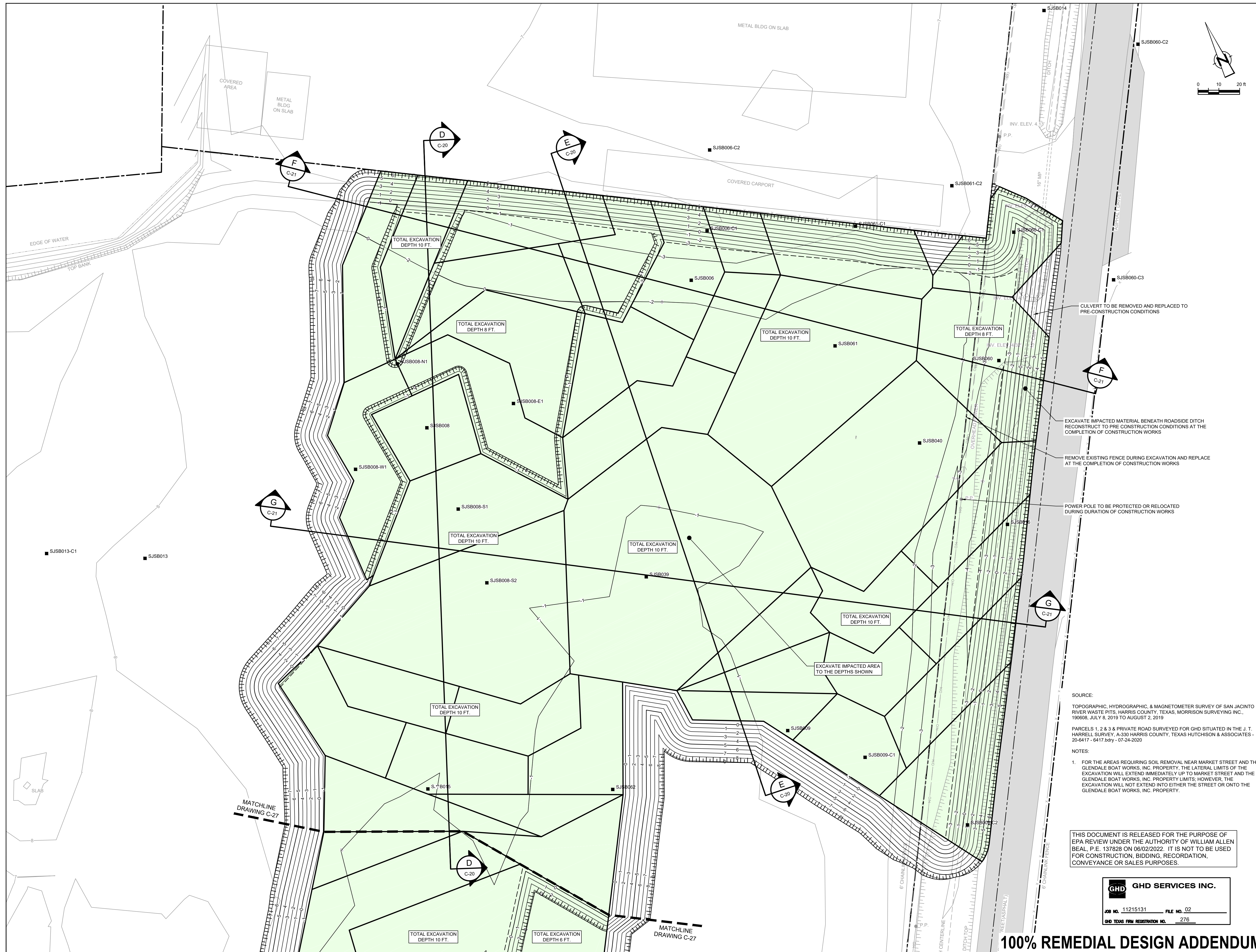
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NOTES:
 1. FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.

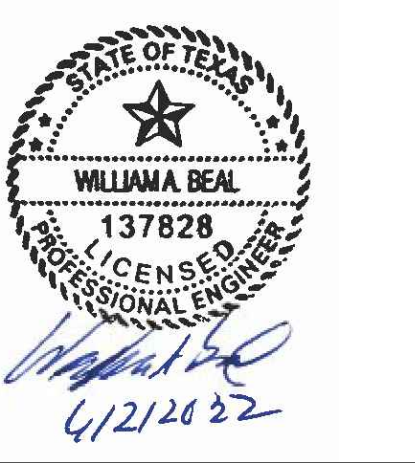
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 JOB NO. 11215131 FILE NO. 02
 GHD TEXAS FIRM REGISTRATION NO. 276

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LEGEND

---	PROPERTY BOUNDARY
---	PROPERTY EASEMENT
---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL
---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
---	POI/RI BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	EXCAVATION CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN POUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022

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 Original Size
Arch D
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 0 1"

Project No. 11215131
 Title

NORTH CENTRAL EXCAVATION AREA FINAL EXCAVATION PLAN

Sheet No.

C-19
 Sheet 16 of 46

- CULVERT TO BE REMOVED AND REPLACED TO PRE-CONSTRUCTION CONDITIONS
- EXCAVATE IMPACTED MATERIAL BENEATH ROADSIDE DITCH RECONSTRUCT TO PRE CONSTRUCTION CONDITIONS AT THE COMPLETION OF CONSTRUCTION WORKS
- REMOVE EXISTING FENCE DURING EXCAVATION AND REPLACE AT THE COMPLETION OF CONSTRUCTION WORKS
- POWER POLE TO BE PROTECTED OR RELOCATED DURING DURATION OF CONSTRUCTION WORKS
- EXCAVATE IMPACTED AREA TO THE DEPTHS SHOWN

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

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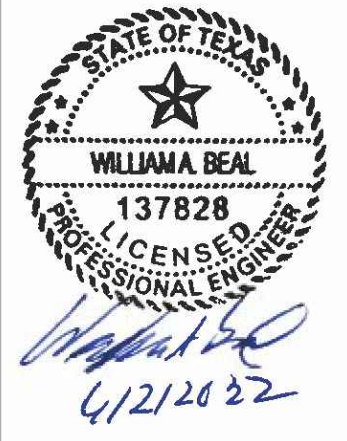
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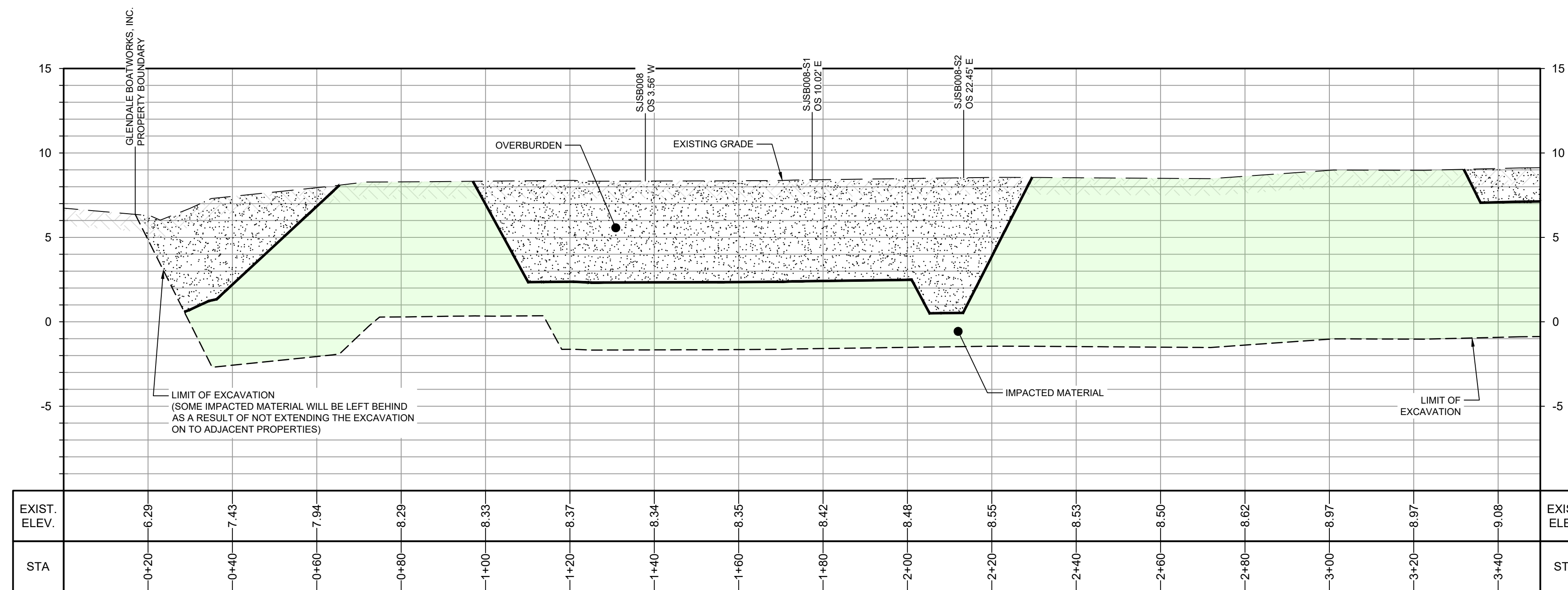
100% REMEDIAL DESIGN ADDENDUM



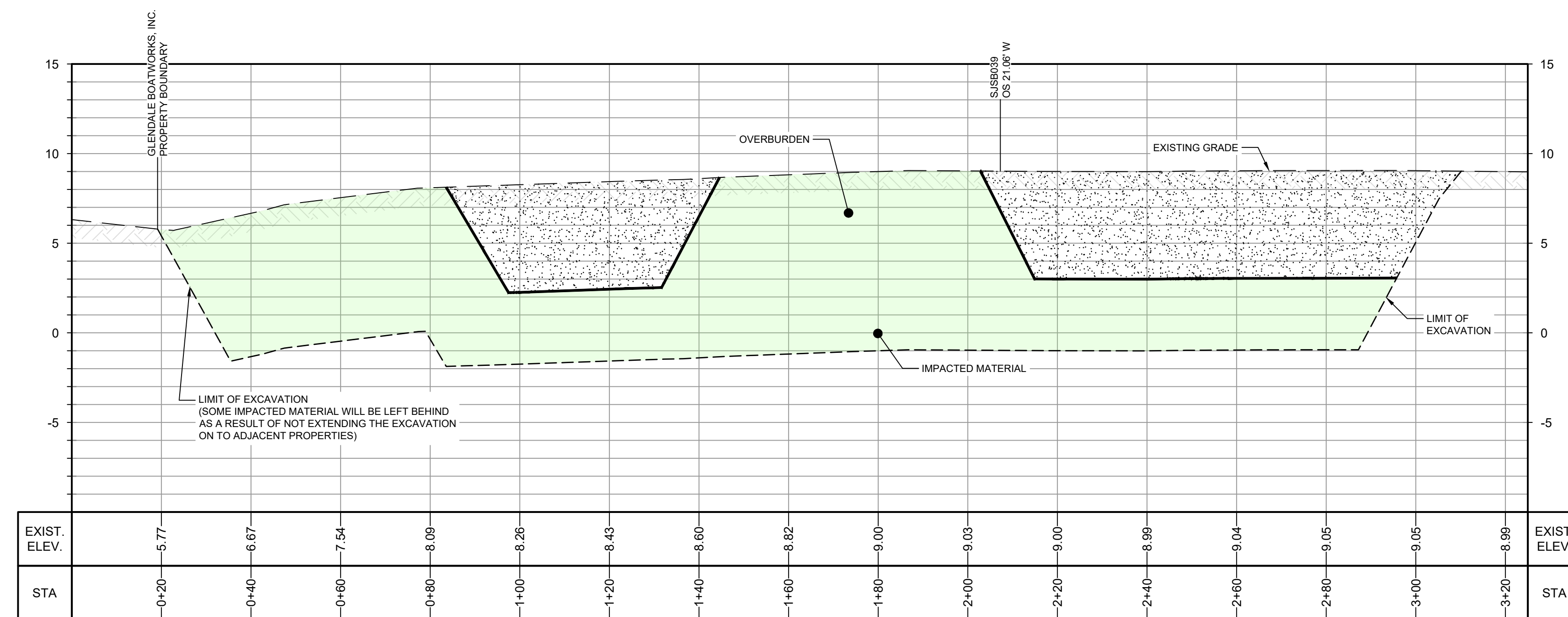
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SECTION D
HORIZ: 1"=20'
VERT: 1"=5'
C-18,C-19



SECTION E
HORIZ: 1"=20'
VERT: 1"=5'
C-18,C-19

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100% REMEDIAL DESIGN ADDENDUM

Client: **SAN JACINTO RIVER WASTE PITS**
Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022
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Original Size		Bar is one inch on original size drawing 0 1"	

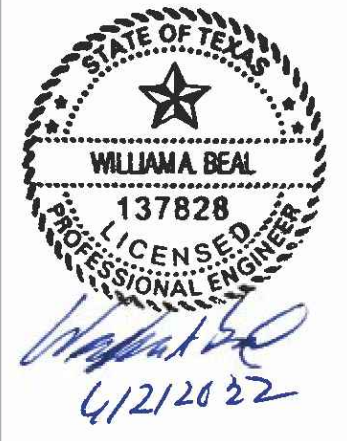
Project No. 11215131
Title: **NORTH CENTRAL EXCAVATION AREA EXCAVATION SECTIONS 1 OF 2**

Sheet No.

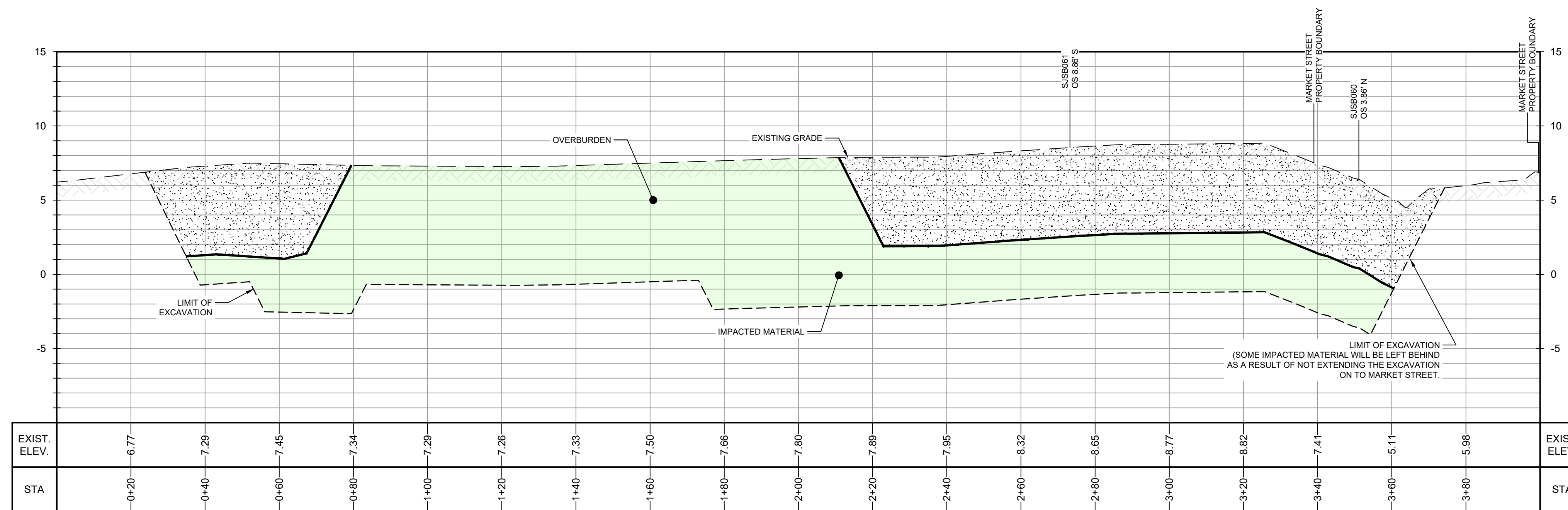
C-20



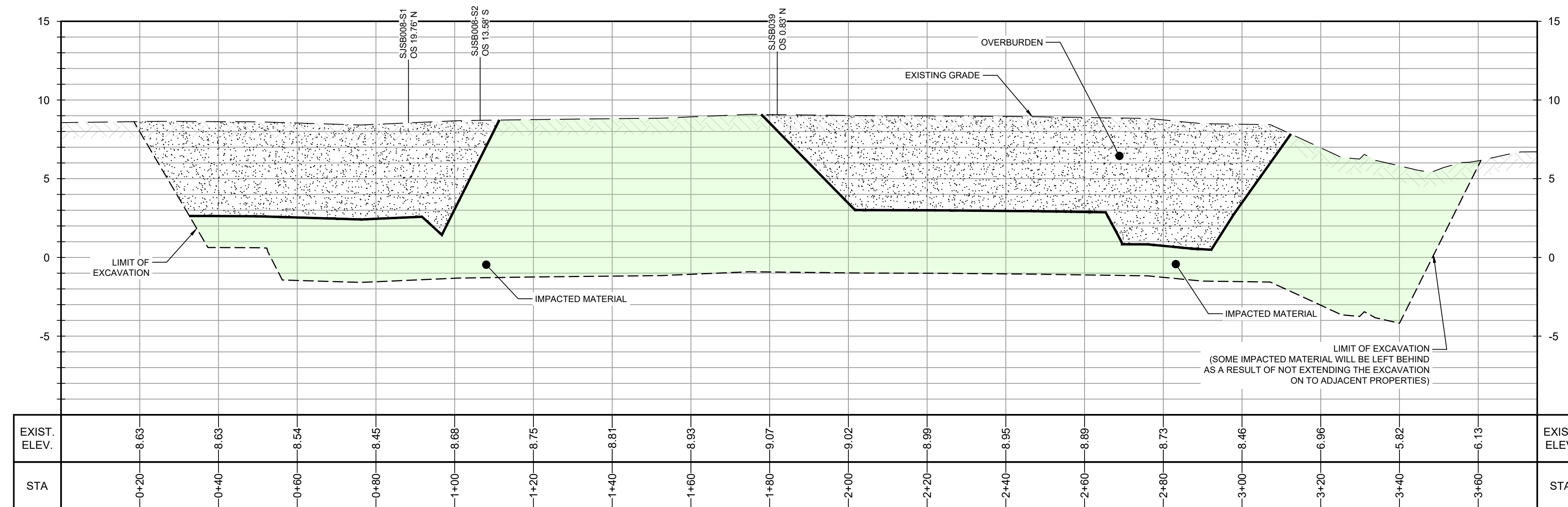
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SECTION F
HORIZ: 1"=20'
VERT: 1"=5'
C-18,C-19



SECTION G
HORIZ: 1"=20'
VERT: 1"=5'
C-18,C-19

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100% REMEDIAL DESIGN ADDENDUM

Client **SAN JACINTO RIVER WASTE PITS**
Project **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020
No.	Issue	Drawn	Approved	Date
Drawn JC		Designer RH		
Drafting Check MW		Design Check WB		
Project Coordinator CM		Date Jun 1, 2022		
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Original Size		Bar is one inch on original size drawing 0 1"		

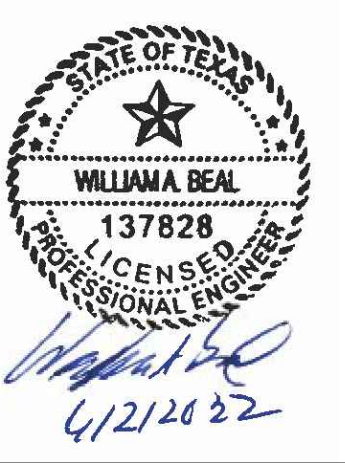
Project No. 11215131
Title **NORTH CENTRAL EXCAVATION AREA EXCAVATION SECTIONS 2 OF 2**

Sheet No.

C-21



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	PROPERTY EASEMENT
	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	PD/RI BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	ASPHALT
	CONCRETE
	GRAVEL
	RESTORATION CONTOUR INTERVAL
	RESTORATION LIMIT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN POUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022
		Scale	1" = 20'

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019
 PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdy - 07-24-2020

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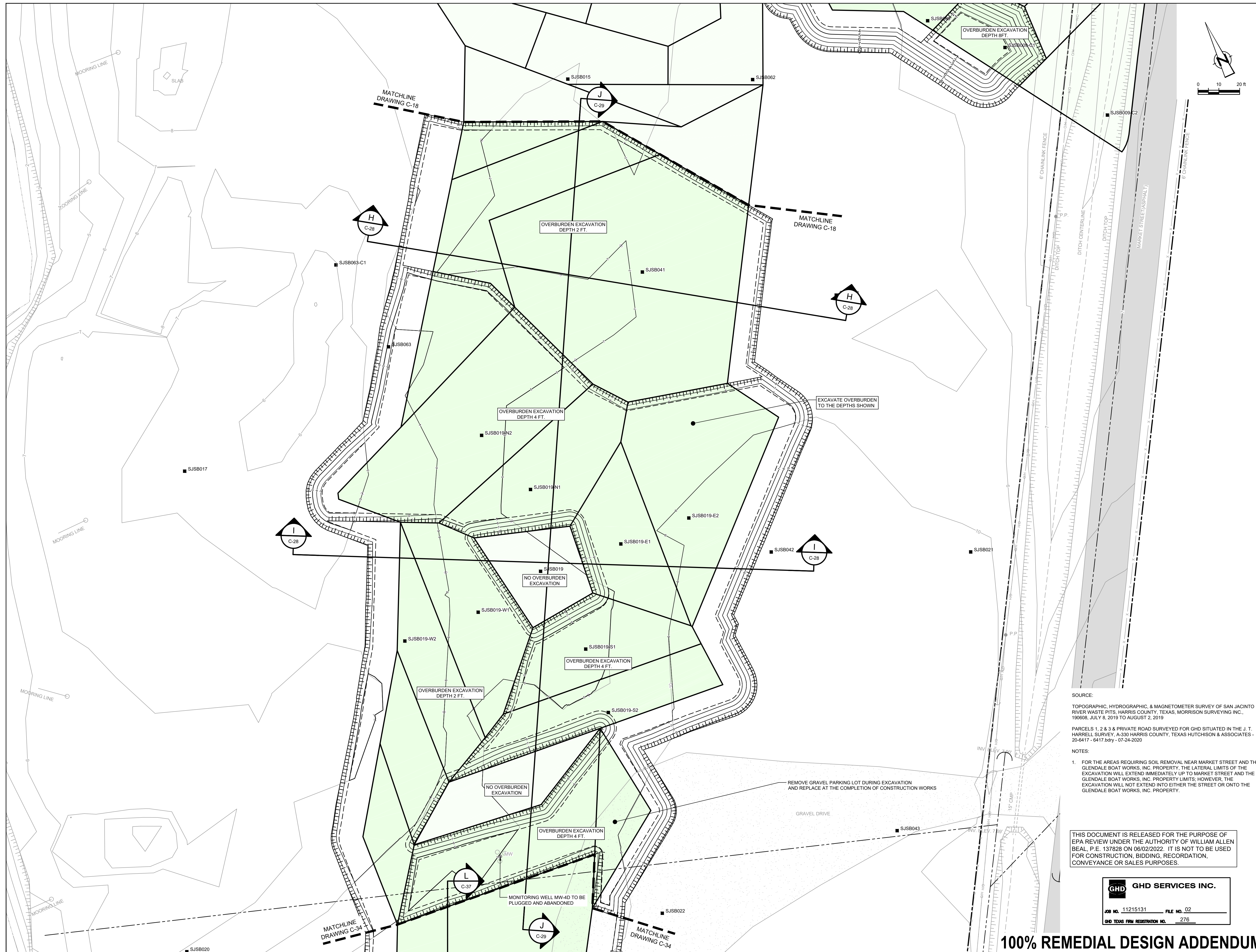
GHD SERVICES INC.
 JOB NO. 11215131 FILE NO. 02
 GHD TEXAS FIRM REGISTRATION NO. 276

100% REMEDIAL DESIGN ADDENDUM

Original Size
Arch D
 Bar is one inch on original size drawing
 0 1"

Project No. 11215131
 Title
NORTH CENTRAL EXCAVATION AREA RESTORATION PLAN

Sheet No.
C-22
 Sheet 19 of 46



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LEGEND

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---	PROPERTY EASEMENT
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---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	UNDERGROUND AT&T LINE
■	SJSB002
●	MW
●	P.P.
●	L.P.
○	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	EXCAVATION CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN POUNDMENT HARRIS COUNTY, TEXAS

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
Drawn	JC	Designer	RH	
Drafting Check	MW	Design Check	WB	
Project Coordinator	CM	Date	Jun 2, 2022	

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Scale 1" = 20'

Original Size
Arch D
Bar is one inch on original size drawing
0 1"

Project No. 11215131
Title

SOUTH CENTRAL EXCAVATION AREA OVERBURDEN EXCAVATION PLAN

Sheet No.

C-26

Sheet 20 of 46

SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

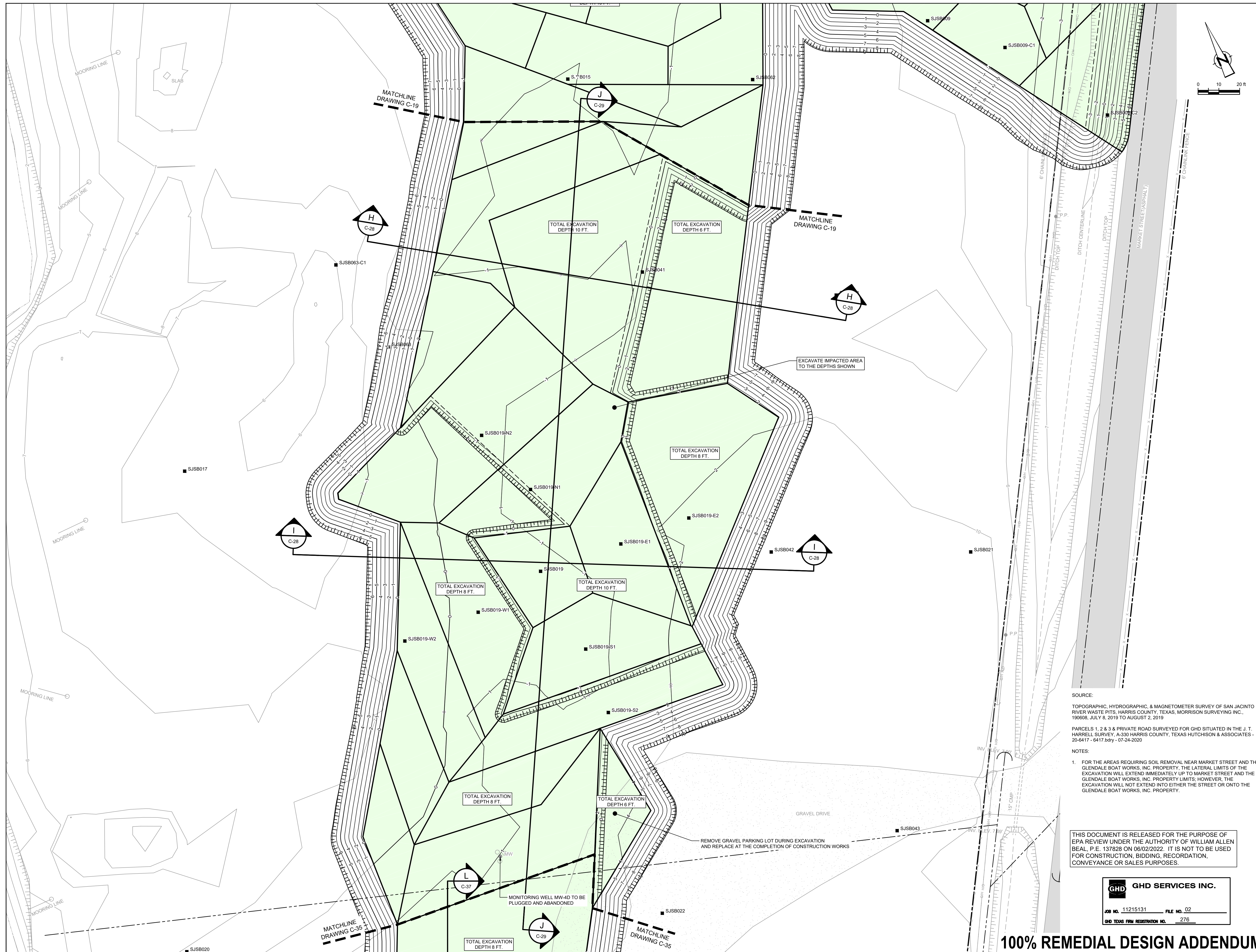
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NOTES:
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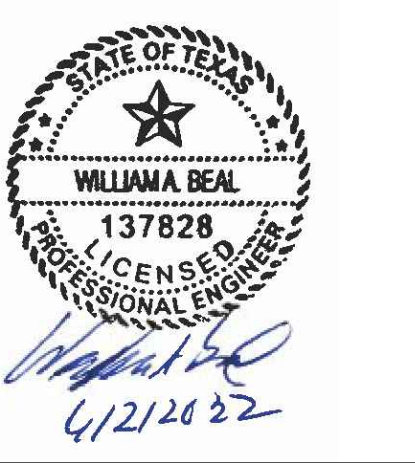
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JOB NO. 11215131 FILE NO. 02
GHD TEXAS FIRM REGISTRATION NO. 276

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LEGEND

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---	GUARDRAIL
---	UNDERGROUND CCTV LINE
---	POHRI BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	EXCAVATION CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022

Original Size
Arch D
 Bar is one inch on original size drawing
 0 1"

Project No. 11215131

Title
SOUTH CENTRAL EXCAVATION AREA FINAL EXCAVATION PLAN

Sheet No.

C-27
 Sheet 21 of 46

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

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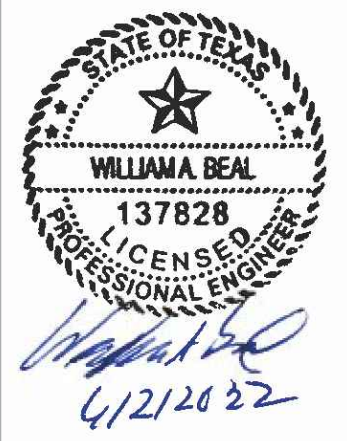
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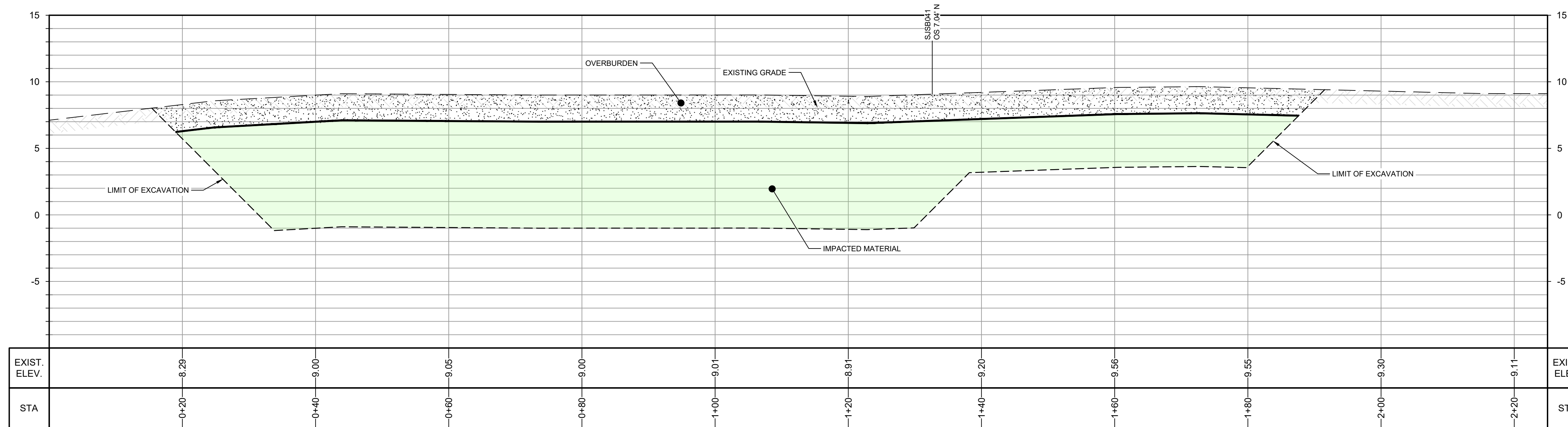
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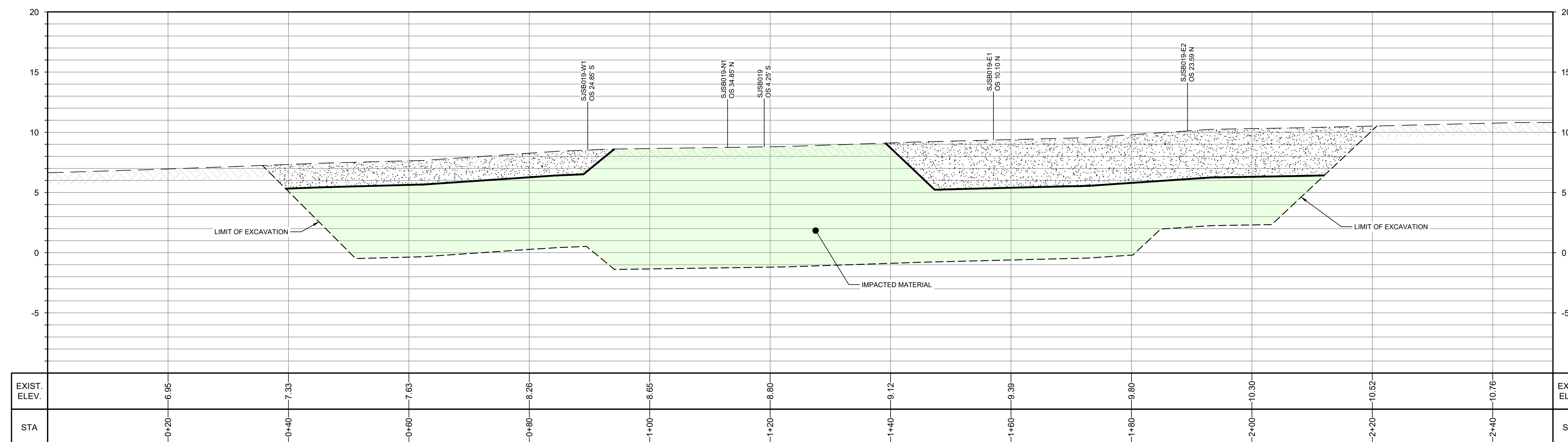
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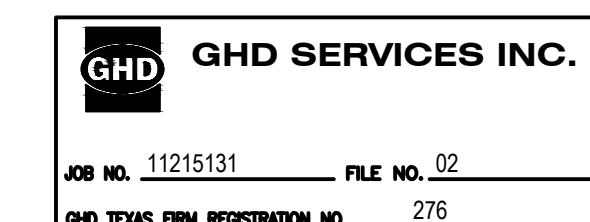


SECTION **H**
HORIZ: 1"=10'
VERT: 1"=5'
C-26, C-27



SECTION **I**
HORIZ: 1"=10'
VERT: 1"=5'
C-26, C-27

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100% REMEDIAL DESIGN ADDENDUM

Client **SAN JACINTO RIVER WASTE PITS**
Project **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

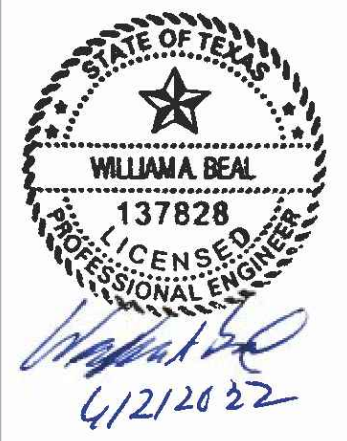
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No.	Issue	Drawn	Approved	Date
Drawn	JC	Designer	RH	
Drafting Check	MW	Design Check	WB	
Project Coordinator	CM	Date	Jun 1, 2022	
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Original Size	Bar is one inch on original size drawing			
Arch D		0 1"		

Project No. **11215131**
Title **SOUTH CENTRAL EXCAVATION AREA EXCAVATION SECTIONS 1 OF 2**

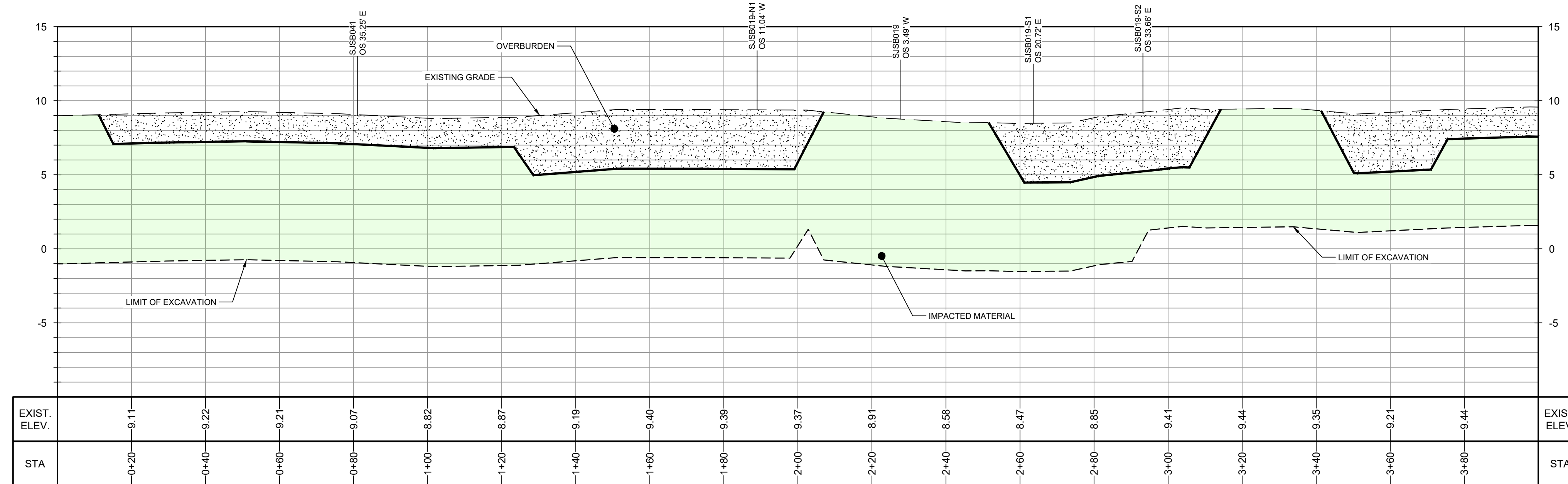
Sheet No. **C-28**



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SECTION **J**
HORIZ: 1"=20'
VERT: 1"=5'

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Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

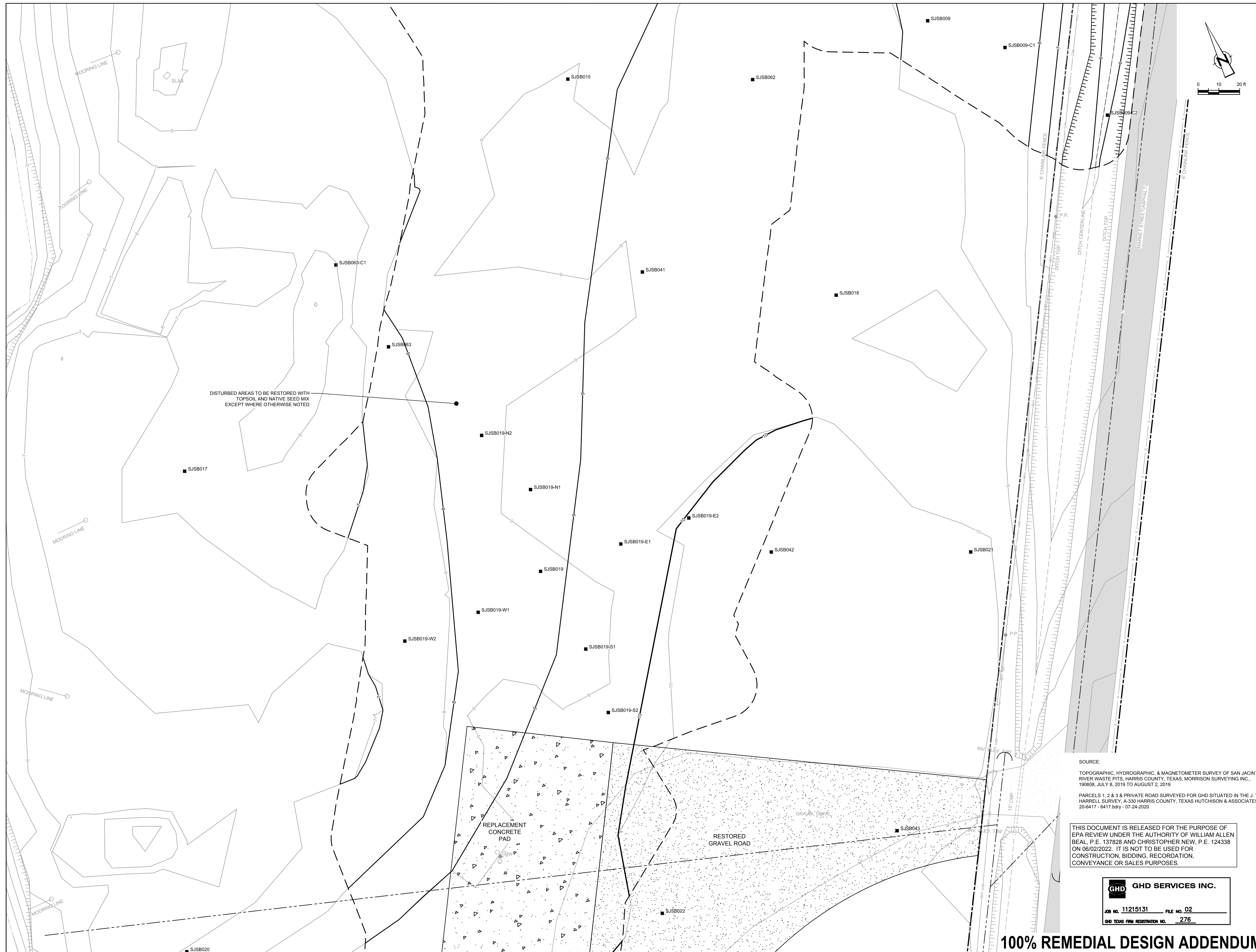
No.	Issue	Drawn	Approved	Date
Drawn	JC	Designer	RH	
Drafting Check	MW	Design Check	WB	
Project Coordinator	CM	Date	Jun 1, 2022	

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Original Size
Arch D
Bar is one inch on original size drawing
0 1"

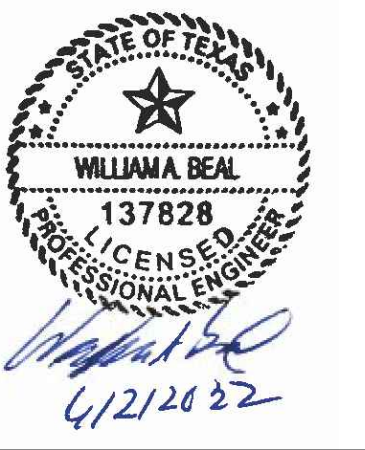
Project No. 11215131
Title
SOUTH CENTRAL EXCAVATION AREA EXCAVATION SECTIONS 2 OF 2

Sheet No.
C-29

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LEGEND	
	PROPERTY BOUNDARY
	PROPERTY EASEMENT
	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	PDV/RI BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	ASPHALT
	CONCRETE
	GRAVEL
	RESTORATION CONTOUR INTERVAL
	RESTORATION LIMIT

Client
SAN JACINTO RIVER WASTE PITS
 Project
REMEDIAL DESIGN SOUTHERN POUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022

Scale 1" = 20'
 Original Size
Arch D
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Project No. 11215131
 Title
SOUTH CENTRAL EXCAVATION AREA RESTORATION PLAN

Sheet No.
C-30
 Sheet 24 of 46

SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdy - 07-24-2020

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LEGEND	
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	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	POI/R BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	AREA OF IMPACT
	ASPHALT
	CONCRETE
	GRAVEL
	EXCAVATION CONTOUR INTERVAL
	EXCAVATION TOP OF BANK
	EXCAVATION TOE OF SLOPE
	SHEET PILE WALL ALIGNMENT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 2, 2022

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Project No. 11215131
Title

SOUTHWEST EXCAVATION AREA OVERBURDEN EXCAVATION PLAN

Sheet No.

C-34



SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019
PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417 bdry - 07-24-2020

- NOTES:
- FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER, THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.
 - FOR THE AREAS REQUIRING SOIL REMOVAL ON THE SOUTHWEST PORTION OF THE SOUTHERN IMPOUNDMENT, A BULKHEAD WILL BE INSTALLED ADJACENT TO THE SAN JACINTO RIVER. THE EXCAVATION WILL BE COMPLETED UP TO THE LATERAL LIMIT OF THIS BULKHEAD.
 - EXISTING CONCRETE PAD TO BE REMOVED DURING REMEDIAL ACTION AND WILL BE REPLACED BASED ON AGREEMENT BETWEEN THE LANDOWNER AND RESPONSIBLE PARTY.

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	PROPERTY EASEMENT
	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	POI/R BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	AREA OF IMPACT
	ASPHALT
	CONCRETE
	GRAVEL
	EXCAVATION CONTOUR INTERVAL
	EXCAVATION TOP OF BANK
	EXCAVATION TOE OF SLOPE
	SHEET PILE WALL ALIGNMENT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
Drawn	JC	Designer	RH	
Drafting Check	MW	Design Check	WB	
Project Coordinator	CM	Date	Jun 2, 2022	

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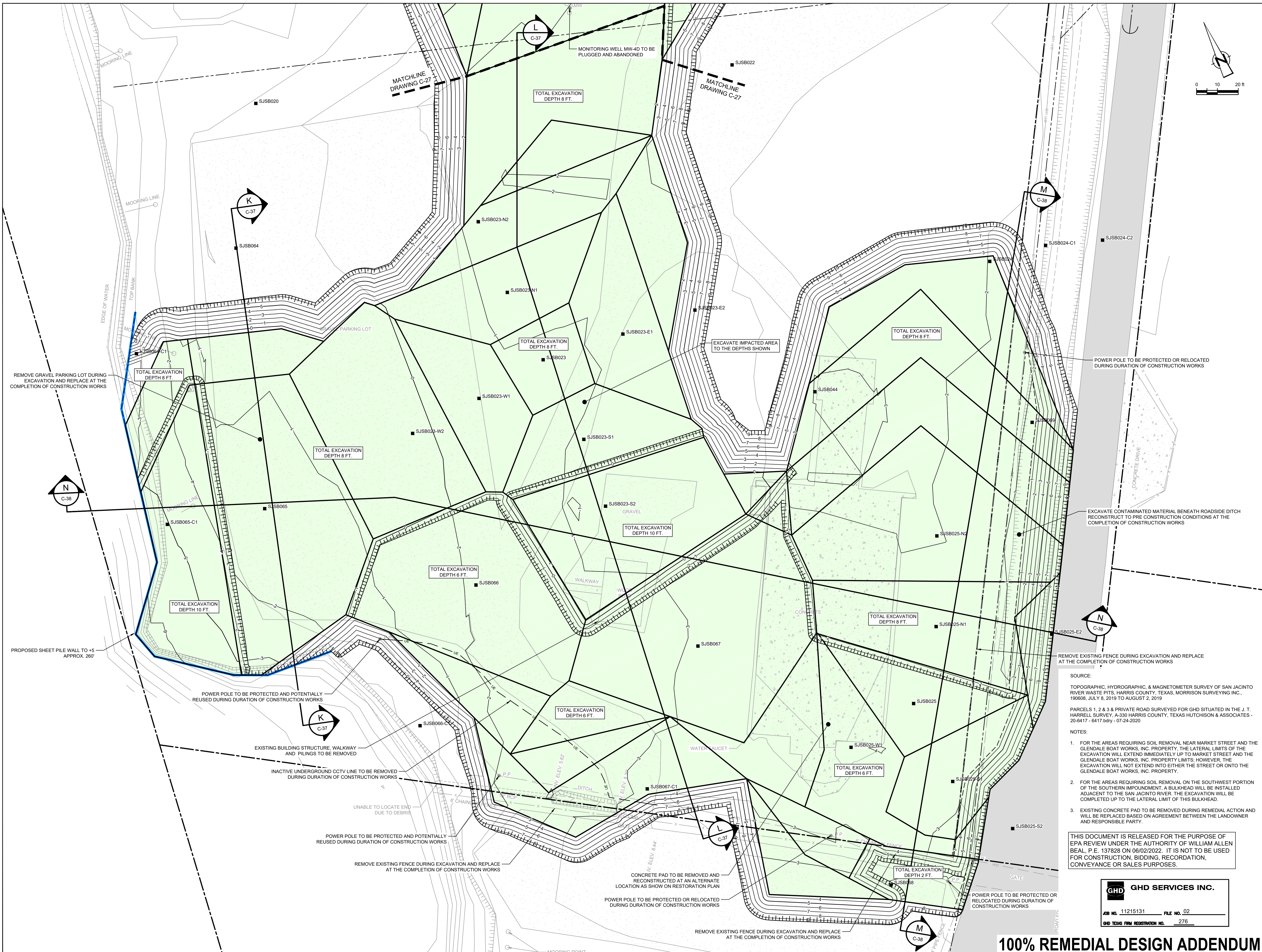
Original Size
Arch D
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0 1"

Project No. 11215131
Title

SOUTHWEST EXCAVATION AREA FINAL EXCAVATION PLAN

Sheet No.

C-35



SOURCE:
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PARCELS 1, 2 & 3 PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417 bdry - 07-24-2020

NOTES:
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3. EXISTING CONCRETE PAD TO BE REMOVED DURING REMEDIAL ACTION AND WILL BE REPLACED BASED ON AGREEMENT BETWEEN THE LANDOWNER AND RESPONSIBLE PARTY.

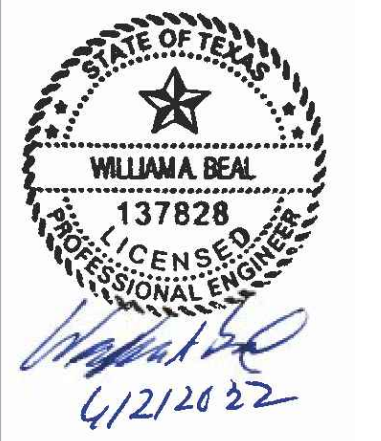
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	PROPERTY EASEMENT
	EXISTING CONTOUR INTERVAL
	FENCELINE
	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	SJSB002
	MW
	P.P.
	L.P.
	WELL
	AREA OF IMPACT
	ASPHALT
	CONCRETE
	GRAVEL
	EXCAVATION CONTOUR INTERVAL
	EXCAVATION TOP OF BANK
	EXCAVATION TOE OF SLOPE
	SHEET PILE WALL ALIGNMENT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	MW	WB	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
6	100% EPA SUBMITTAL	MW	RH	12/18/2020

Drawn **JC** Designer **RH**

Drafting Check **MW** Design Check **WB**

Project Coordinator **CM** Date **Jun 2, 2022**

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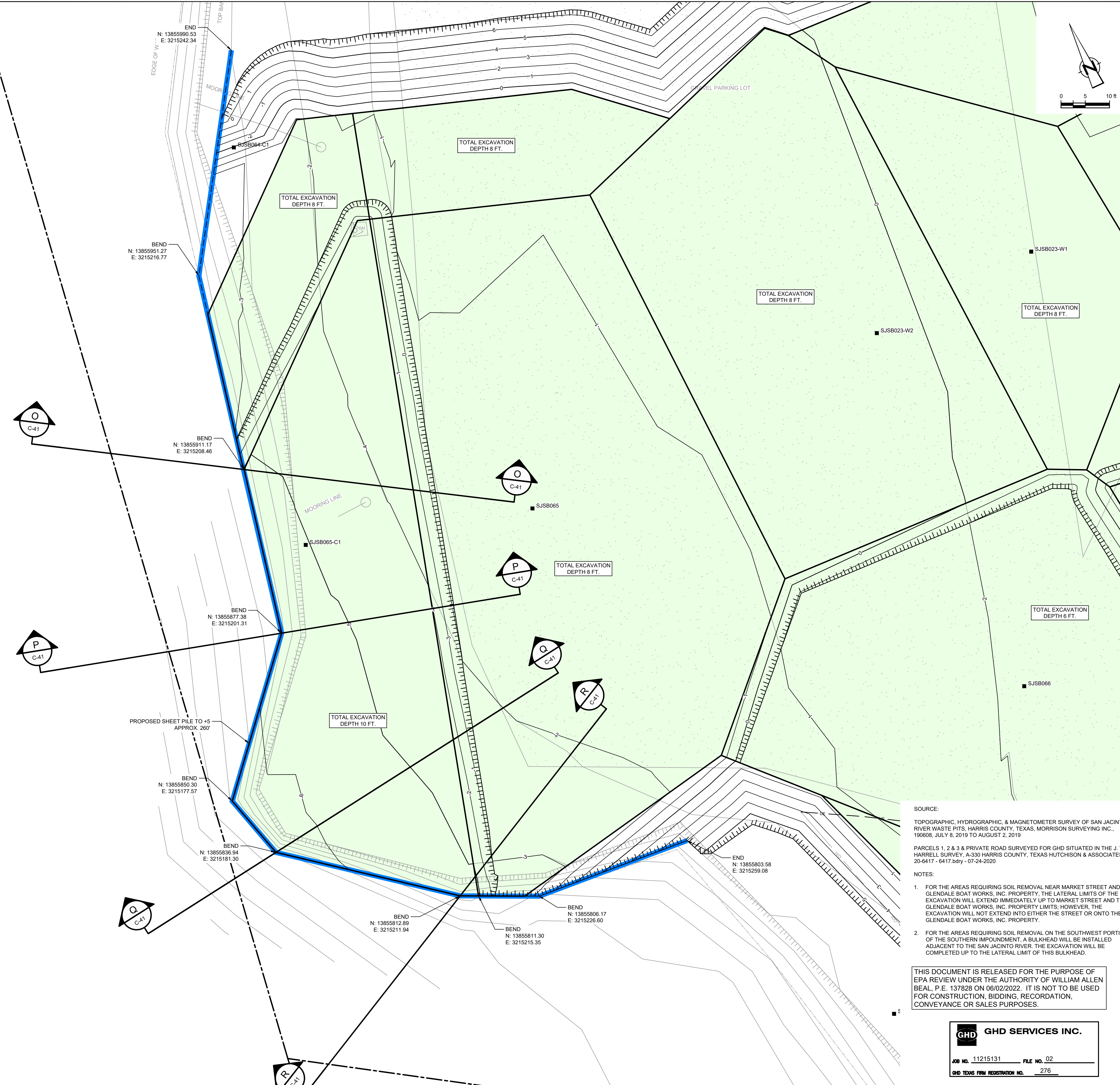
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Project No. **11215131**

Title **SOUTHWEST EXCAVATION AREA SHEET PILE WALL EXCAVATION PLAN**

Sheet No. **C-36**

Sheet 27 of 46



SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS. MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

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NOTES:
1. FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.
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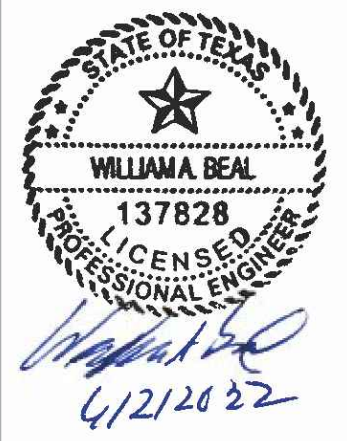
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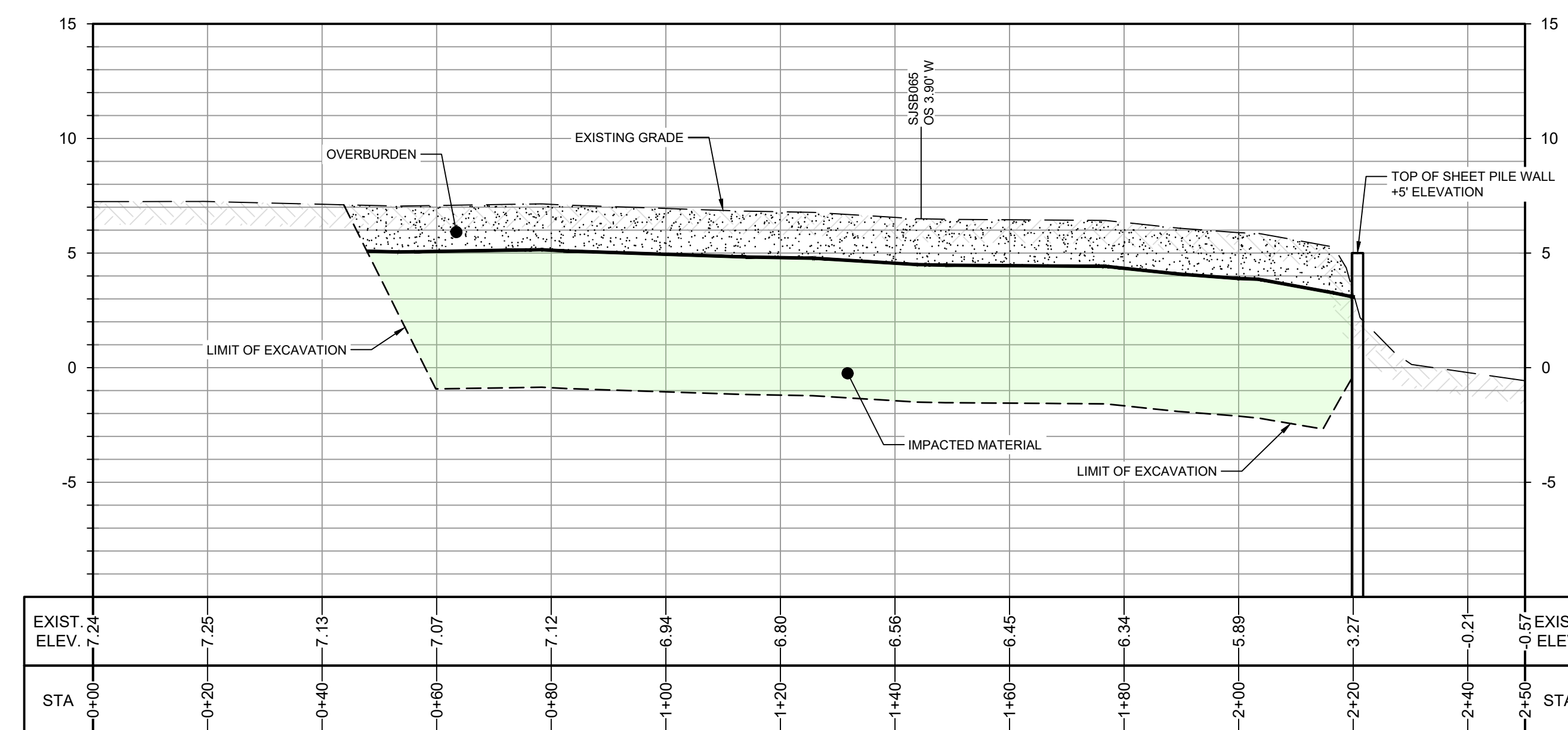
100% REMEDIAL DESIGN ADDENDUM



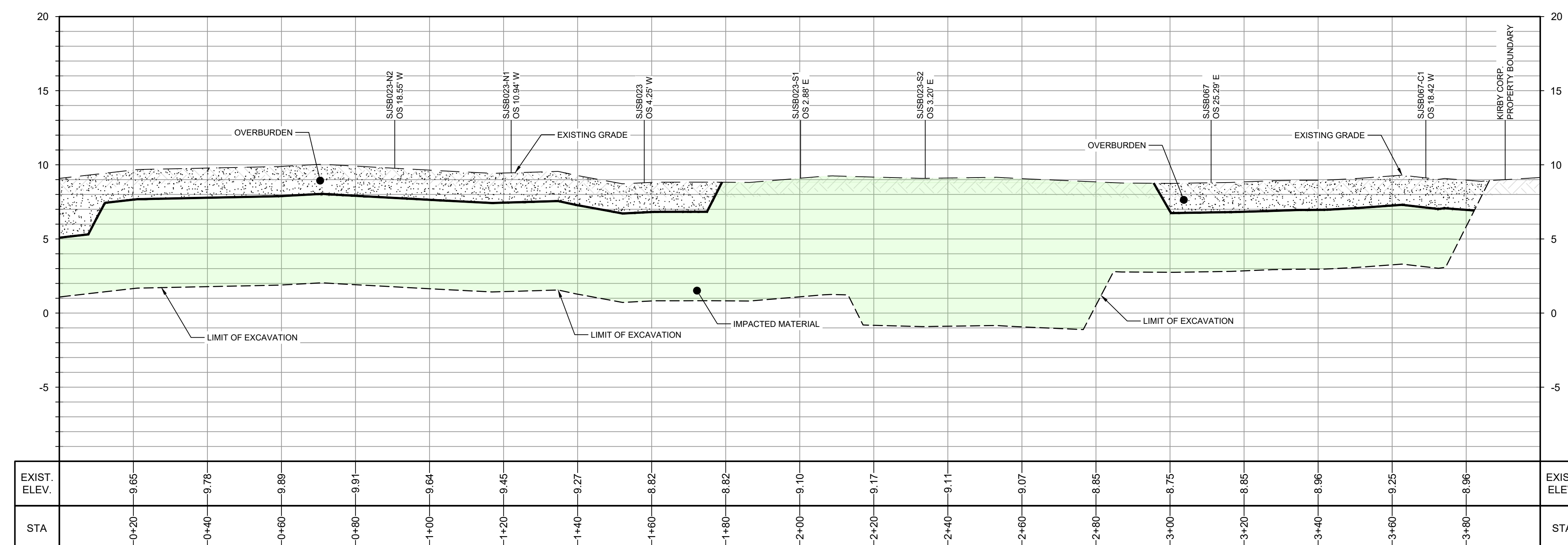
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SECTION K
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VERT: 1"=5'



SECTION L
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JOB NO. 11215131 FILE NO. 02
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Client: **SAN JACINTO RIVER WASTE PITS**
Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020
No.	Issue	Drawn	Approved	Date
Drawn JC		Designer RH		
Drafting Check MW		Design Check WB		
Project Coordinator CM		Date Jun 1, 2022		
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Original Size		Bar is one inch on original size drawing		
Arch D		0 1"		

Project No. 11215131

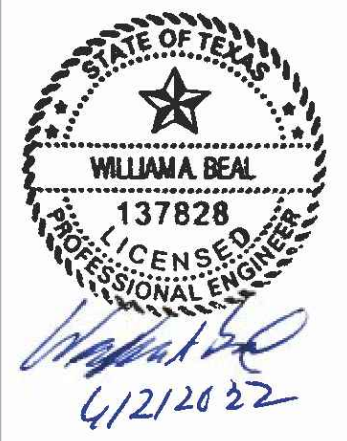
Title: **SOUTHWEST EXCAVATION AREA EXCAVATION SECTIONS 1 OF 2**

Sheet No.

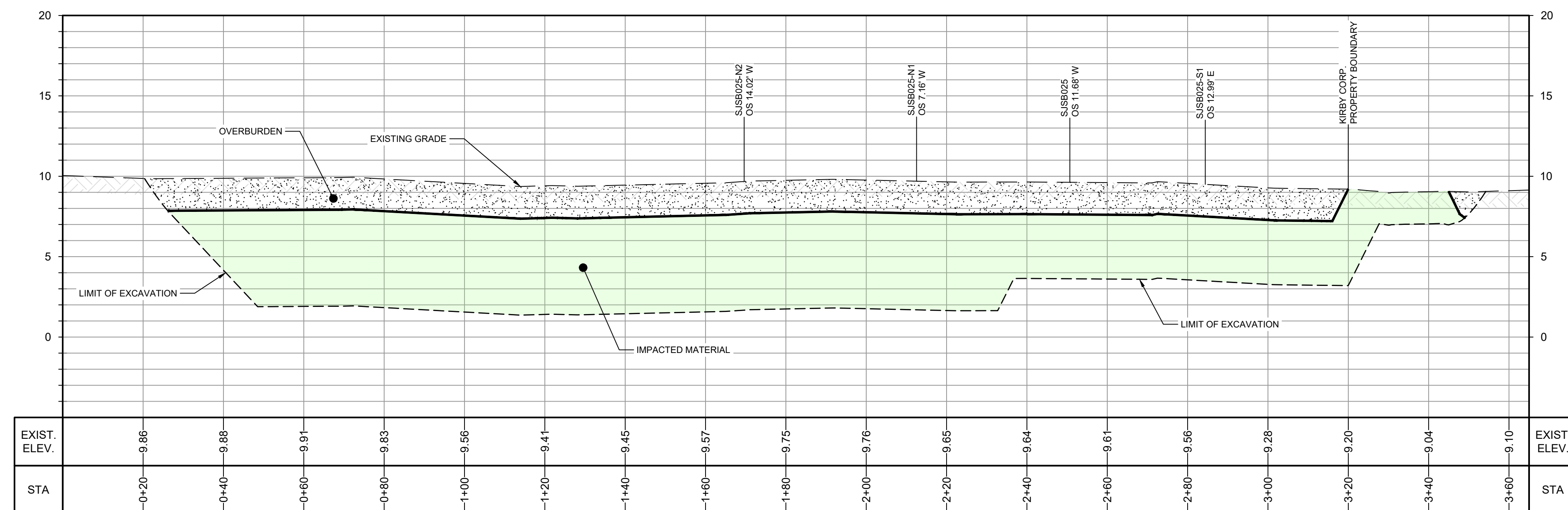
C-37



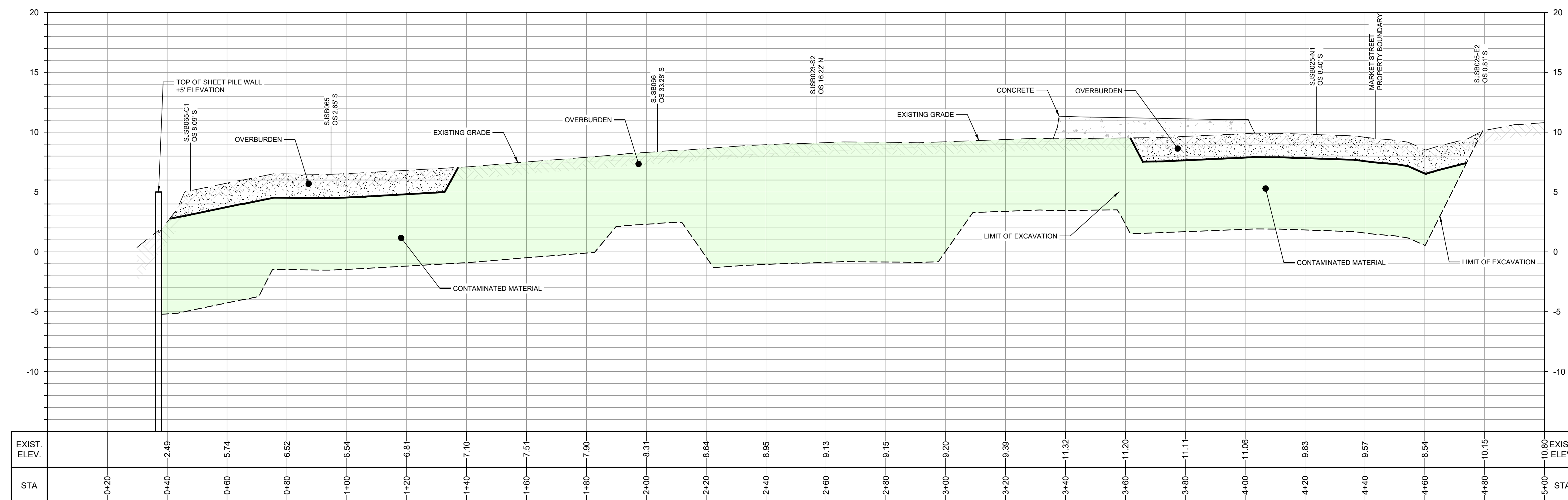
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SECTION M
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VERT: 1"=5'



SECTION N
HORIZ: 1"=20'
VERT: 1"=5'

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100% REMEDIAL DESIGN ADDENDUM

Client: **SAN JACINTO RIVER WASTE PITS**
Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

7	100% RD ADDENDUM	MW	WB	06/02/2022
6	FOR CLIENT REVIEW	MW	RH	05/06/2022
5	100% EPA RE-SUBMITTAL	MW	RH	04/19/2021
4	100% EPA SUBMITTAL	MW	RH	12/18/2020

No.	Issue	Drawn	Approved	Date
Drawn	JC	Designer	RH	

Drafting Check	MW	Design Check	WB
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Project Coordinator	CM	Date	Jun 1, 2022
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Original Size	Arch D	Bar is one inch on original size drawing
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Project No.	11215131
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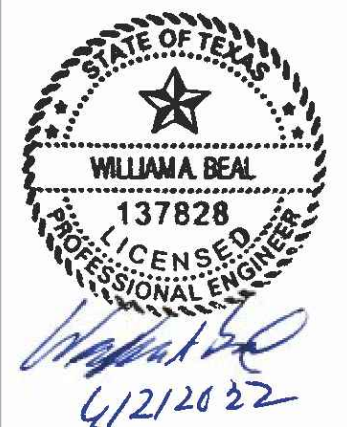
Title: **SOUTHWEST EXCAVATION AREA EXCAVATION SECTIONS 2 OF 2**

Sheet No.	C-38
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C-38



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	EXISTING CONTOUR INTERVAL
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	SHORELINE
	TOP OF BANK
	TOE OF SLOPE
	OVERHEAD ELECTRICAL
	GUARDRAIL
	UNDERGROUND CCTV LINE
	UNDERGROUND AT&T LINE
	PDI/RI BORING LOCATION
	MONITORING WELL
	POWER POLE
	LIGHT POLE
	WELL
	ASPHALT
	CONCRETE
	GRAVEL
	RESTORATION CONTOUR INTERVAL
	RESTORATION LIMIT
	SHEET PILE WALL ALIGNMENT

Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
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Drawn	JC	Designer	RH
Drafting Check	MW	Design Check	WB
Project Coordinator	CM	Date	Jun 1, 2022

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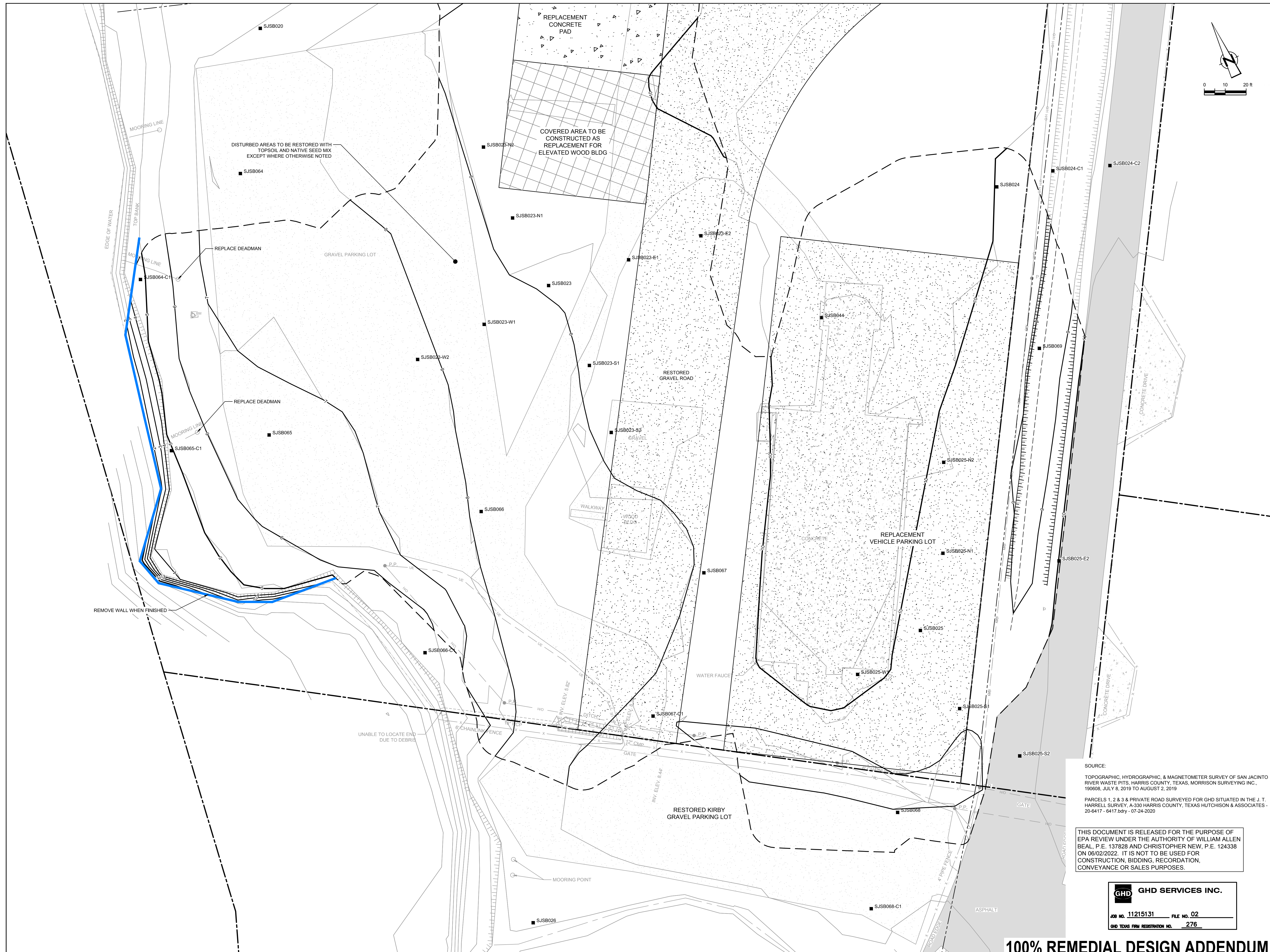
Original Size
Arch D
 Bar is one inch on original size drawing

Project No. **11215131**

Title
SOUTHWEST EXCAVATION AREA RESTORATION PLAN

Sheet No.

C-39



SOURCE:
 TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 190608, JULY 8, 2019 TO AUGUST 2, 2019

PARCELS 1, 2 & 3 & PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARRELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHISON & ASSOCIATES - 20-6417 - 6417.bdy - 07-24-2020

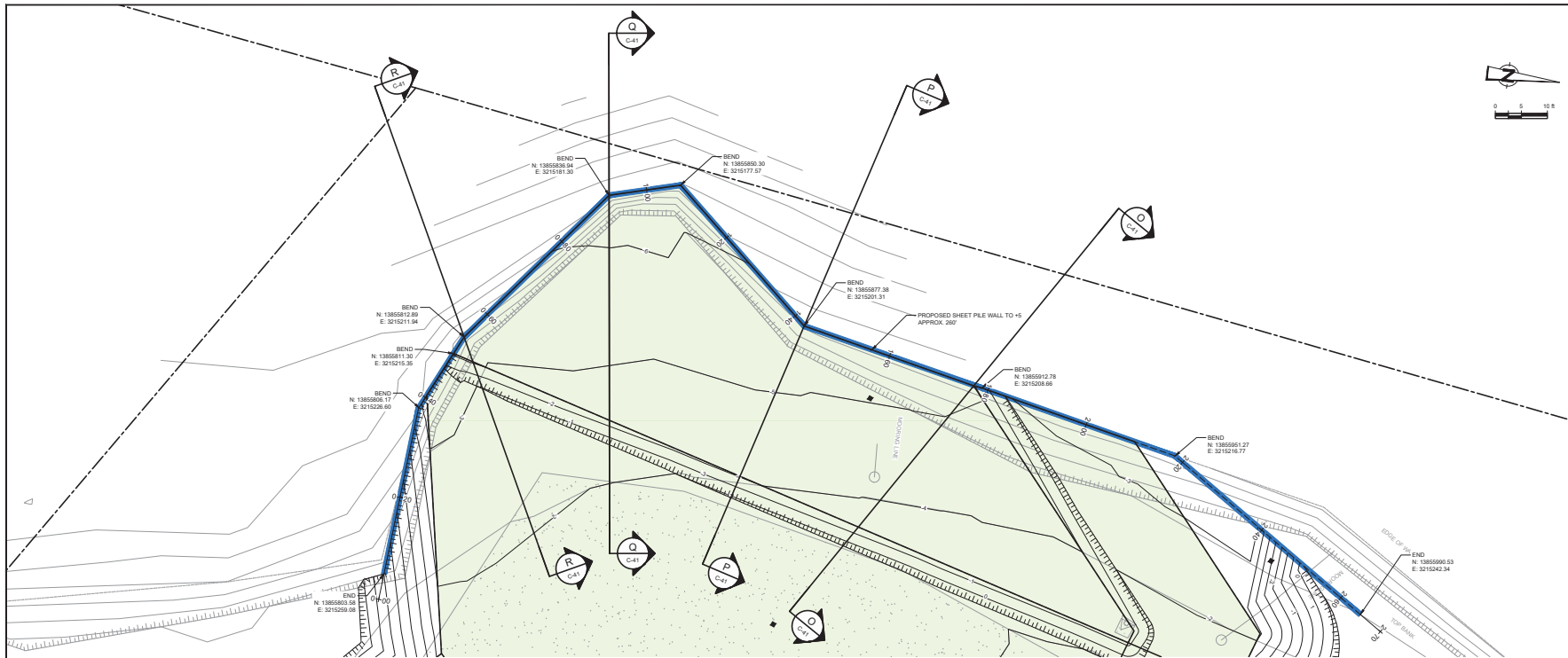
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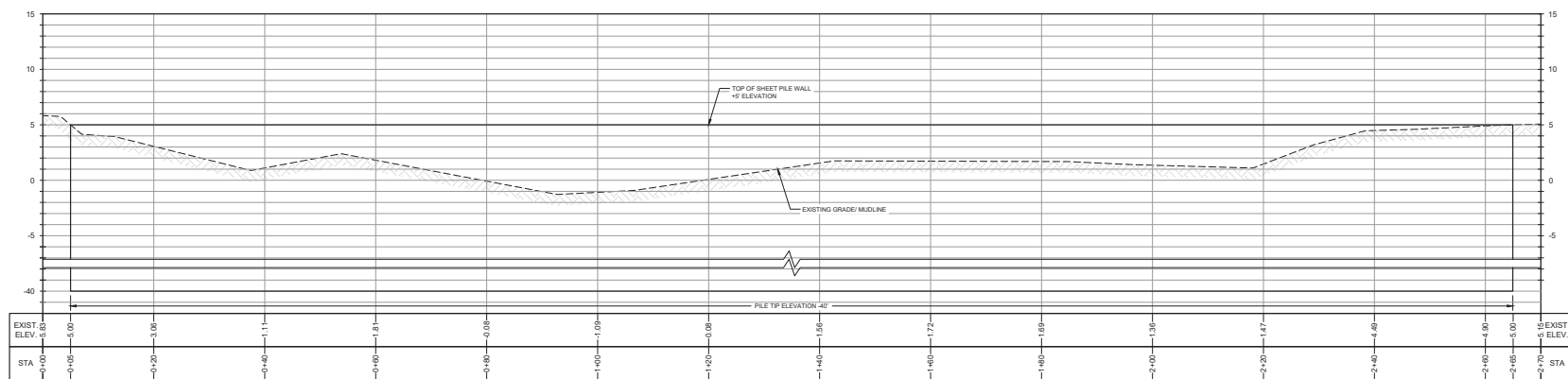
JOB NO. **11215131** FILE NO. **02**

GHD TEXAS FIRM REGISTRATION NO. **276**

100% REMEDIAL DESIGN ADDENDUM



PLAN
1" = 10'



PROFILE
HORIZ. 1" = 10'
VERT. 1" = 5'

SOURCE:
TOPOGRAPHIC, HYDROGRAPHIC, & MAGNETOMETER SURVEY OF SAN JACINTO RIVER WASTE PITS, HARRIS COUNTY, TEXAS, MORRISON SURVEYING INC., 1906B, JULY 8, 2019 TO AUGUST 2, 2019
PARCELS 1, 2 & 3 PRIVATE ROAD SURVEYED FOR GHD SITUATED IN THE J. T. HARBELL SURVEY, A-330 HARRIS COUNTY, TEXAS HUTCHINSON & ASSOCIATES - 20-6417 - 6417 July - 07-24-2020

- NOTES:
1. FOR THE AREAS REQUIRING SOIL REMOVAL NEAR MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY, THE LATERAL LIMITS OF THE EXCAVATION WILL EXTEND IMMEDIATELY UP TO MARKET STREET AND THE GLENDALE BOAT WORKS, INC. PROPERTY LIMITS; HOWEVER, THE EXCAVATION WILL NOT EXTEND INTO EITHER THE STREET OR ONTO THE GLENDALE BOAT WORKS, INC. PROPERTY.
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CHRISTOPHER NEW

124338
PROFESSIONAL ENGINEER
STATE OF LOUISIANA

Christopher New
2022.06.01
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LEGEND

---	PROPERTY BOUNDARY
---	PROPERTY EASEMENT
---	EXISTING CONTOUR INTERVAL
---	FENCELINE
---	SHORELINE
---	TOP OF BANK
---	TOE OF SLOPE
---	OVERHEAD ELECTRICAL GUARDRAIL
---	UNDERGROUND OCTV LINE
---	UNDERGROUND FIBER LINE
---	POHRI BORING LOCATION
---	MONITORING WELL
---	POWER POLE
---	LIGHT POLE
---	WELL
---	AREA OF IMPACT
---	ASPHALT
---	CONCRETE
---	GRAVEL
---	EXCAVATION CONTOUR INTERVAL
---	EXCAVATION TOP OF BANK
---	EXCAVATION TOE OF SLOPE
---	SHEET PILE WALL ALIGNMENT

Client: **SAN JACINTO RIVER WASTE PITS**

Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS**

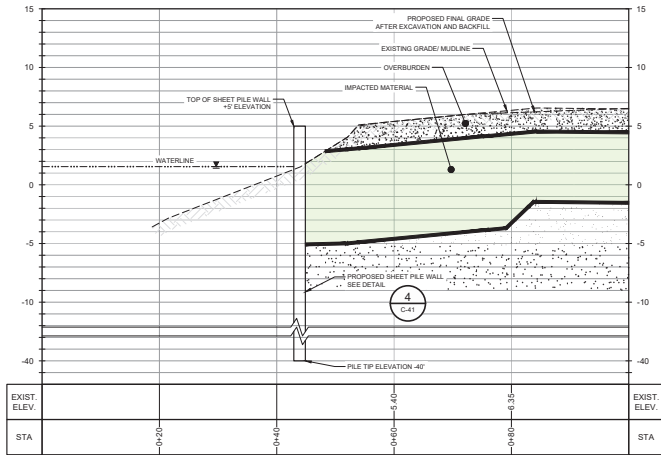
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8	FOR CLIENT REVIEW	MW	SC	05/08/2022
7	100% EPA RE-SUBMITTAL	MW	SC	04/19/2021
6	100% EPA SUBMITTAL	MW	SC	12/18/2020
No.	Issue	Drawn	Approved	Date
Drawn	MW	Designer	SC	
Drafting	JC	Design	CN	
Check		Check		
Project	CM	Date	Jun 1, 2022	
Coordinator				
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Project No: 11215131
Title: **SHEET PILE PLAN AND PROFILE**

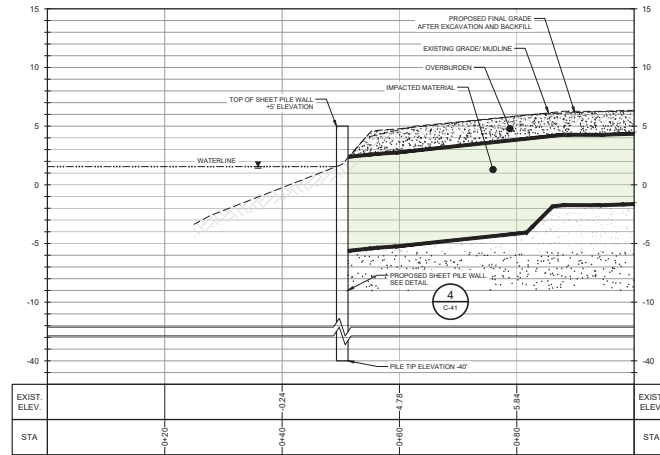
Sheet No.

C-40

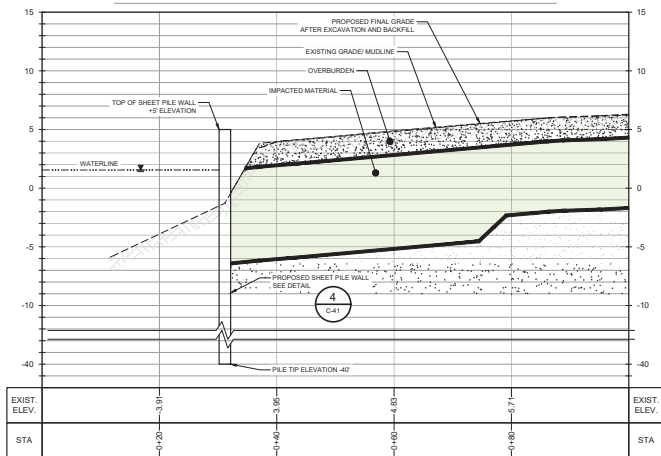
100% REMEDIAL DESIGN ADDENDUM



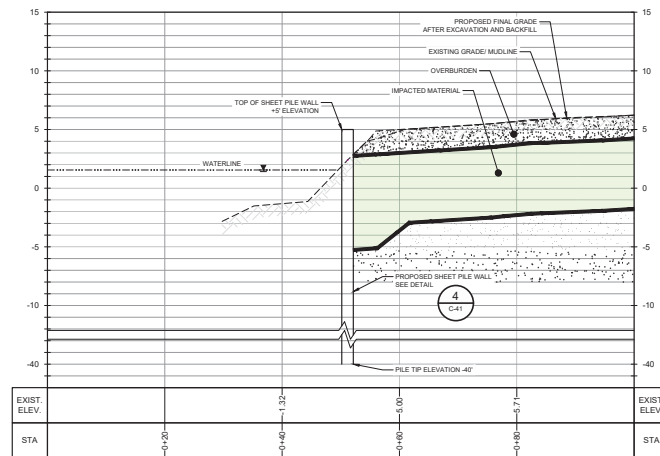
SECTION O
HORIZ: 1"=10'
VERT: 1"=5'



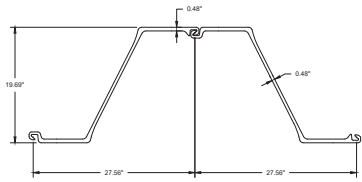
SECTION P
HORIZ: 1"=10'
VERT: 1"=5'



SECTION Q
HORIZ: 1"=10'
VERT: 1"=5'



SECTION R
HORIZ: 1"=10'
VERT: 1"=5'



DETAIL 4 AZ SHEET PILE
N.T.S.

- SHEET PILE NOTES:
1. USE AZ-26 700 SHEET PILE OR APPROVED EQUAL.
 2. SHEET PILE SHALL HAVE MINIMUM THICKNESS EQUAL TO OR GREATER THAN SHOWN IN DETAIL.
 3. MINIMUM SECTION PROPERTIES SHALL BE:
 - A. SECTION MODULUS: 48.4 IN³/FT
 - B. MOMENT OF INERTIA: 437.3 IN⁴/FT

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JOB NO. 11215131 FILE NO. 02
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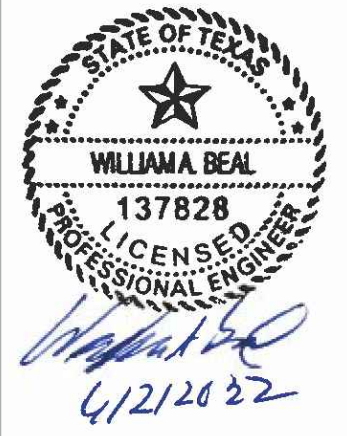
Project No. 11215131

Title: **SHEET PILE SECTIONS AND DETAILS**

Sheet No. **C-41**



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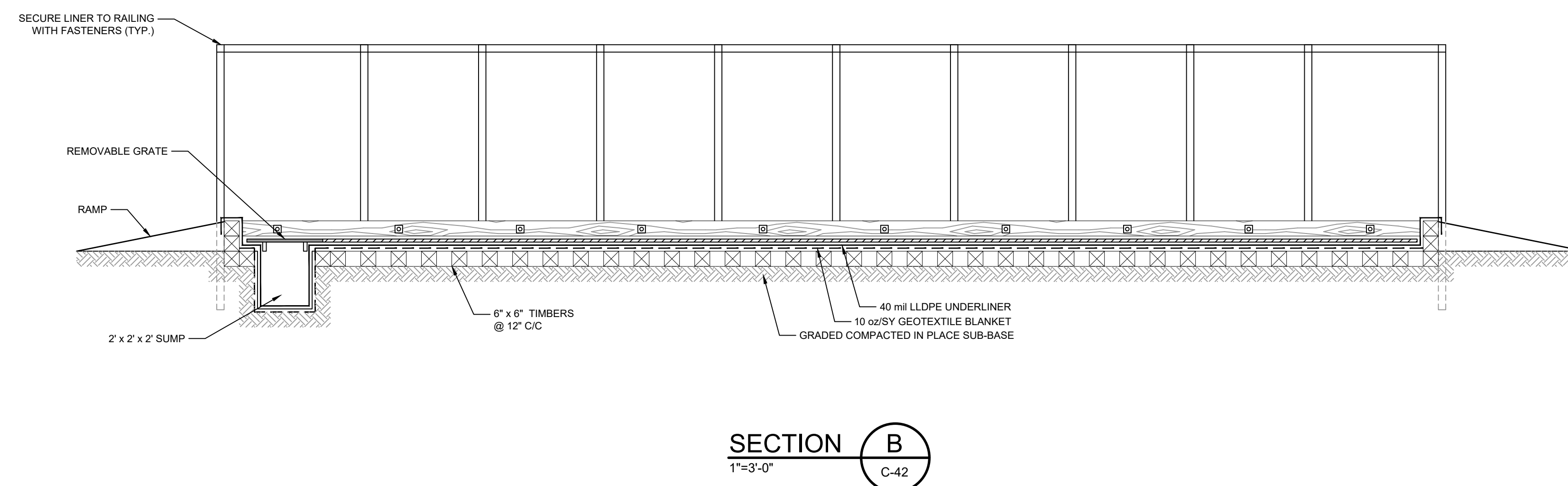
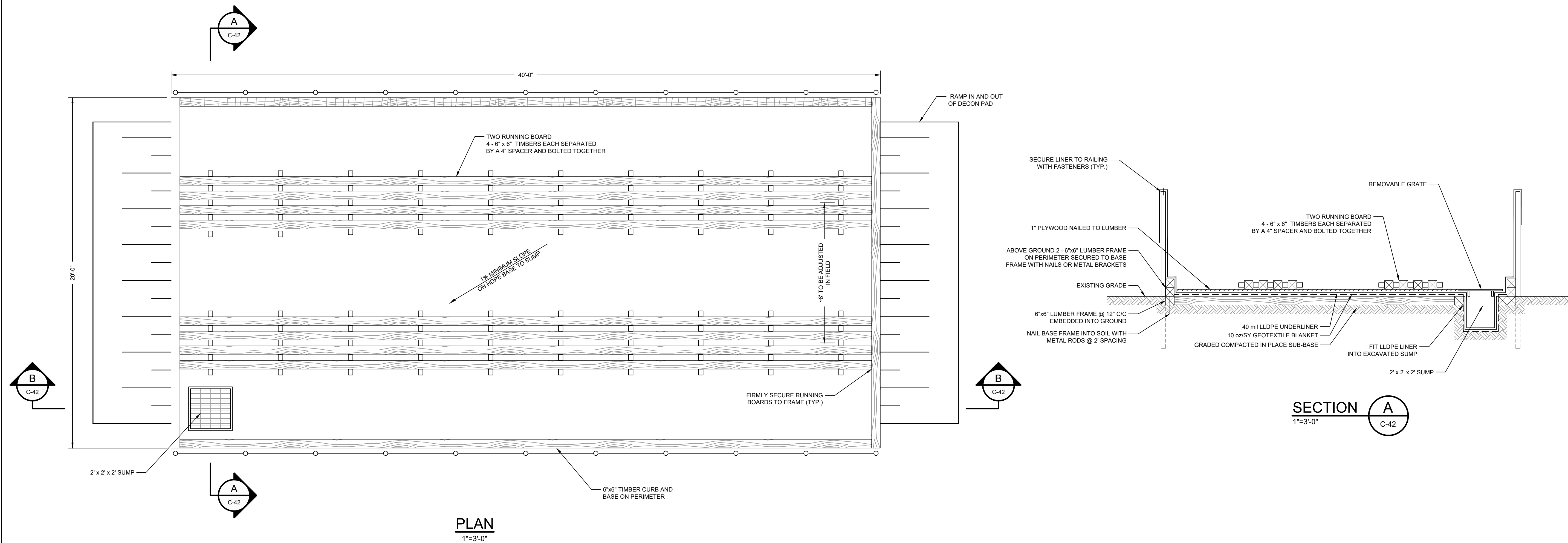
Project No. **11215131**

Title

TYPICAL DETAILS 1 OF 3

Sheet No.

C-42



NOTE:
TEMPORARY EQUIPMENT DECONTAMINATION PAD SHOWN IS FOR ILLUSTRATION PURPOSES ONLY.
CONTRACTOR TO PROVIDE SUBMITTAL PRIOR TO CONSTRUCTION THAT SHOULD MEET THE GENERAL INTENT OF THE CONTAINMENT AND COLLECTION OF WASH WATERS THAT SUITS THE NEEDS OF THE CONTRACTOR

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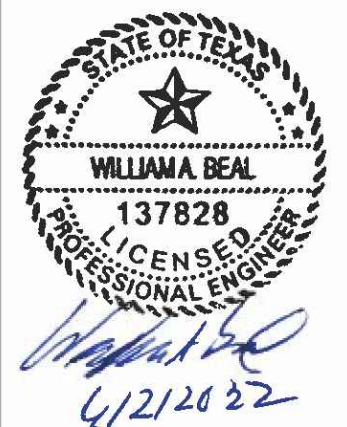


DETAIL 5 TEMPORARY EQUIPMENT DECONTAMINATION PAD
1"=3'-0" C-03A C-03B

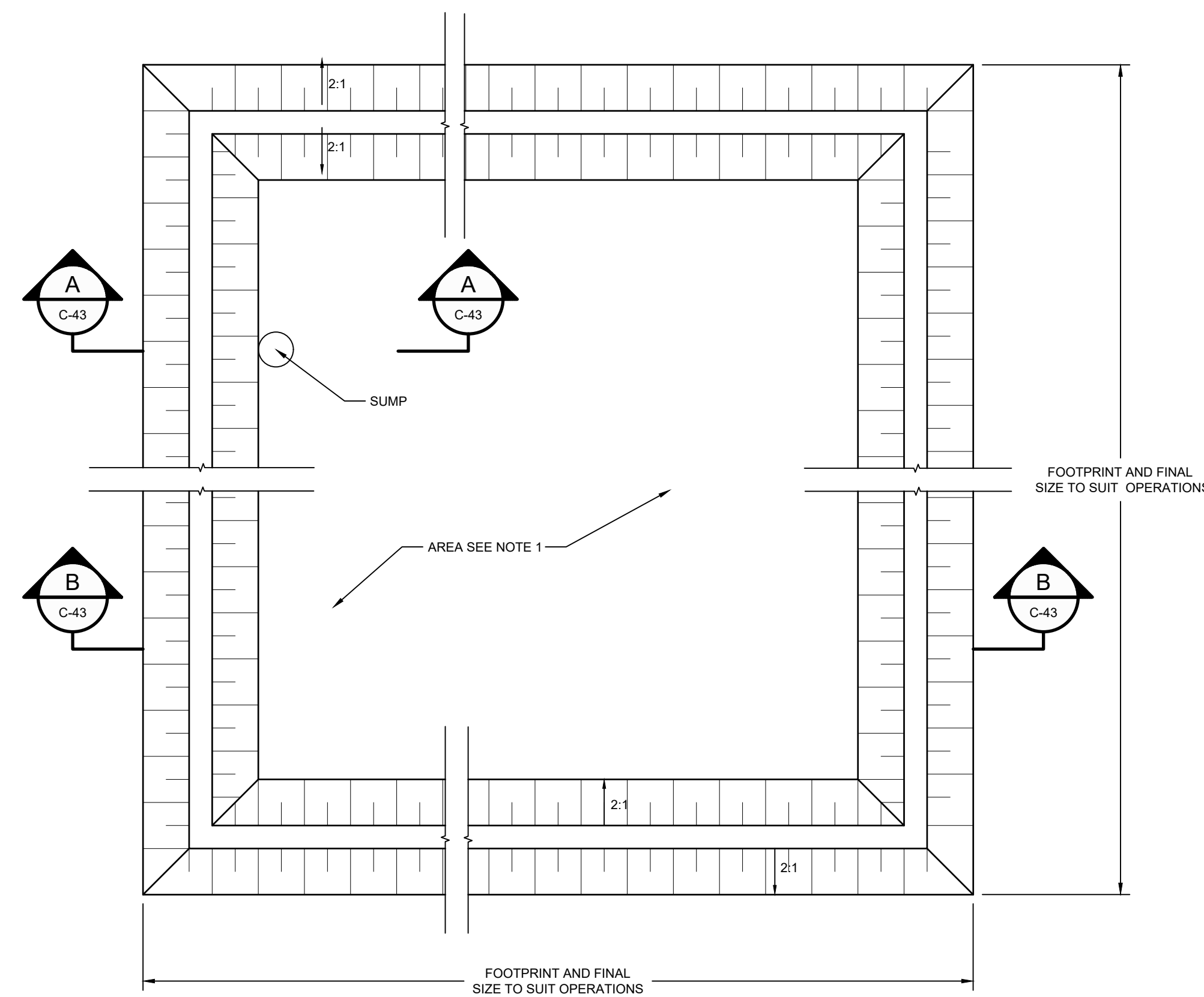
100% REMEDIAL DESIGN ADDENDUM



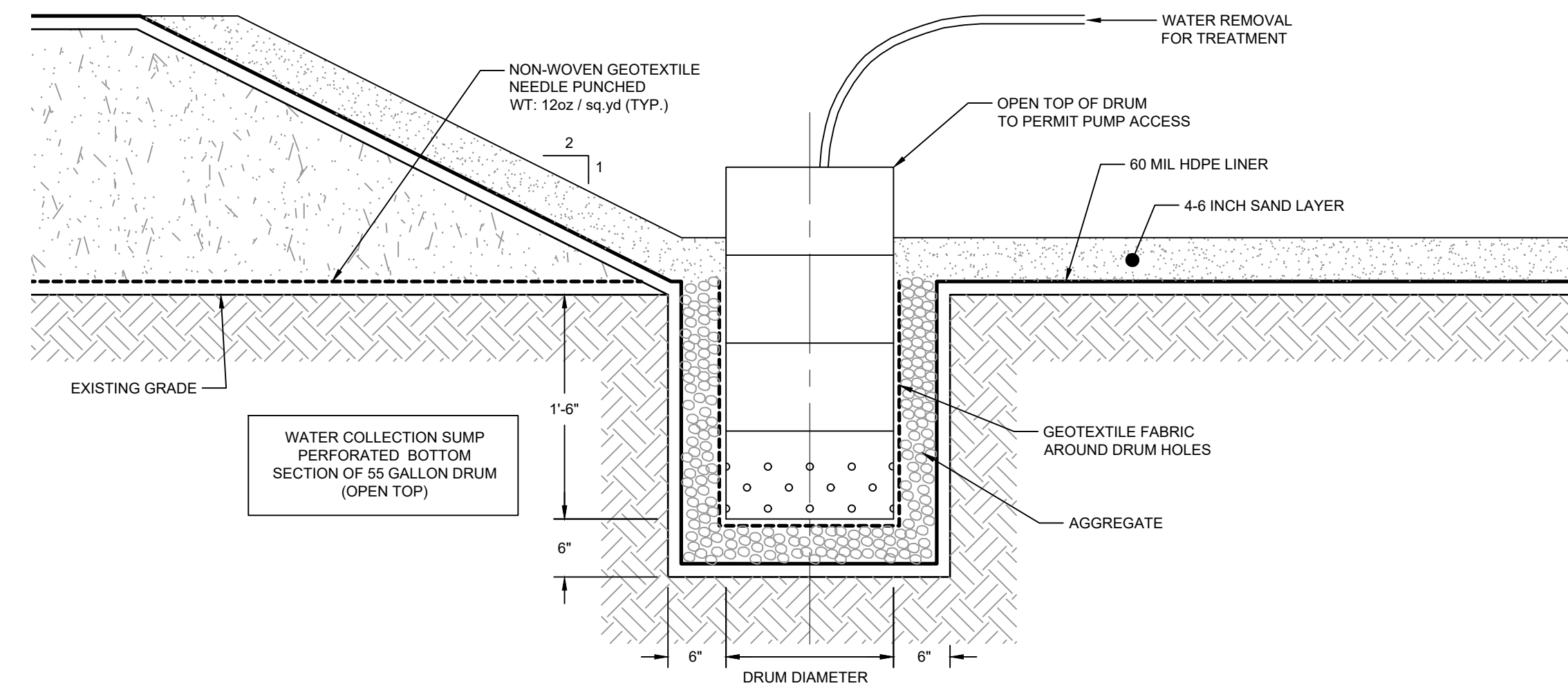
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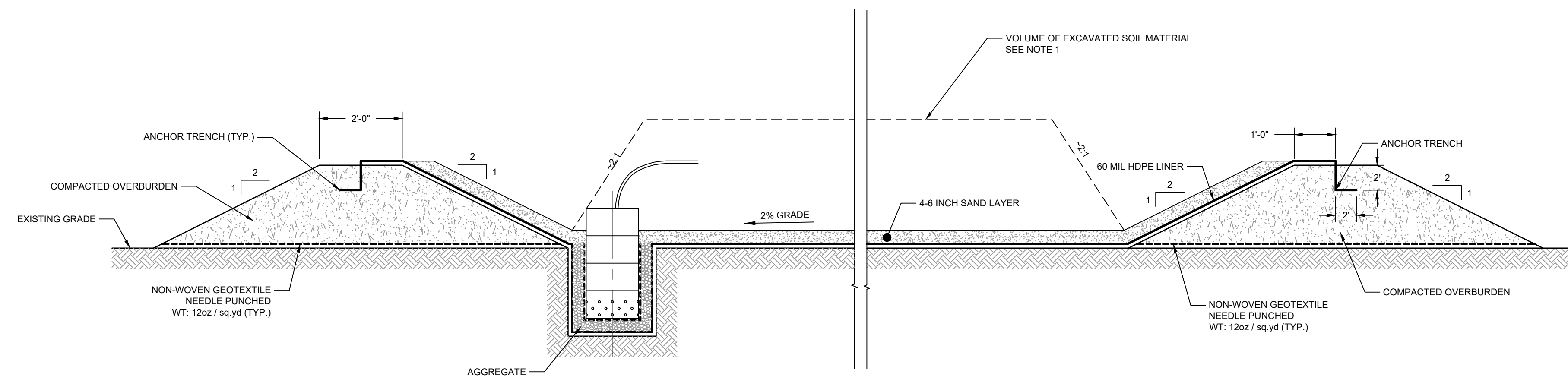


PLAN
N.T.S.



SECTION A
N.T.S. SUMP

NOTES:
1. TYPICAL DETAILS SHOWN AT DEWATERING AND SOLIDIFICATION AREA MAY BE REVISED BY THE CONTRACTOR. CONTRACTOR'S REVISED DETAILS SHALL BE SUBMITTED FOR REVIEW PRIOR TO CONSTRUCTION.



SECTION B
N.T.S.

DETAIL 6
N.T.S. TEMPORARY DEWATERING FACILITY

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Drafting **JC** Design Check **WB**

Project Coordinator **CM** Date **Jun 1, 2022**

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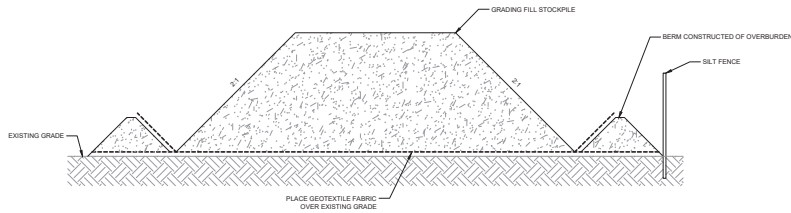
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TYPICAL DETAILS 2 OF 3

Sheet No.

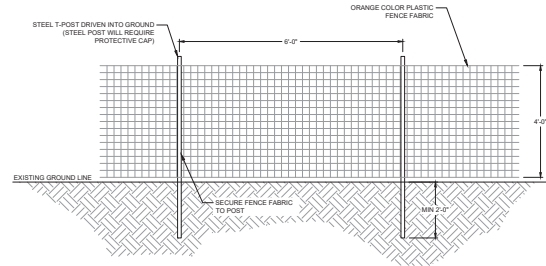
C-43

Sheet 34 of 46

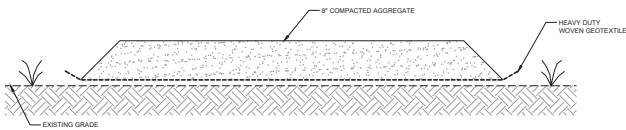


NOTE:
TEMPORARY OVERBURDEN STOCKPILE SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. CONTRACTOR TO PROVIDE SUBMITTAL PRIOR TO CONSTRUCTION THAT SHOULD MEET THE GENERAL INTENT OF THE CONTAINMENT AND COLLECTION OF WATER THAT SUITS THE NEEDS OF THE CONTRACTOR.

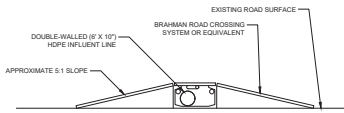
DETAIL **7** TEMPORARY OVERBURDEN STOCKPILE
N.T.S. C-038



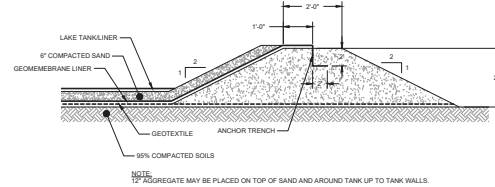
DETAIL **8** TEMPORARY CONSTRUCTION FENCE AROUND EXCAVATIONS (TYP.)
N.T.S. C-038



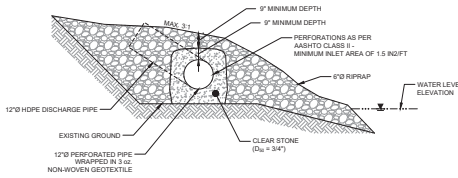
DETAIL **9** TEMPORARY GRAVEL ACCESS ROAD
N.T.S. C-038



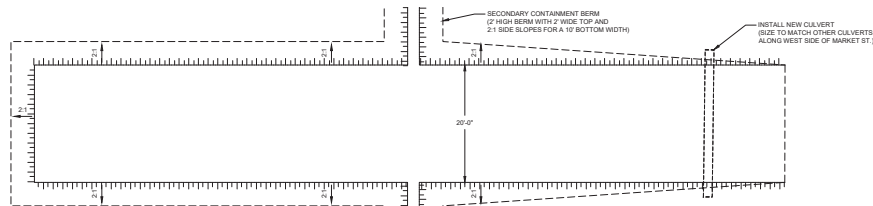
DETAIL **10** TEMPORARY PIPE CROSSING PROTECTION
N.T.S. C-038



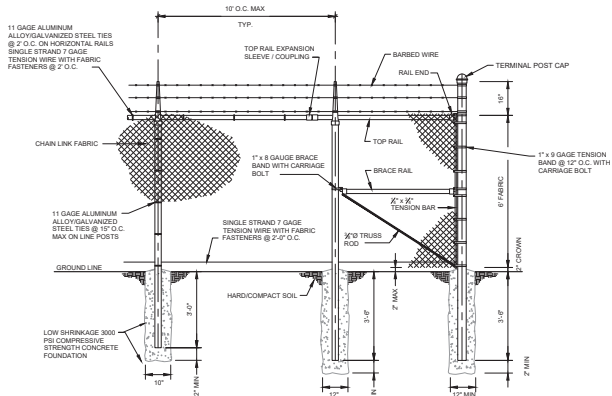
DETAIL **11** SECONDARY CONTAINMENT BERM
N.T.S. C-038



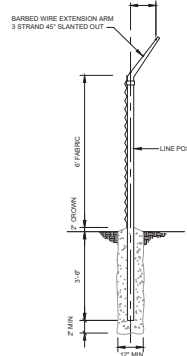
DETAIL **12** RIVER DISCHARGE
N.T.S. C-038



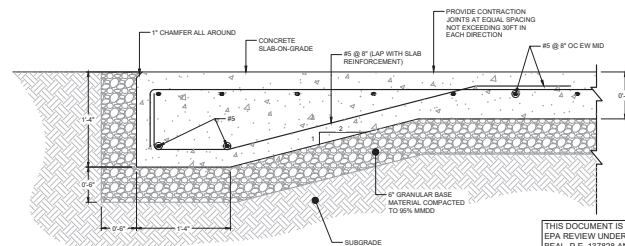
DETAIL **13** ACCESS PLATFORM
N.T.S. C-038



DETAIL **14** CHAIN LINK FENCE
N.T.S. C-038



DETAIL **15** CONCRETE PAD
N.T.S. C-038



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 11215131 FILE NO. 02
 276
 11215131

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STATE OF TEXAS
 WILLIAM ALLEN BEAL
 137628
 LICENSE NUMBER
 CIVIL ENGINEER

STATE OF TEXAS
 CHRISTOPHER NEW
 124338
 LICENSE NUMBER
 CIVIL ENGINEER

William Allen Beal
 4/2/2022

Christopher New
 4/2/2022

Project: 11215131
 Date: 06/02/2022
 Details 13 and 15
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Project				
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS				
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6	100% EPA SUBMITTAL	MW	RH	12/19/2020
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Drawn	MW	Designer	RH	
Drafting	JC	Design Check	WB/CN	
Project Coordinator	CM	Date	Jun 1, 2022	
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Project No. 11215131				
Title				
TYPICAL DETAILS 3 OF 3				
Sheet No.				

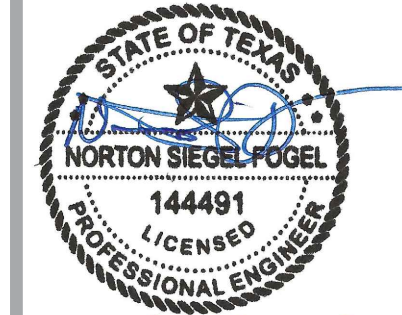
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SAN JACINTO RIVER WASTE PITS				
Project				
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS				
9	100% RD ADDENDUM	MW	WB/CN	06/02/2022
8	FOR CLIENT REVIEW	MW	RH	05/06/2022
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Drawn	MW	Designer	RH	
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Title				
TYPICAL DETAILS 3 OF 3				
Sheet No.				

C-44

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Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT

1	100% RD ADDENDUM	RS	NF	06/02/2022
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No.	Issue	Drawn	Approved	Date
Drawn	RS	Designer	NF	

Drafting Check	MW	Design Check	NF
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Project Coordinator	CM	Date	Jun 1, 2022
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Original Size
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Project No. 11215131
Title

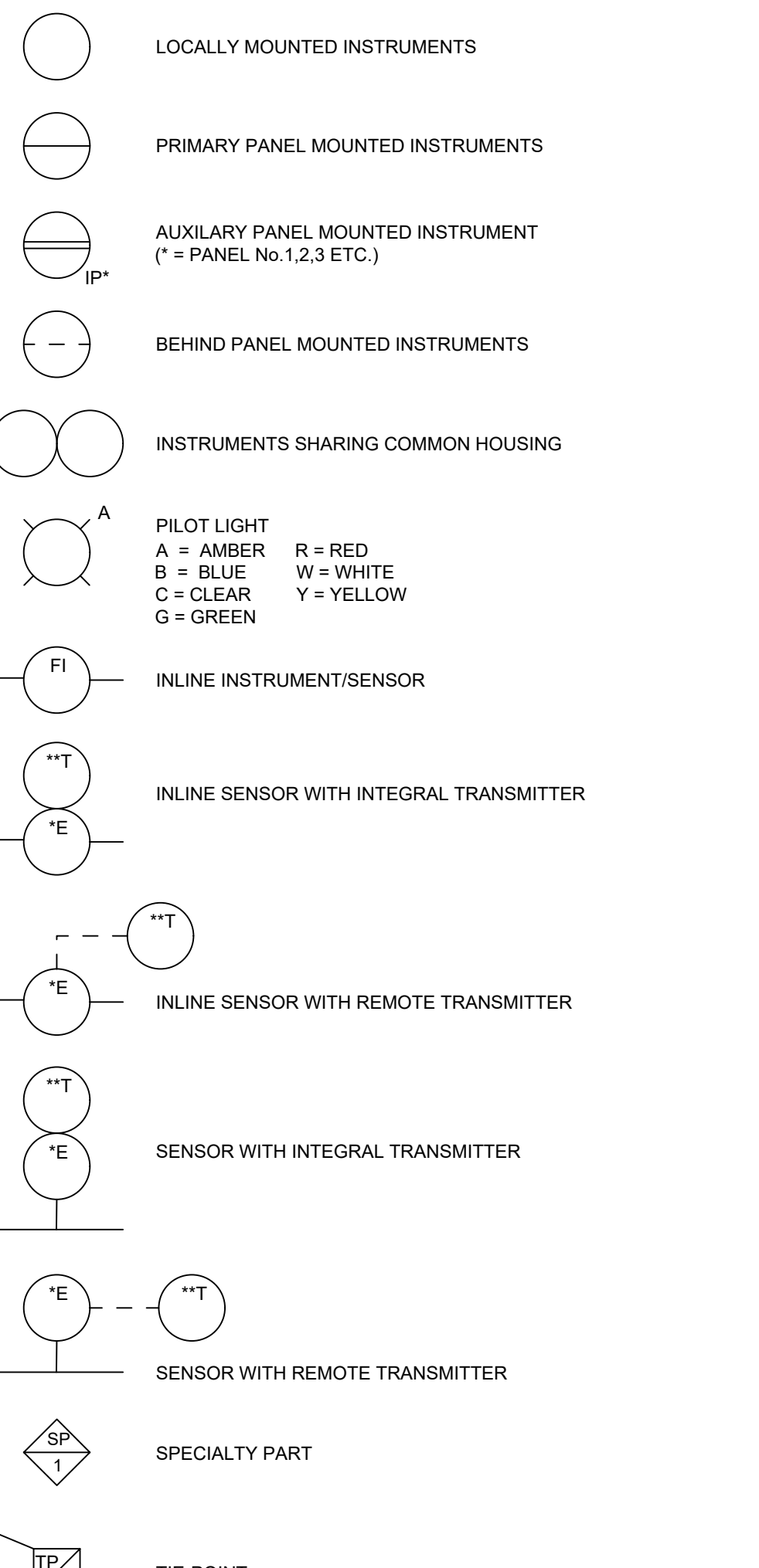
WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM/ SCHEDULES

Sheet No.

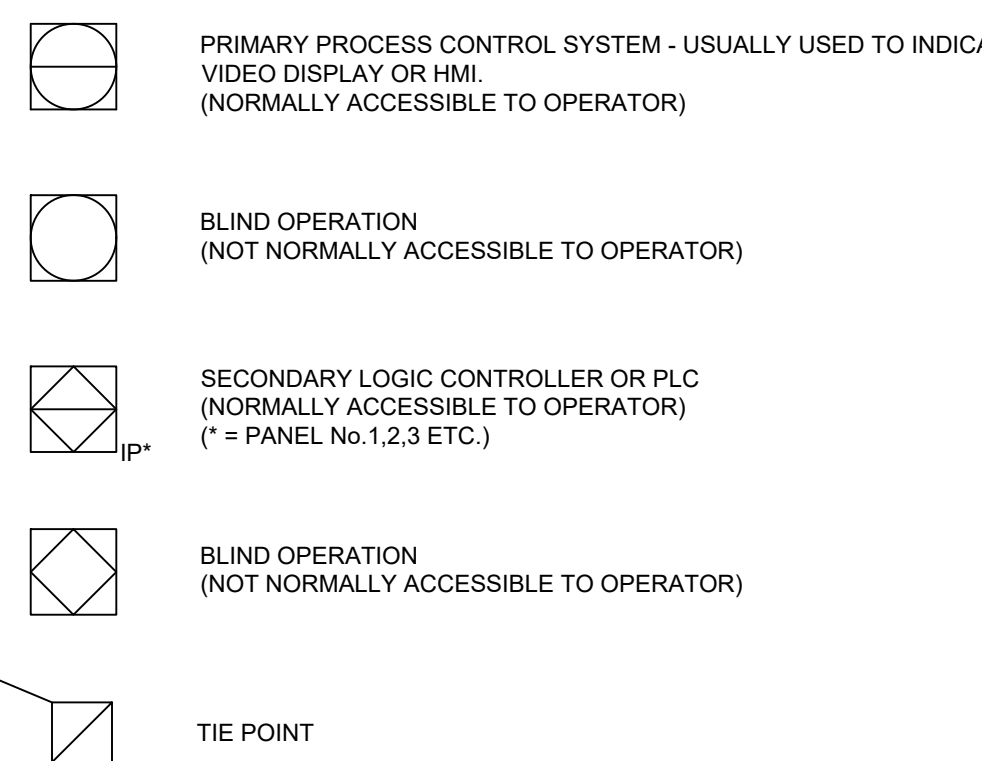
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Sheet 36 of 46

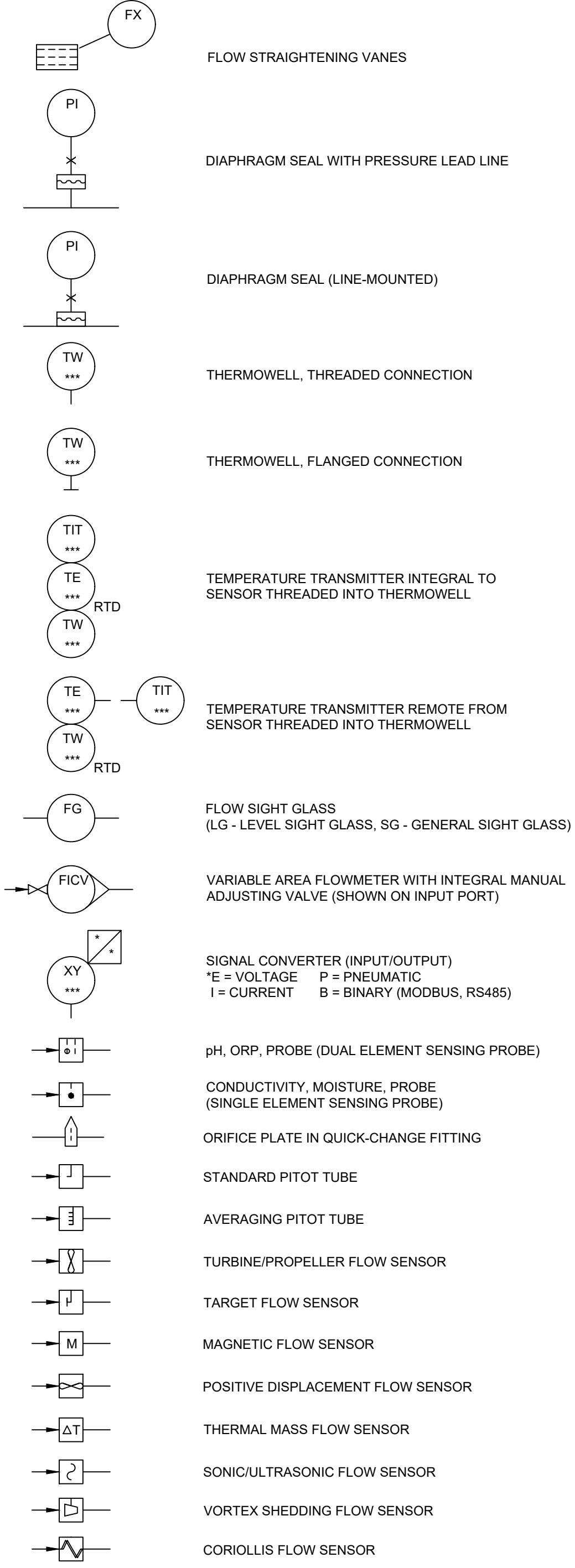
GENERAL INSTRUMENT SYMBOLS



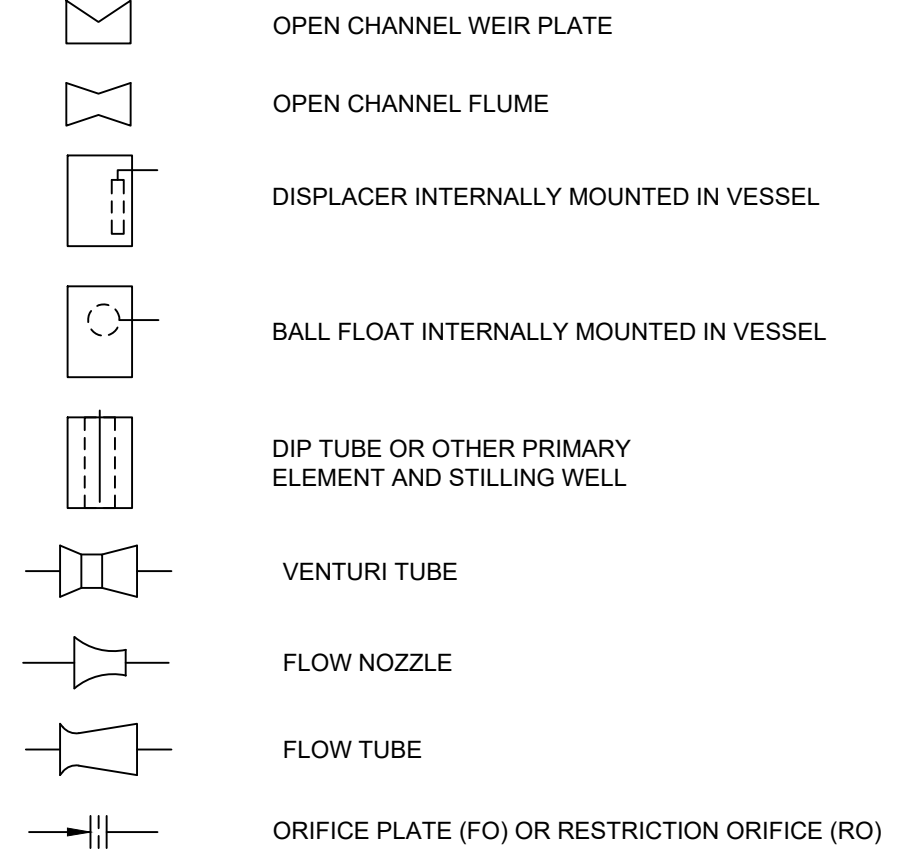
DISTRIBUTED CONTROL / SHARED DISPLAY INSTRUMENTS



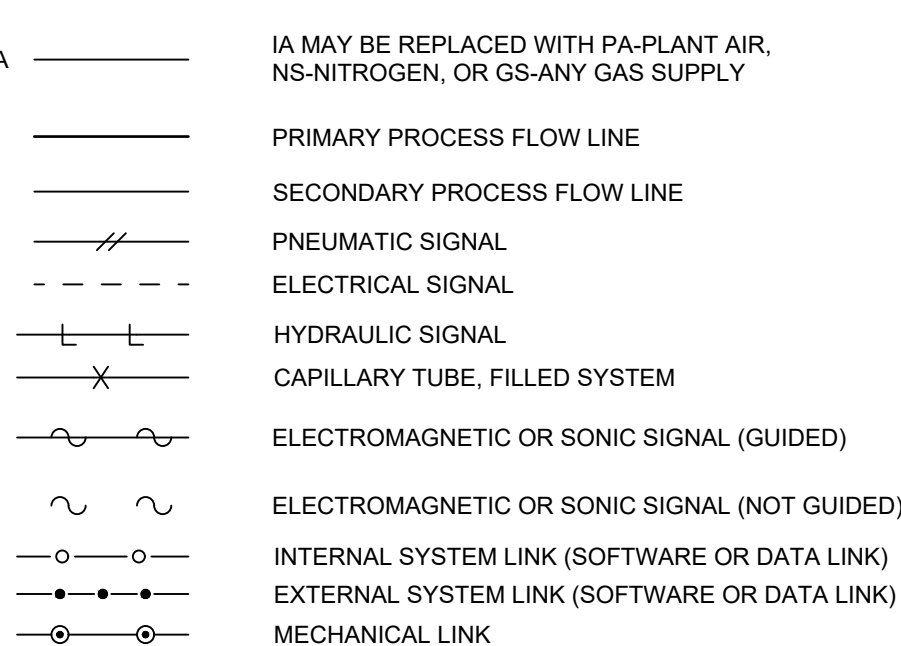
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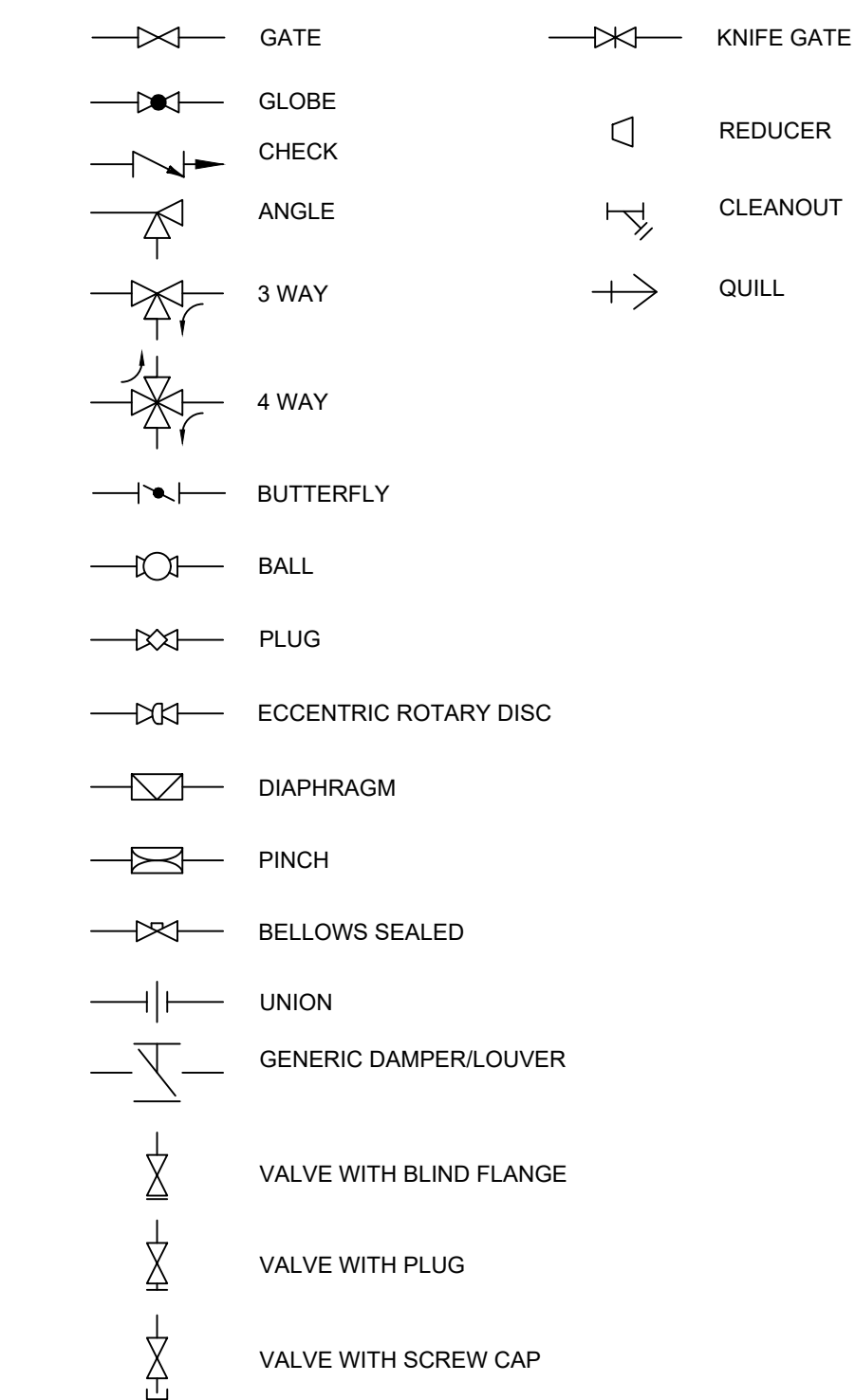
PRIMARY ELEMENT SYMBOLS (CONT'D)



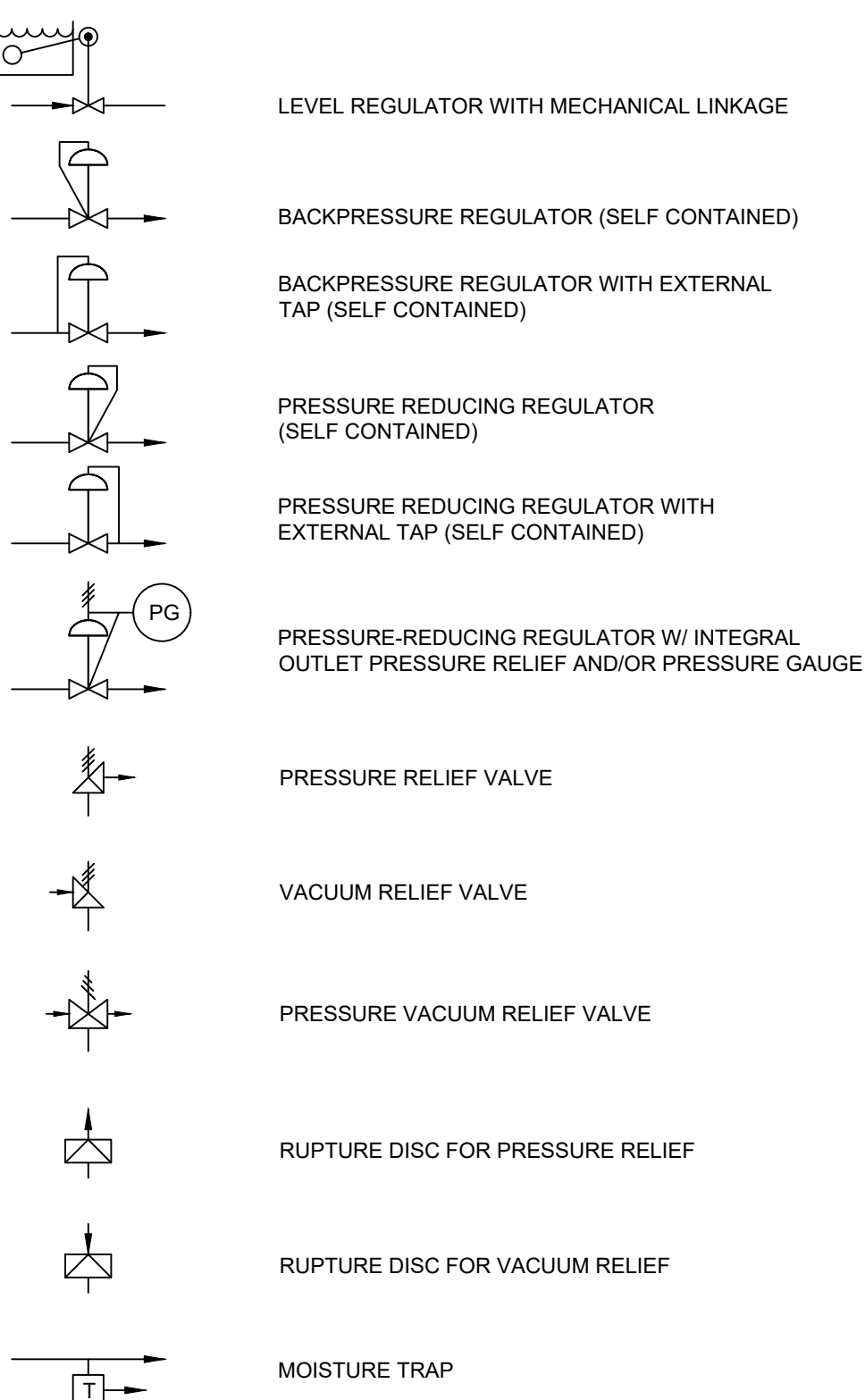
PROCESS / INSTRUMENT LINES



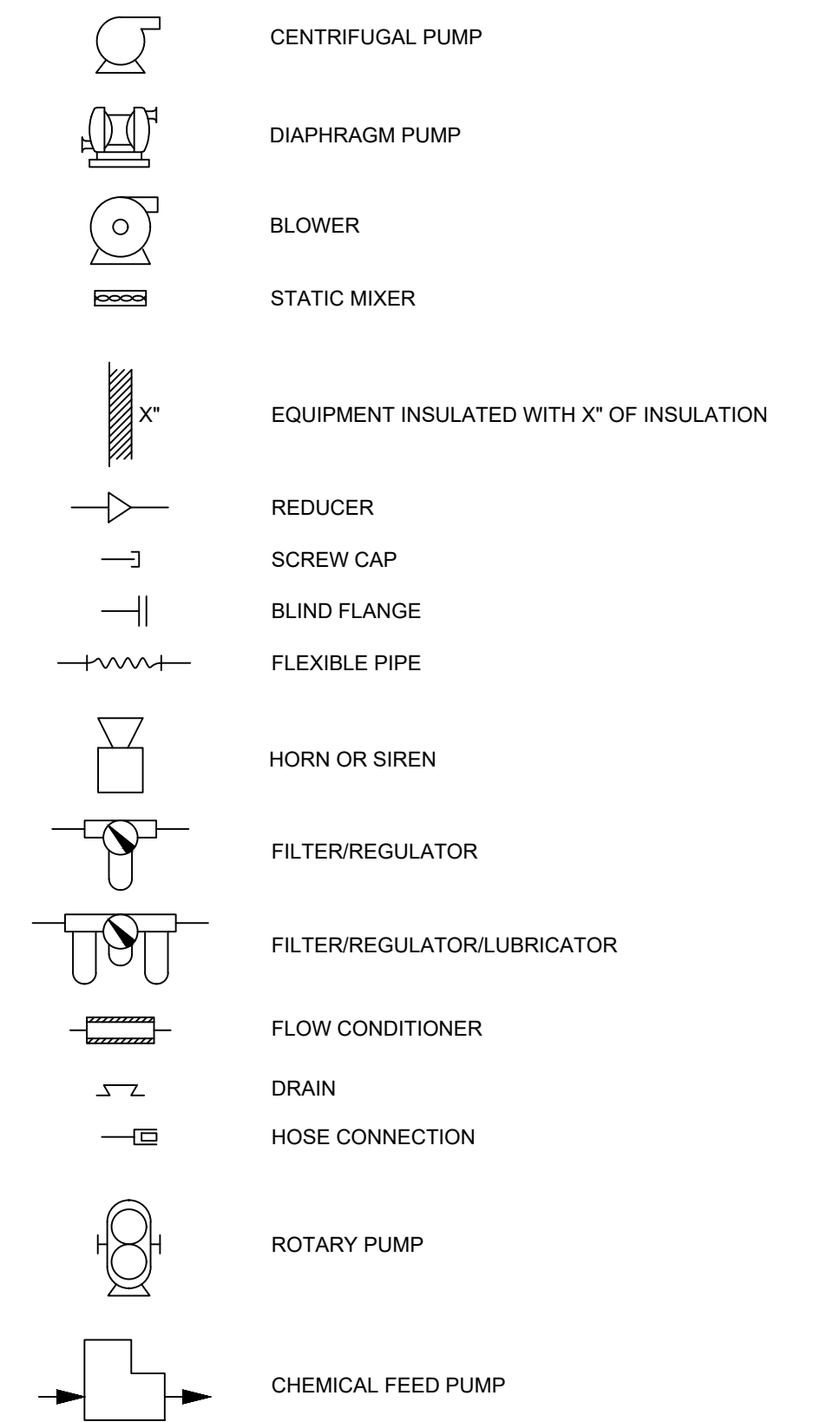
VALVE SYMBOLS



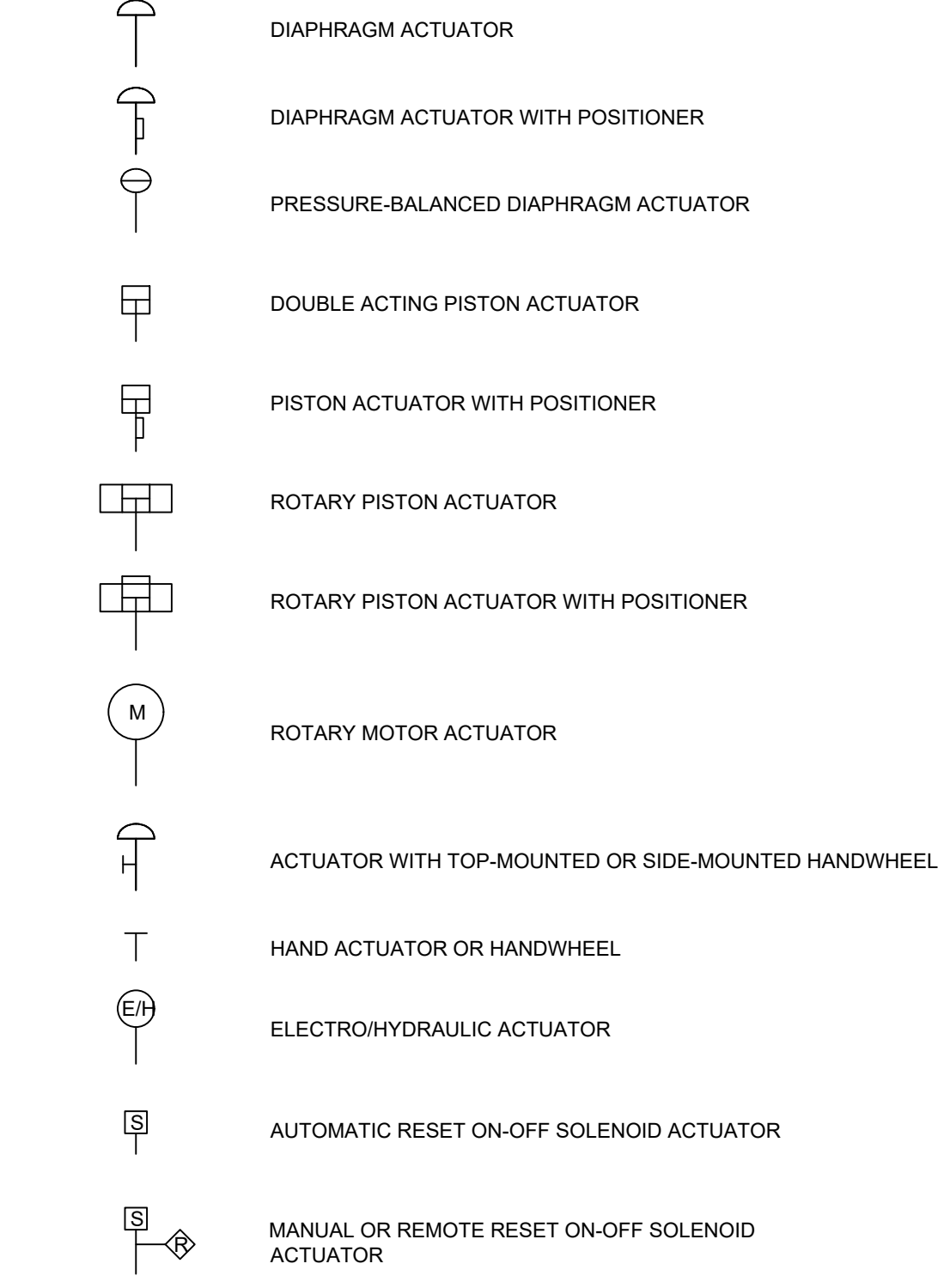
SELF-ACTUATED REGULATORS, VALVES, AND OTHER DEVICES



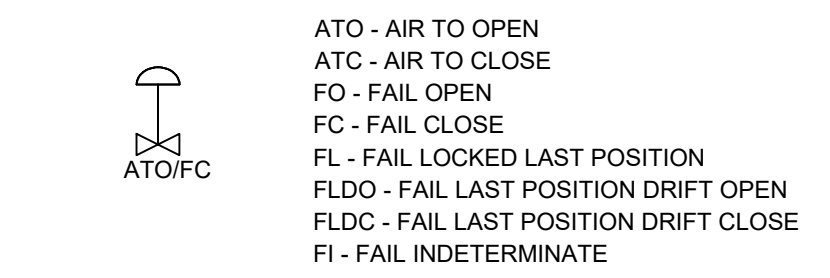
EQUIPMENT/PIPING SYMBOLS



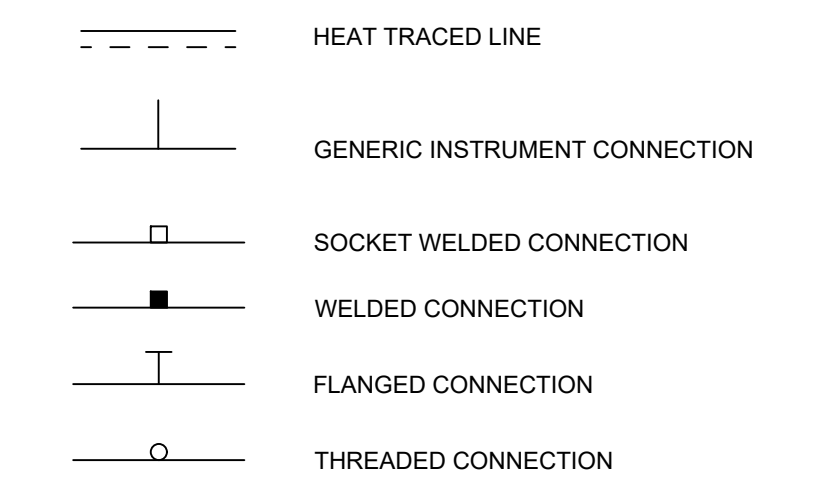
ACTUATOR SYMBOLS



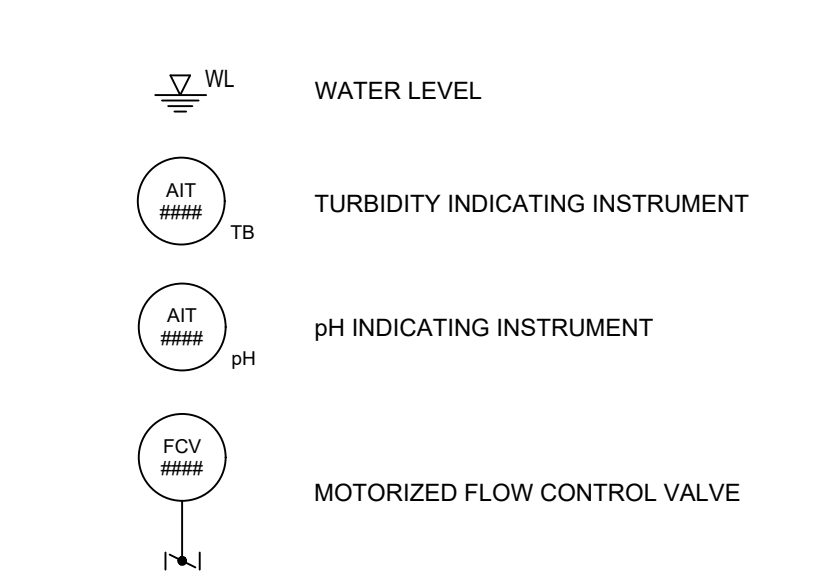
ACTUATOR INDICATIONS



INSTRUMENT TO PROCESS/EQUIP. CONNECTIONS



MISCELLANEOUS SYMBOLS



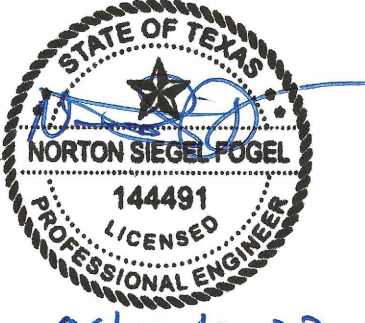
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TYPICAL INTERNATIONAL SOCIETY OF AUTOMATION LETTER COMBINATIONS

First-Letters	Initiating or Measured Variable	Controllers				Readout Devices		Switches and Alarm Devices *			Transmitters			Solenoids, Relays, Computing Devices	Primary Element	Test Point	Well or Probe	Viewing Device, Glass	Safety Device	Final Element
		Recording	Indicating	Blind	Control Valves	Recording	Indicating	High **	Low	Comb	Recording	Indicating	Blind							
A	Analysis	ARC	AIC	AC		AR	AI	ASH	ASL	ASHL	ART	AIT	AT	AY	AE	AP	AW		AV	
B	Burner/Combustion	BRC	BIC	BC		BR	BI	BSH	BSL	BSHL	BRT	BIT	BT	BY	BE		BW	BG	BZ	
C	User's Choice																			
D	User's Choice																			
E	Voltage	ERC	EIC	EC		ER	EI	ESH	ESL	ESHL	ERT	EIT	ET	EY	EE			EZ		
F	Flow Rate	FRC	FIC	FC	FCV, FICV	FR	FI	FSH	FSL	FSLH	FRT	FIT	FT	FY	FE	FP	FG	FV		
FQ	Flow Quantity	FQRC	FQIC			FQR	FQI	FQSH	FQSL	FQSLH	FQRT	FQIT	FQT	FQY	FQE			FQV		
FF	Flow Ratio	FFRC	FFIC	FFC		FFR	FFI	FFSH	FFSL					FE				FFV		
G	User's Choice																			
H	Hand		HIC	HC						HS								HV		
I	Current	IRC	IIC			IR	II	ISH	ISL	ISHL	IRT	IIT	IT	IY	IE			IZ		
J	Power	JRC	JIC			JR	JI	JSH	JSL	JSHL	JRT	JIT	JT	JY	JE			JV		
K	Time	KRC	KIC	KC	KCV	KR	KI	KSH	KSL	KSHL	KRT	KIT	KT	KY	KE			KV		
L	Level	LRC	LIC	LC	LCV	LR	LI	LSH	LSL	LSHL	LRT	LIT	LT	LY	LE	LW	LG	LV		
M	User's Choice																			
N	User's Choice																			
O	User's Choice																			
P	Pressure/Vacuum	PRC	PIC	PC	PCV	PR	PI	PSH	PSL	PSHL	PRT	PIT	PT	PY	PE	PP		PSV, PSE	PV	
PD	Pressure, Differential	PDRC	PDIC	PDC	PDCV	PDR	PDI	PDSH	PDSL	PDSHL	PDRT	PDIT	PDT	PDY	PE	PP			PDV	
Q	Quantity	QRC	QIC			QR	QI	QSH	QSL	QSHL	QRT	QIT	QT	QY	QE				QZ	
R	Radiation	RRC	RIC	RC		RR	RI	RSH	RSL	RSHL	RRT	RIT	RT	RY	RE		RW		RZ	
S	Speed/Frequency	SRC	SIC	SC	SCV	SR	SI	SSH	SSL	SSHL	SRT	SIT	ST	SY	SE				SV	
T	Temperature	TRC	TIC	TC	TCV	TR	TI	TSH	TSL	TSHL	TRT	TIT	TT	TY	TE	TP	TW	TSE	TV	
TD	Temperature, Differential	TDRC	TDIC	TDC	TDCV	TDR	TDI	TDSH	TDSL	TDSHL	TDRT	TDIT	TDT	TDY	TE	TP	TW		TDV	
U	Multivariable					UR	UI							UY					UV	
V	Vibration/Machinery Analysis					VR	VI	VSH	VSL	VSHL	VRT	VIT	VT	VY	VE				VZ	
W	Weight/Force	WRC	WIC	WC	WCV	WR	WI	WSH	WSL	WSHL	WRT	WIT	WT	WY	WE				WZ	
WD	Weight/Force, Differential	WDRC	WDIC	WDC	WDCV	WDR	WDI	WDSH	WDSL	WDSHL	WDRT	WDIT	WDT	WDY	WE				WDZ	
X	Unclassified																			
Y	Event/State/Presence		YIC	YC		YR	YI	YSH	YSL			YT	YY	YE					YZ	
Z	Position/Dimension	ZRC	ZIC	ZC	ZCV	ZR	ZI	ZSH	ZSL	ZSHL	ZRT	ZIT	ZT	ZY	ZE				ZV	
ZD	Gauging/Deviation	ZDRC	ZDIC	ZDC	ZDCV	ZDR	ZDI	ZDSH	ZDSL	ZDSHL	ZDRT	ZDIT	ZDT	ZDY	ZDE				ZDV	

NOTE: THIS TABLE IS NOT ALL-INCLUSIVE.

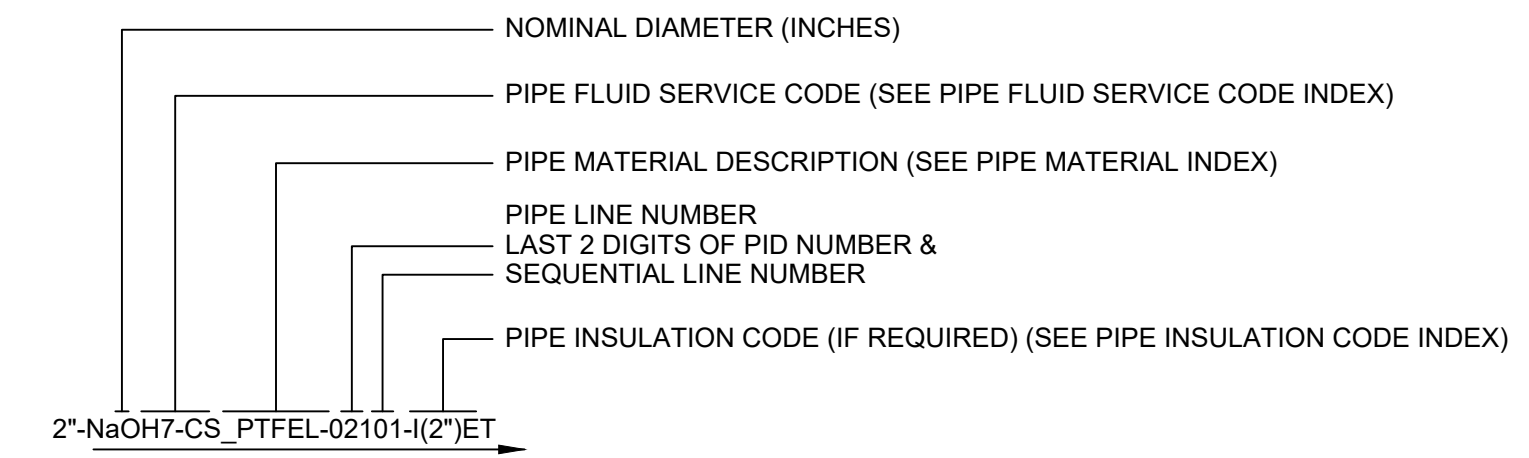
* A, ALARM, THE ANNUNCIATING DEVICE, MAY BE USED IN THE SAME FASHION AS S, SWITCH, THE ACTUATING DEVICE.

FO (RESTRICTION ORIFICE) LLH (LEVEL LIGHT HIGH) KQI (RUNNING TIME INDICATOR) LCH (LEVEL CONTROL HIGH)

FRK, HIK (CONTROL STATIONS) LCL (LEVEL CONTROL LOW) HMS (HAND MOMENTARY SWITCH)

** THE LETTERS H AND L MAY BE OMITTED IN THE UNDEFINED CASE.

LINE DESIGNATION



PIPE MATERIAL INDEX
SEE PIPING SPECIFICATIONS FOR DETAILS

MAT'L	DESCRIPTION	SPEC
CS_40	CARBON STEEL SCHEDULE 40 PIPE	
CS_80	CARBON STEEL SCHEDULE 80 PIPE	
316L_10	316L STAINLESS STEEL SCHEDULE 10 PIPE	
304_40	304 STAINLESS STEEL SCHEDULE 40 PIPE	
316L_ST	316L STAINLESS STEEL TUBING	
304_ST	304 STAINLESS STEEL TUBING	
CS_T	CARBON STEEL TUBING	
CU_T	COPPER TUBING	
PE_T	POLYETHYLENE TUBING	
CS_PTFEL	CARBON STEEL PTFE LINED PIPE	
CS-PFAL	CARBON STEEL PFA LINED PIPE	
CS-GL	CARBON STEEL GLASS LINED PIPE	
CPVC_80	CPVC SCHEDULE 80 PIPE	
PCV_80	PVC SCHEDULE 80 PIPE	
304_10	304 STAINLESS STEEL SCHEDULE 10 PIPE	
FRP	FIBERGLASS REINFORCED PIPE	
HDPE_11	HIGH-DENSITY POLYETHYLENE SDR-11	
FRH	FLEXIBLE RUBBER HOSE	
304L_ST	304L STAINLESS STEEL TUBING	
304L_10	304L STAINLESS STEEL SCHEDULE 10 PIPE	
304L_ST	TEFLON TUBING-CARRIER WITH CPVC CONTAINMENT PIPE	
HDPE_DW	HDPE DOUBLE WALLED PIPE SDR-11 CARRIER AND CONTAINMENT PIPE	
PTFE_CPVC	TEFLON TUBING - CARRIER WITH CPVC CONTAINMENT PIPE	

PIPE INSULATION CODE INDEX
SEE PIPING SPECIFICATIONS FOR DETAILS

PROCESS MEDIA CODE	DESCRIPTION
I(2")	INSULATED (2")
NI	NOT INSULATED
JKT	JACKETED PIPE
I(2")ET	INSULATED (2") AND ELECTRICALLY TRACED
I(2")ST	INSULATED (2") AND STEAM TRACED
I(2")JKT	INSULATED (2") AND JACKETED

ABBREVIATIONS:

HOA	HAND/OFF/AUTO	NC	NORMALLY CLOSED
LOR	LOCAL/OFF/REMOTE	NO	NORMALLY OPEN
OPN	OPEN	ST	START / ENABLE
CLS	CLOSE	SP	STOP / DISABLE
STPT	SETPOINT	JOG	PUMP MOTOR
ES	EMERGENCY STOP	SA	SINGLE ACTING
DA	DOUBLE ACTING		

INSTRUMENTS

PIPE FLUID SERVICE CODE INDEX
SEE PIPING SPECIFICATIONS FOR DETAILS

PROCESS MEDIA CODE	SERVICE
CL21	CHLORINE LIQUID OR GAS
CTW1	COOLING TOWER WATER
CW3	PROCESS WATER
CW4	CHILLED WATER
NaOH7	CAUSTIC SODA SOLUTION
GCO	GLYCOL
N20	NITROGEN (DRY COMPRESSED GAS)
SI	STEAM
CI	CONDENSATE
PV	PROCESS VENT
STS	STORM SEWER
PR	PROCESS RELIEF
GW	GROUNDWATER
DR	DRAIN
IA	INSTRUMENT AIR
VE	VAPOR EXTRACTION
NPW	NON POTABLE WATER
H2SO4	SULFURIC ACID
DW	DOMESTIC WATER
INF	INFLUENT WATER (CONTACT WATER)
EFF	EFFLUENT WATER (TREATED WATER)
SLG	SLUDGE
BW	BACKWASH
COAG	COAGULANT
POLY	POLYMER
OS	ORGANOSULFIDE
DEC	DECANT WATER
CONT	WTS CONTAINMENT AREA DRAINAGE

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Client: **SAN JACINTO RIVER WASTE PITS**
Project: **REMEDIAL DESIGN SOUTHERN IMPOUNDMENT**

1 **100% RD ADDENDUM** RS NF 06/02/2022

No.	Issue	Drawn	Approved	Date
1	100% RD ADDENDUM	RS	NF	06/02/2022

Drawn **RS** Designer **NF**

Drafting Check **MW** Design Check **NF**

Project Coordinator **CM** Date **Jun 1, 2022**

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Original Size **Arch D** Bar is one inch on original size drawing

Project No. **11215131**

Title **WATER TREATMENT SYSTEM**

PROCESS FLOW DIAGRAM/ SCHEDULES

Sheet No.

P-00B

100% REMEDIAL DESIGN ADDENDUM

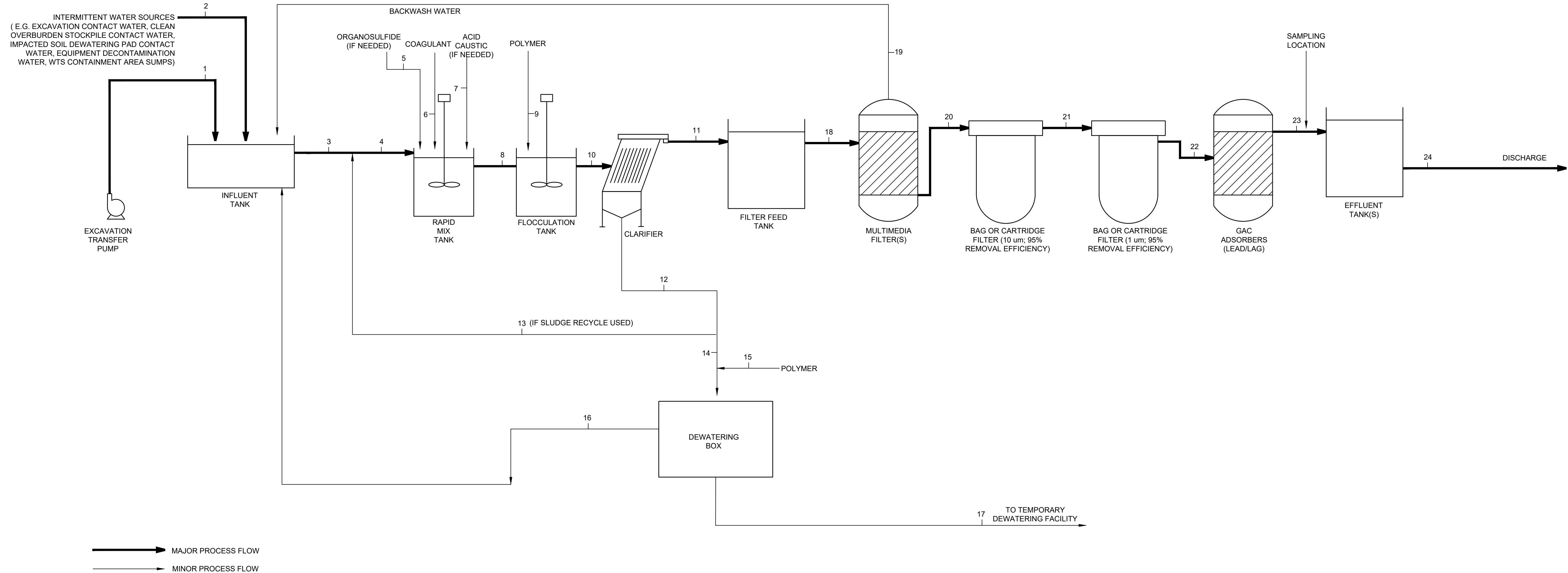


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Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIATION DESIGN SOUTHERN COMPOUNDMENT HARRIS COUNTY, TEXAS

9	100% RD ADDENDUM	RS	NF	06/02/2022
8	FOR CLIENT REVIEW	RS	NF	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	NF	04/19/2021
6	100% EPA SUBMITTAL	MW	NF	12/18/2020

No.	Issue	Drawn	Approved	Date
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Drawn BP Designer KJ

Drafting Check MW Design Check NF

Project Coordinator CM Date Jun 1, 2022

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Project No. 11215131

Title
WATER TREATMENT SYSTEM PROCESS FLOW DIAGRAM/ MASS BALANCE

Sheet No.

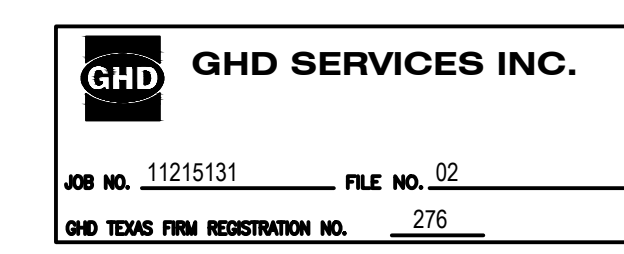
P-01

WATER TREATMENT PLANT PROCESS STREAMS¹

Streams	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Excavation Transfer Pump	Containment Water Sources ²	WTS Treatment Flowrate	Rapid Mix Tank	Organosulfide Feed	Coagulant Feed	Acid/Caustic Feed	Flocculation Tank Influent	Polymer Feed	Clarifier Influent	Clarifier Effluent	Clarifier Underflow	Sludge Recycle	Sludge to Dewatering Box	Dewatering Box Polymer Feed	Dewatering Box Decant to Influent Tank	Sludge to Dewatering Facility	Media Filter Feed	Dirty Backwash ²	Bag or Cartridge Filter Feed (10 um)	Bag or Cartridge Filter Feed (1 um)	GAC Adsorber Feed	Effluent Tank Influent	Effluent Tank Discharge
Volumetric Flow	GPM	600	400	300	357	0.01	0.03	TBD	357	0.01	357	282	75	0	75	0.01	57	18	282	200	282	282	282	282	5,000
Suspended Solids	PPM	4,000	4,000	4,000	4,000	-	-	TBD	4,125	-	4,125	50	19,447	19,447	19,447	-	512	80,000	50	63	5	2	2	2	2
Chemical Feed	PPM	-	-	-	-	50	100	TBD	-	25	-	-	-	-	-	5,000	-	-	-	-	-	-	-	-	-
Mass Flow Solids	LB/HR	1,201	1-1200	600	715	8.93	17.86	TBD	737	4.47	737	7	730	0	730	7.3	15	715	7.1	6.4	0.7	0.3	0.3	0.3	5.0
Specific Gravity		1.0	1.0	1.0	1.0	1.2	1.2	TBD	1.0	1.0	1.0	1.0	-	-	-	1.0	1.0	-	1.0	1.0	1.0	1.0	1.0	1.0	
Density	LB/CF	62.4	62.4	62.4	62.4	74.9	74.9	TBD	62.4	62.4	62.4	62.4	-	-	-	62.4	62.4	-	62.4	62.4	62.4	62.4	62.4	62.4	

- NOTES:
- FOR INFORMATION PURPOSES ONLY
 - FLOW ARE INTERMITTENT AND CONCENTRATIONS MAY VARY

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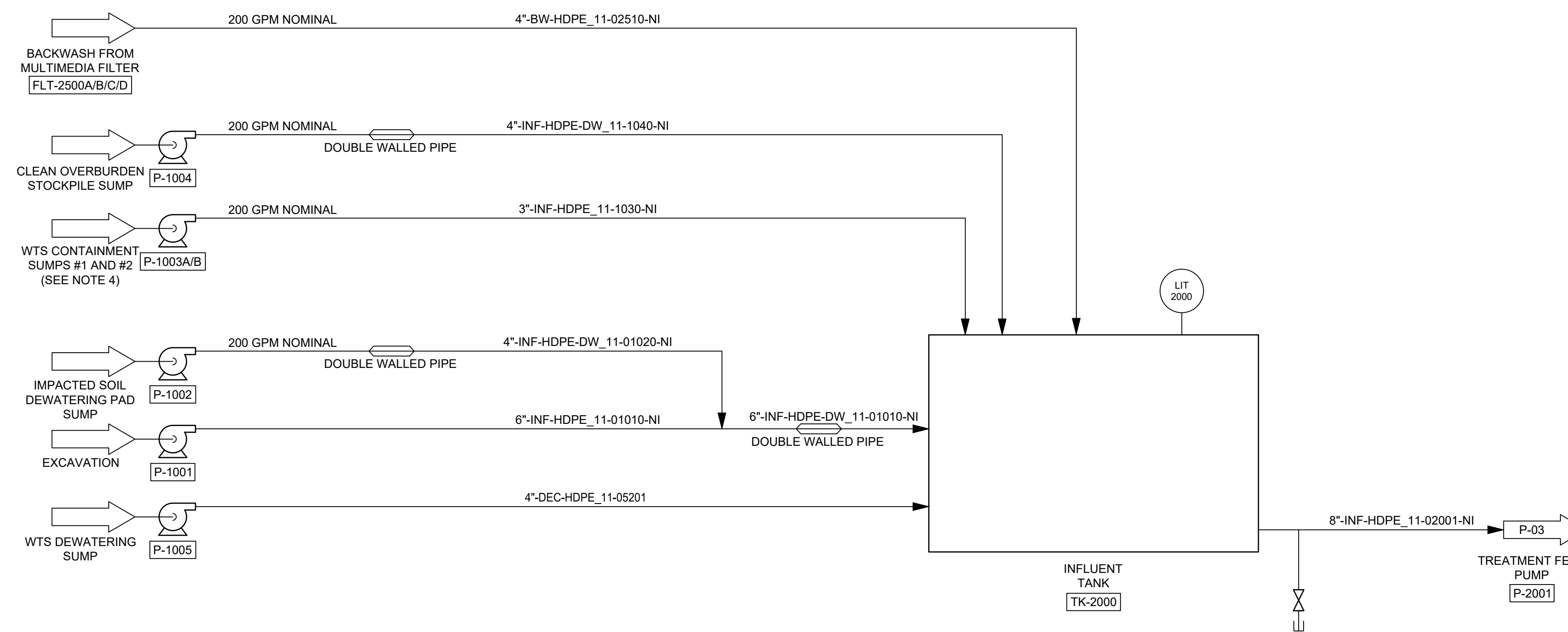


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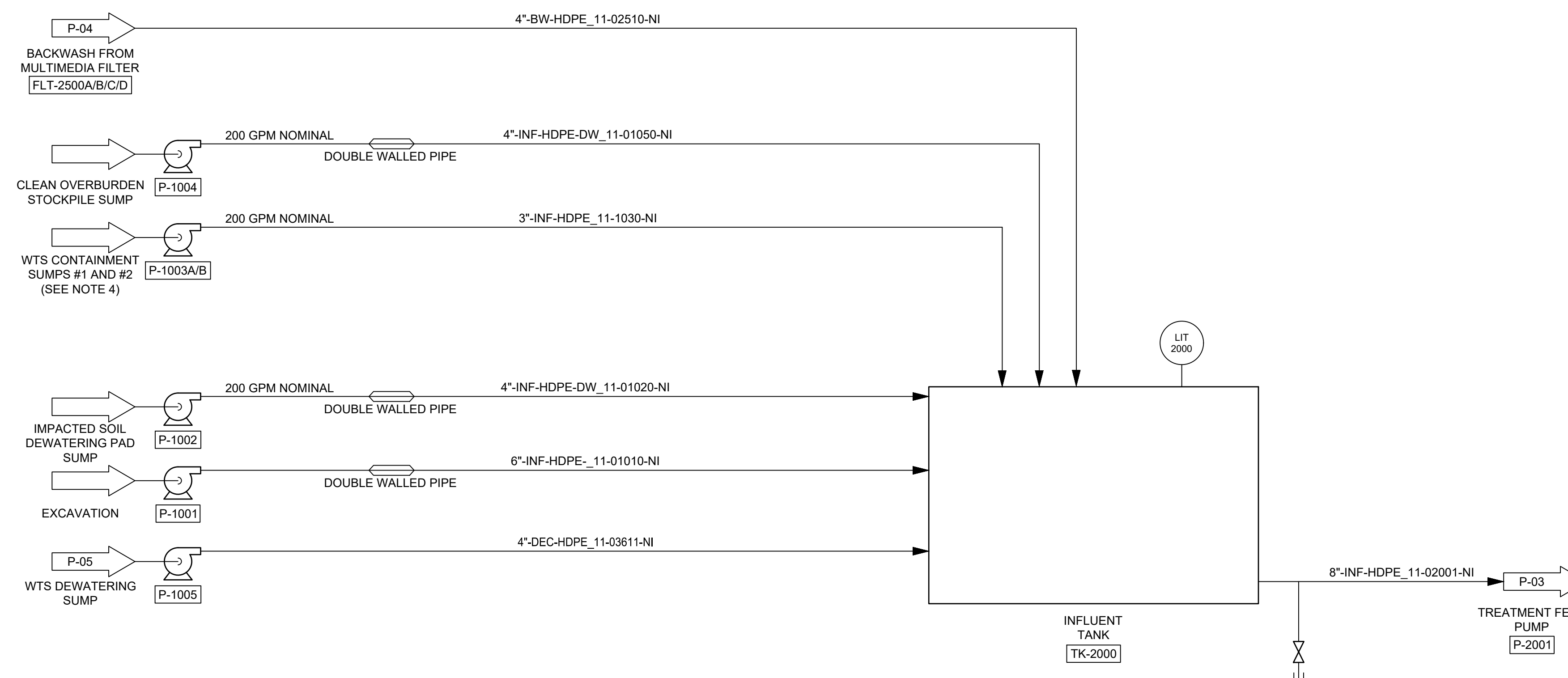


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1 WTS INFLUENT SOURCES - SEASON 1 - PART 1
NONE

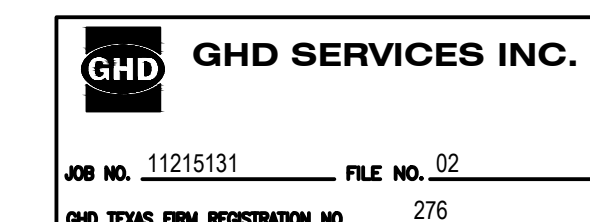


1 WTS INFLUENT SOURCES - SEASON 1 - PART 2 & SEASON 2
NONE

NOTES:

- FOR CLARITY NOT ALL SYSTEM ELEMENTS (E.G. VALVES, PIPE SIZES) HAVE BEEN SHOWN. P&IDs ARE CONCEPTUAL ONLY AND ARE TO BE FINALIZED BY CONTRACTOR.
- THE TREATMENT SYSTEM DESIGNS ARE PRELIMINARY AND SUBJECT TO CHANGE.
- CONTRACTOR SHALL PROVIDE PROVISIONS TO DIRECT EQUIPMENT DECONTAMINATION WATER TO WATER TREATMENT SYSTEM OR TO AN ADJACENT CONTAINMENT AREA WITH PUMPING SYSTEM.
- CONTRACTOR PROVIDE AN ADEQUATE NUMBER OF SUMPS AND PUMPS TO DEWATER CONTAINMENT AREA AFTER A LARGE RAIN EVENT TO RESUME ACTIVITIES.

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100% REMEDIAL DESIGN ADDENDUM

Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	RS	NF	06/02/2022
8	FOR CLIENT REVIEW	RS	NF	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	NF	04/19/2021
6	100% EPA SUBMITTAL	MW	NF	12/18/2020

Drawn	BP	Designer	KJ
Drafting Check	MW	Design Check	NF
Project Coordinator	CM	Date	Jun 1, 2022

Original Size	Arch D	Scale	N.T.S.
		Bar is one inch on original size drawing 0 1"	

Project No. 11215131

Title
WATER TREATMENT SYSTEM P&ID (1 OF 4)

Sheet No.

P-02

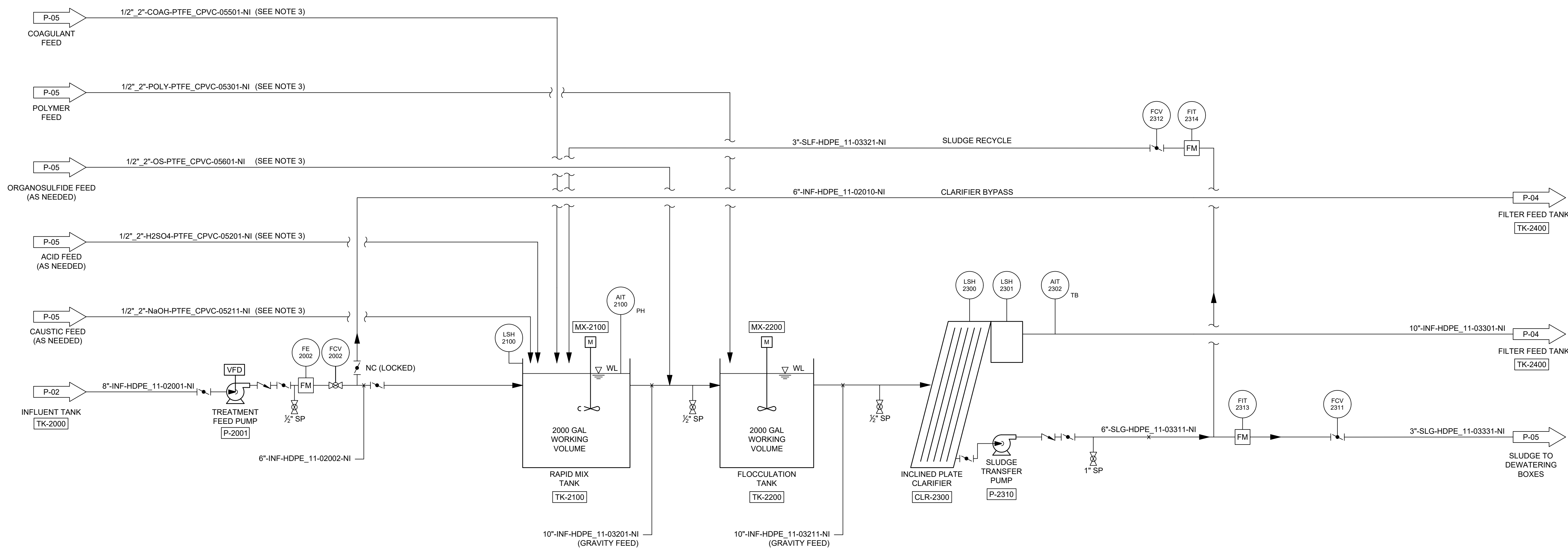


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 - THE TREATMENT SYSTEM DESIGNS ARE PRELIMINARY AND SUBJECT TO CHANGE.
 - ALL CHEMICAL TUBING SHALL BE INSIDE 2" CPVC CONTAINMENT PIPE.

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GHD TEXAS FIRM REGISTRATION NO. 276

Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIATION DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	RS	NF	06/02/2022
8	FOR CLIENT REVIEW	RS	NF	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	NF	04/19/2021
6	100% EPA SUBMITTAL	MW	NF	12/18/2020

Drawn	BP	Designer	KJ
Drafting Check	MW	Design Check	NF
Project Coordinator	CM	Date	Jun 1, 2022
Original Size	Arch D	Scale	N.T.S.

Project No. 11215131

Title
WATER TREATMENT SYSTEM P&ID (2 OF 4)

Sheet No.

P-03

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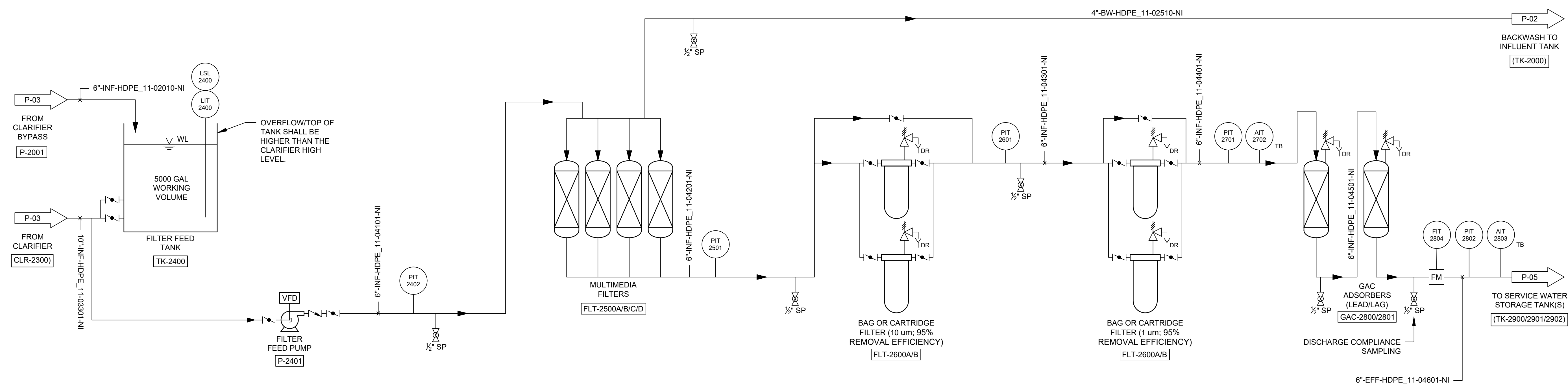


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REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	RS	NF	06/02/2022
8	FOR CLIENT REVIEW	RS	NF	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	NF	04/19/2021
6	100% EPA SUBMITTAL	MW	NF	12/18/2020

Drawn	BP	Designer	KJ
Drafting Check	MW	Design Check	NF
Project Coordinator	CM	Date	Jun 1, 2022
		Scale	N.T.S.

Original Size	Arch D	Bar is one inch on original size drawing
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Project No. 11215131
 Title

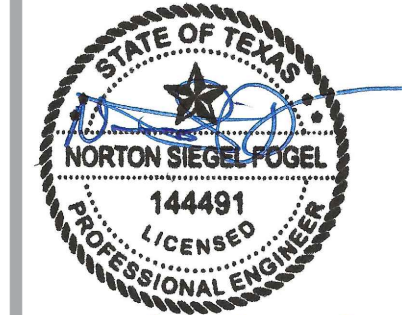
WATER TREATMENT SYSTEM P&ID (3 OF 4)

Sheet No.
P-04

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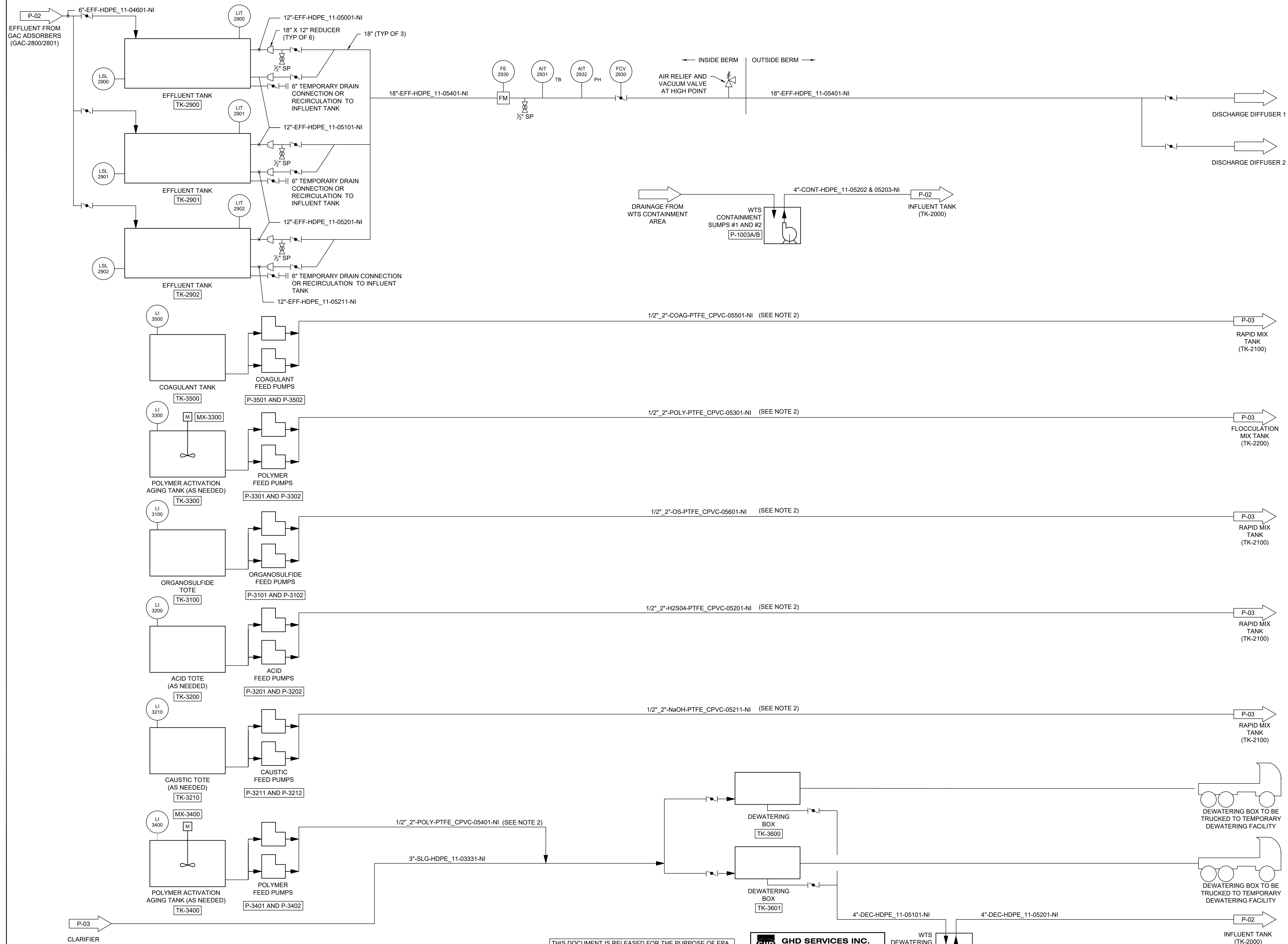


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2. ALL CHEMICAL TUBE SHALL BE INSIDE 2" CPVC CONTAINMENT PIPE.

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100% REMEDIAL DESIGN ADDENDUM

Client
SAN JACINTO RIVER WASTE PITS
Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
9	100% RD ADDENDUM	RS	NF	06/02/2022
8	FOR CLIENT REVIEW	RS	NF	05/06/2022
7	100% EPA RE-SUBMITTAL	MW	NF	04/19/2021
6	100% EPA SUBMITTAL	MW	NF	12/18/2020

Drawn	BP	Designer	KJ
Drafting Check	MW	Design Check	NF
Project Coordinator	CM	Date	Jun 1, 2022

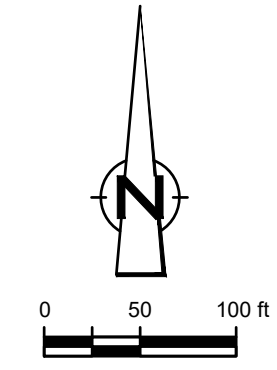
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Project No. 11215131

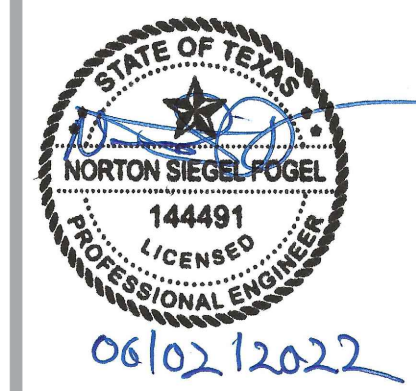
WATER TREATMENT SYSTEM P&ID (4 OF 4)

Sheet No.

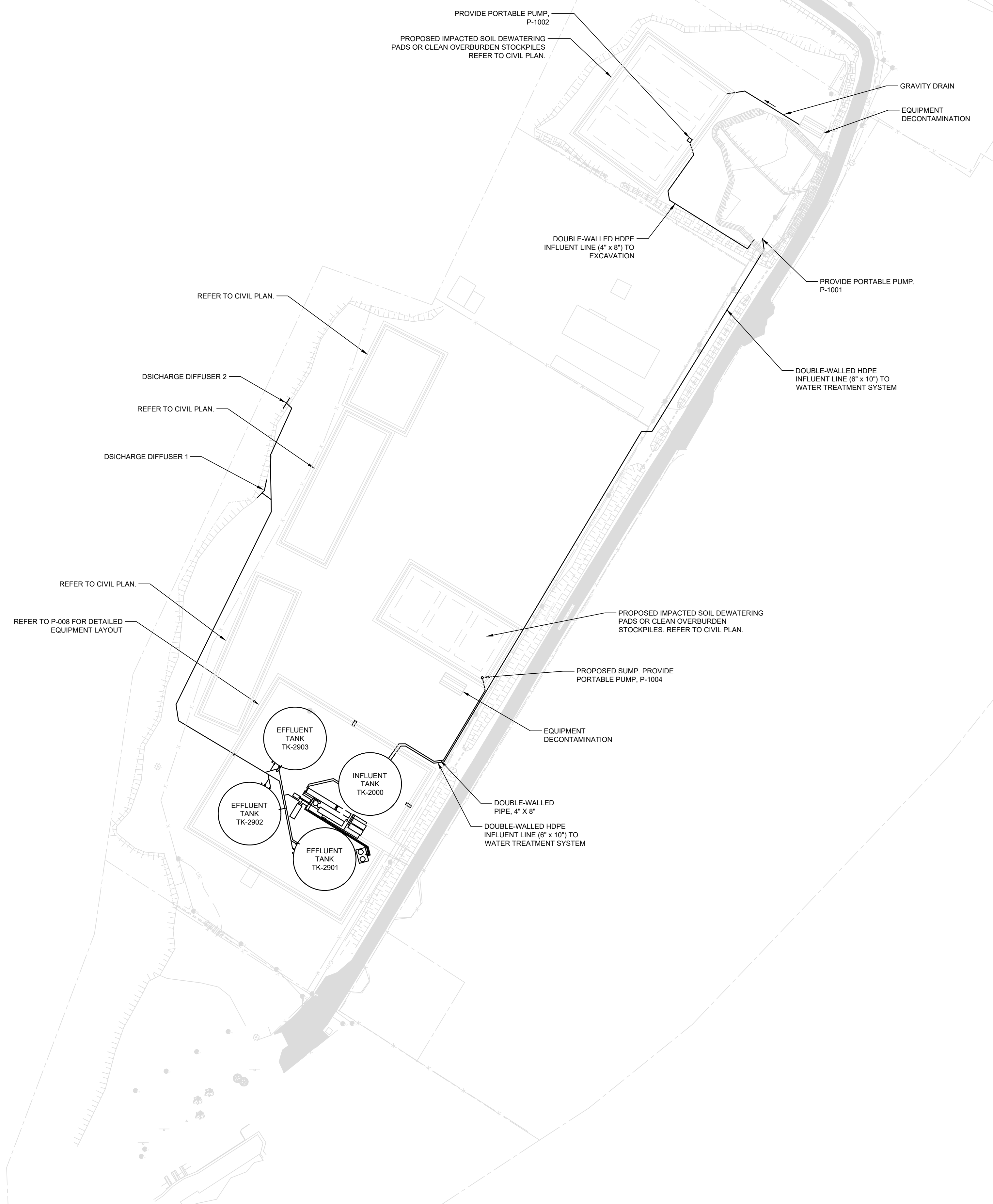
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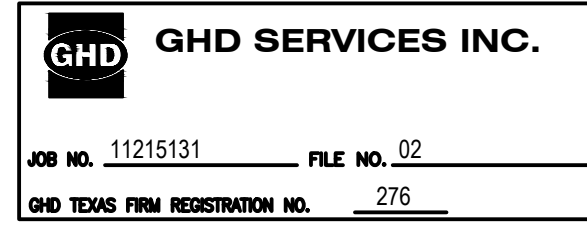
Client
SAN JACINTO RIVER WASTE PITS
 Project
REMEDIATION DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

2	100% RD ADDENDUM	RS	NF	06/02/2022
1	FOR CLIENT REVIEW	RS	NF	05/06/2022
No.	Issue	Drawn	Approved	Date
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Drafting Check	MW	Design Check	NF	
Project Coordinator	CM	Date	Jun 1, 2022	

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 Original Size
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 0 1"

- SHEET GENERAL NOTES:
 1. ALL PIPING OUTSIDE THE WATER TREATMENT BERMED AREA SHALL BE DOUBLE-WALLED HDPE, UNLESS OTHERWISE NOTED.

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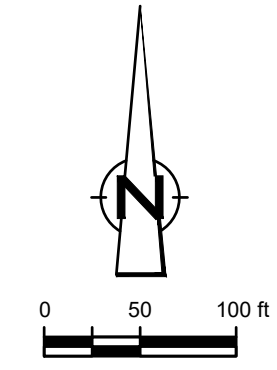


Project No. **11215131**
 Title

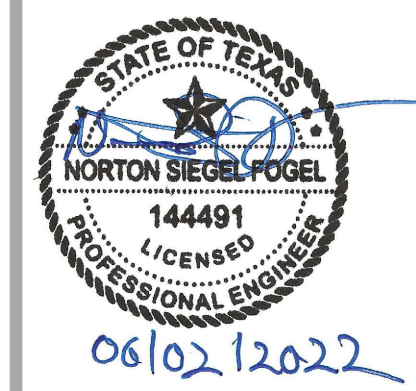
SITE PLAN WATER TREATMENT SYSTEM SEASON 1 - PART 1

Sheet No.

P-06



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REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

2	100% RD ADDENDUM	RS	NF	06/02/2022
1	FOR CLIENT REVIEW	RS	NF	05/06/2022
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Drawn	RS	Designer	NF	
Drafting Check	MW	Design Check	NF	
Project Coordinator	CM	Date	Jun 1, 2022	

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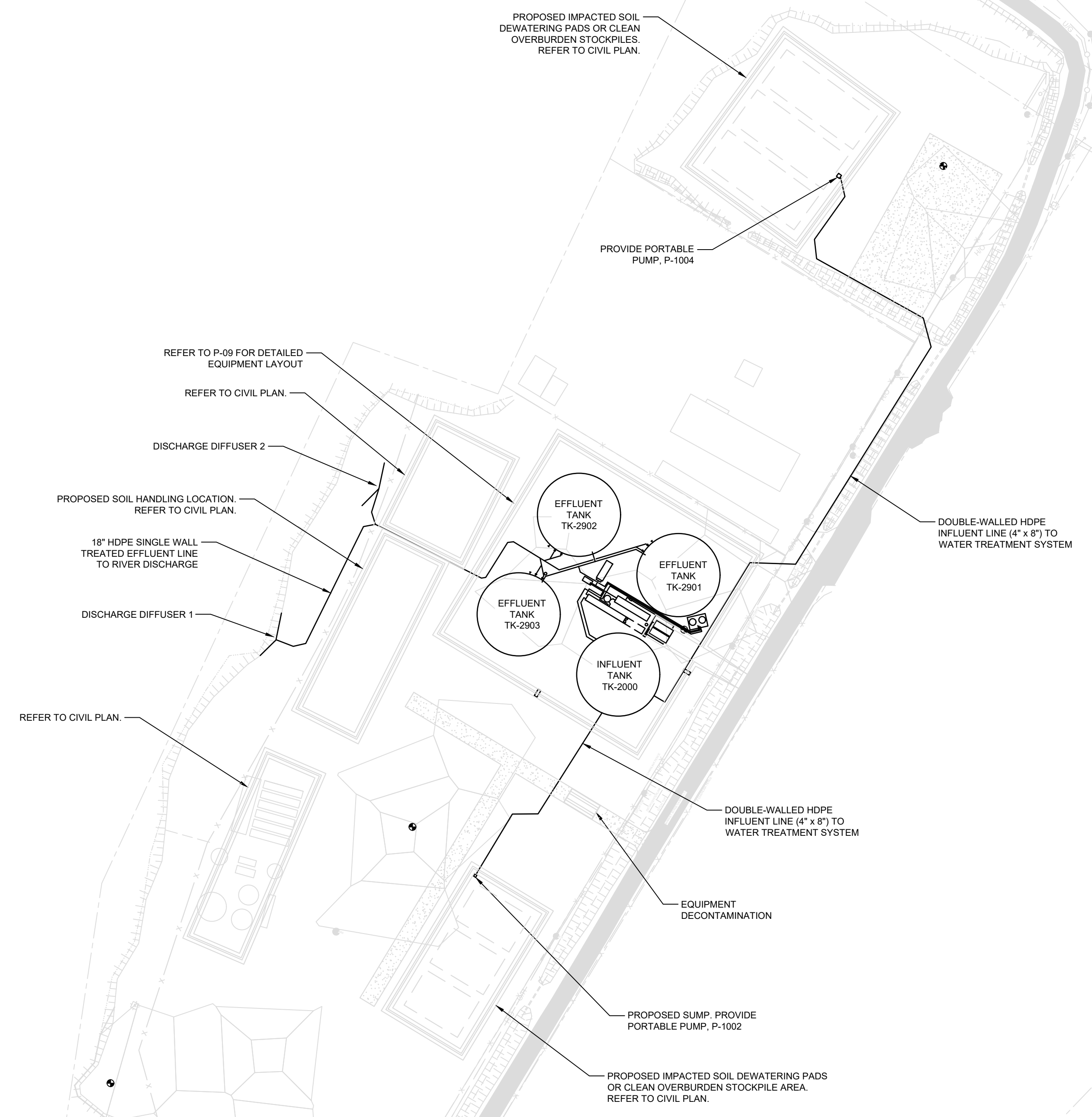
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Title

SITE PLAN WATER TREATMENT SYSTEM SEASON 1 - PART 2 & SEASON 2

Sheet No.

P-07

Sheet 44 of 46



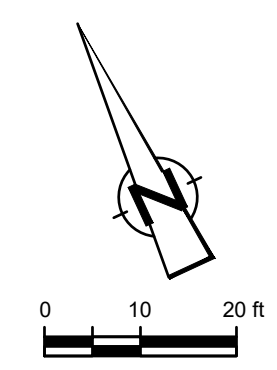
NOTES:

- DIFFUSER LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE BASED ON SITE CONDITIONS.

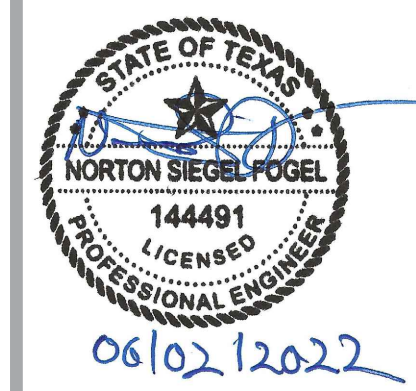
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GHD SERVICES INC.
 JOB NO. 11215131 FILE NO. 02
 GHD TEXAS FIRM REGISTRATION NO. 276

100% REMEDIAL DESIGN ADDENDUM



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Client
SAN JACINTO RIVER WASTE PITS

Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

2	100% RD ADDENDUM	RS	NF	06/02/2022
1	FOR CLIENT REVIEW	RS	NF	05/06/2022
No.	Issue	Drawn	Approved	Date
Drawn	RS	Designer	NF	
Drafting Check	MW	Design Check	NF	
Project Coordinator	CM	Date	Jun 1, 2022	

This document shall not be used for construction unless signed and sealed for construction.
Scale 1" = 20'
Original Size Arch D
Bar is one inch on original size drawing
0 1"

Project No. 11215131
Title

WATER TREATMENT SYSTEM SITE PLAN SEASON 1 - PART 1

Sheet No.

P-08

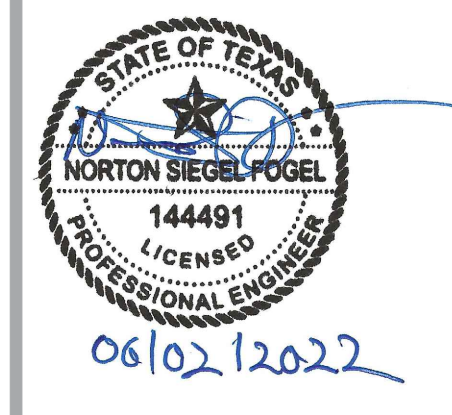
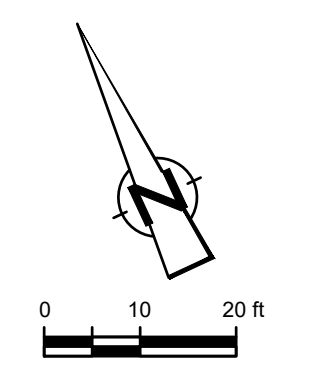


- NOTES:
- EVOQUIA RENTAL SYSTEM, INCLUDING SRS 500 TRAILER, IS SHOWN AS BASIS OF DESIGN BUT ALTERNATIVES MAY BE PROPOSED.
 - CONTAINMENT AREA FLOOR TO SLOPE 1.0% (TYP.) TOWARDS CONTAINMENT AREA SUMPS.
 - PROVIDE MODULAR STAIRWAYS OVER BERM FOR WALKWAY ACCESS.
 - REFER TO P&ID FOR PIPING SIZING. PIPING SHOWN IS BASIC LAYOUT OF SYSTEM. CONTRACTOR TO PROVIDE ALL PIPING REQUIRED FOR COMPLETE AND OPERABLE SYSTEM.

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Client
SAN JACINTO RIVER WASTE PITS
 Project
REMEDIAL DESIGN SOUTHERN IMPOUNDMENT HARRIS COUNTY, TEXAS

No.	Issue	Drawn	Approved	Date
2	100% RD ADDENDUM	RS	NF	06/02/2022
1	FOR CLIENT REVIEW	RS	NF	05/06/2022

Drawn **RS** Designer **NF**
 Drafting Check **MW** Design Check **NF**
 Project Coordinator **CM** Date **Jun 1, 2022**
 Scale **1" = 20'**
 Original Size
Arch D
 Bar is one inch on original size drawing
 0 1"

Project No. **11215131**
 Title

WATER TREATMENT SYSTEM SITE PLAN SEASON 1 - PART 2 & SEASON 2

Sheet No.

P-09

- NOTES:
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